

Final Environmental Impact Statement

Volume II – Responses to Comments

June 2009

Big Stone II Power Plant and Transmission Project



Prepared for:

Lead Agency:
Western Area Power Administration



Cooperating Agency:
U.S. Army Corps of Engineers

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ACRONYMS AND ABBREVIATIONS

af	acre-feet
afy	acre-feet per year
APP	Avian Protection Plan
BA	Biological Assessment
Barr	Barr Engineering Company
BMPs	Best Management Practices
Btu	British thermal unit
CAIR	Clean Air Interstate Rule
CAMR	Clean Air Mercury Rule
CCS	carbon capture and sequestration
CDC	Center for Disease Control
CENR	Committee on Environment and Natural Resources
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CMMPA	Central Minnesota Municipal Power Agency
CO	carbon monoxide
CO ₂	carbon dioxide
CWA	Clean Water Action
DEIS	Draft Environmental Impact Statement
DENR	Department of Environment and Natural Resources
dGPS	Differential global-positioning-system
DM&E	Dakota, Minnesota, and Eastern Railroad
DOE	Department of Energy
Draft EIS	Draft Environmental Impact Statement
DSM	demand-side management
eGRID	Emissions and Generation Resource Integrated Database
EGU	electric generation unit
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EMF	electromagnetic field
EO	Executive Order
EPRI	Electric Power Research Institute
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FLAG	Federal Land Managers' Air Quality Related Values Work Group
FR	Federal Register
GHG	Greenhouse gas
GPS	Global positioning system
HAP	Hazardous air pollutant
HCPD	Heartland Consumers Power District
Hg	Mercury
HHRAP	Human Health Risk Assessment Protocol
IGCC	Integrated Gasification Combined Cycle
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
Joint Commenters	Izaak Walton League of America, Fresh Energy, Union of Concerns Scientists, and Minnesota Center of Environmental Advocacy
kV	kilovolt
kW	kilowatt
lb	pound
LEDPA	Least Environmentally Damage Practicable Alternative
MACT	Maximum Available Control Technology
MAPP	Mid-Continent Area Power Pool
MDU	Montana-Dakota Utilities

ACRONYMS AND ABBREVIATIONS

MISO	Midwest Independent System Operator
MnDNR	Minnesota Department of Natural Resources
MnDOC	Minnesota Department of Commerce
MnDOH	Minnesota Department of Health
MnPUC	Minnesota Public Utilities Commission
MnRES	Minnesota Renewable Energy Society, Inc.
MPCA	Minnesota Pollution Control Agency
MRES	Missouri River Energy Services
MW	megawatts
MWh	megawatt hours
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWR	National Wildlife Refuge
OTP	Otter Tail Power Company
PCBs	polychlorinated biphenyls
PM	particulate matter
PM _{2.5}	particulate matter with aerodynamic diameter less than 2.5 micrometers
PM ₁₀	particulate matter with aerodynamic diameter less than 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	production tax credit
PUC	Public Utility Commission
ROW	rights-of-way
RPS	Renewable portfolio standard
RUS	Rural Utilities Service
SCR	selective catalytic reduction
SDDENR	South Dakota Department of Environment and Natural Resources
SDEIS	Supplemental Draft Environmental Impact Statement
SDGFP	South Dakota Game, Fish and Parks Department
SDPUC	South Dakota Public Utility Commission
SIP	State Implementation Plan
SMMs	Standard Mitigation Measures
SO ₂	sulfur dioxide
SWO	Sisseton-Wahpeton Oyate
TMDL	total maximum daily load
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDOI	U.S. Department of the Interior, Office of Environmental Policy and Compliance
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
WAAS	Wide Area Augmentation System
WAPA	Western Area Power Administration
Western	Western Area Power Administration
Western Fuels	Western Fuels Association
WFGD	Wet Flue Gas Desulfurization
WPA	Waterfowl Production Areas
YMSWCA	Yellow Medicine Soil and Water Conservation District
yr	year

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- Response Paper A Mercury
- Response Paper B Wind and Renewable Energy
- Response Paper C Demand Side Management

RESPONSES TO COMMENTS

Introduction

Western Area Power Administration (Western) issued a Notice of Intent to Prepare a Draft Environmental Impact Statement (EIS) on the construction and operation of the Big Stone II Power Plant and Transmission Line Project (Project), and an announcement of public scoping meetings was published in the Federal Register on May 27, 2005. A corresponding press release announcing that Western was beginning the EIS process for the Project was issued on May 20, 2005.

Western actively sought input and actively solicited from a broad range of public constituencies as part of the ongoing public involvement process. Comments and involvement in planning for, and preparation of, the EIS were generally sought through communication and consultation with a variety of federal, state, and local agencies; Native American Tribes and interest groups; and the formal EIS scoping and comment processes.

Public Comment Period

A Notice of Availability of the Draft EIS was published in the Federal Register on May 23, 2006. A corresponding press release announcing the Draft EIS availability and public hearings was also issued on May 23, 2006. The Draft EIS was mailed to the interested public for review and comment in May 2006. The 45-day review and comment period for the Draft EIS was scheduled to end July 3, 2006, but was extended to July 24, 2006.

During the public comment period, four public hearings were held to receive oral comments on the Draft EIS in: Big Stone City, South Dakota, June 13, 2006; Morris, Minnesota, June 14, 2006; Granite Falls, Minnesota, June 15, 2006; and Benson, Minnesota, June 16, 2006. All written and oral comments received during the comment period were considered in preparing the Final EIS.

A Notice of Availability of the Supplemental Draft EIS was published in the Federal Register on October 26, 2007. A corresponding press release announcing the Supplemental Draft EIS availability and public hearing was issued on November 9, 2007. The Supplemental Draft EIS was mailed to the interested public for review and comment in late October 2007. A public hearing on the Supplemental Draft EIS was held in Milbank, South Dakota on November 13, 2007. The 45-day review and comment period for the Supplemental Draft EIS was scheduled to end December 10, 2007, but was extended to February 28, 2008.

The Final EIS is available for public review at the DOE Reading Rooms and public libraries listed below:

Appleton Public Library, Appleton, Minnesota
Benson Public Library, Benson, Minnesota
Canby Public Library, Canby, Minnesota
Granite Falls Public Library, Granite Falls, Minnesota
Grant County Public Library, Milbank, South Dakota
Kerkhoven Public Library, Kerkhoven, Minnesota

Morris Public Library, Morris, Minnesota
Ortonville Public Library, Ortonville, Minnesota
Watertown Regional Library, Watertown, South Dakota
Willmar Public Library, Willmar, Minnesota
U.S. Department of Energy, Washington, D.C.
Western Area Power Administration, Corporate Services Office, Lakewood, Colorado
Western Area Power Administration, Upper Great Plains Customer Service Region, Huron, South Dakota

All comments received on the Draft EIS and Supplemental Draft EIS were carefully reviewed and considered in preparing the Final EIS. Where appropriate, revisions were made to the Final EIS in response to specific comments. The comments and responses together with the Final EIS will be considered by Western in determining whether or not to approve the interconnection of the proposed Project to Western's transmission system and by the U.S. Army Corps of Engineers in deciding whether or not to issue Section 10 and Section 404 permits for the proposed Project. Decisions will not be made any sooner than the 30-day waiting period announced in the Federal Register by the U.S. Environmental Protection Agency (USEPA) in its Notice of Availability for the Final EIS.

Public comments were received via mail, through the Internet at Western's Web site, by e-mail, and at the public hearings and are reproduced in Volume IV of the EIS. This Volume II of the Final EIS is comprised of comment summaries and responses to those comments.

Comment Numbering Methodology

Document identification numbers were given to each submission (e.g., a letter, e-mail, forms used for public comments, or oral comments given in a single public hearing). The document identification number consists of an alphabetic character to identify the type of entity, followed by a dash, and then a number. The submissions are numbered sequentially from 1 upward to the last comment.

Submissions are presented within the following commenter source categories:

Governmental agencies (F=Federal government, T=Tribal governments, S=State government, L=local government)

Non-governmental organizations (O)

Businesses (B)

Individuals (I)

Form letters (FL)

Public hearings (PH). PH1 (the public hearing at Big Stone City, SD); PH2 (Morris, MN); PH3 (Granite Falls, MN); and PH4 (Benson, MN). For the public hearing held on the Supplemental Draft EIS, submissions are prefaced with SPH.

Next, each category source was assigned a sequential number to differentiate sources within a category. For example, the USEPA submission is F-1 and the U.S. Fish and Wildlife Service submission is F-2.

Finally, each individual comment within a document was bracketed and assigned a lower case alphabetical character, in sequential order. For example, the USEPA's first bracketed comment was assigned F-1a and the second comment in the same submission was assigned as F-1b.

In developing the bracketed comment numbers for public comments to the Supplemental Draft EIS, the naming process was repeated, except that comments submitted in response to the Supplemental Draft EIS are prefaced with the letter “S” prior to the letter and number. For example, the USEPA’s first bracketed comment in response to the Supplemental Draft EIS was assigned SF-1a.

Comment Organization

The comment summaries and responses to comments are organized by major comment categories (e.g., air quality, water resources, land use, alternatives, fossil fuel use, etc.). Several of the major categories are subdivided by topics such as “Climate Change/Greenhouse Gas Emissions” and “Mercury” for the Air Quality category. Topics are further subdivided, such as the “General Concern about Global Warming/Global Climate Change” subcategory under “Climate Change/Greenhouse Gas Emissions” topic. Most comment subcategories contain a table with three columns: (1) a column for the document number, (2) a column displaying the commenter’s name, and (3) a summary of the bracketed comment or the actual quoted comment. Each bracketed comment was assigned to at least one, and often more than one, comment subcategory.

Several comment subcategories required individual responses. In these cases, the table was eliminated as the summary or comment quote is displayed immediately prior to Western’s response.

Acronyms

The list below identifies the acronyms or abbreviations used in the tables for agencies and organizations.

CWA	Clean Water Action
Joint Commenters	Izaak Walton League of America, Fresh Energy, Union of Concerns Scientists, and Minnesota Center of Environmental Advocacy
MnDNR	Minnesota Department of Natural Resources
MnRES	Minnesota Renewable Energy Society, Inc.
MPCA	Minnesota Pollution Control Agency
MRES	Missouri River Energy Services, Inc.
SWO	Sisseton-Wahpeton Oyate
SDDENR	South Dakota Department of Environment and Natural Resources
SDPUC	South Dakota Public Utility Commission
USFWS	U.S. Fish and Wildlife Service
USDOI	U.S. Department of the Interior, Office of Environmental Policy and Compliance
USEPA	U.S. Environmental Protection Agency
YMSWCD	Yellow Medicine Soil and Water Conservation District

Commenters Index

To view a specific comment summary and its associated responses, the reader should consult the following indices to determine the comment number and response subcategory.

Two indices of the public commenters are provided below: (1) the Individuals Index contains all of the comment submissions received from the general public and (2) the Agencies, Organizations, and Tribal Governments Index contains documents received from these types of organizations. Names and organizations are listed alphabetically within each index.

INDIVIDUALS INDEX

Name	Comment No.	Sub-category No.	Comment Sub-category
Almli, John	SFL-2a	2.6	Other Comments Noted Related to Water
Anderson, Scott	SFL-3a	1.2.12 7.1.5	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions Health Concerns from Eating Contaminated Fish
Askelin, Lori	I-1a	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-1b	1.1.6	Economic Impacts due to Global Warming
		1.1.11	Social Impacts due to CO ₂ Emissions
		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		10.1.1	Social Values
	17.1	True Cost of the Project	
	I-1c	7.1.1	Analysis of Public Health Impacts (General)
I-1d	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change	
I-1e	7.1.1	Analysis of Public Health Impacts (General)	
Babin, Robert	SFL-4a	12.3.7	Comments Promoting Renewable Energy and Conservation
Baker, John	PH4-9a	28.0	Other Comments
Bauer, Scott	SI-1a	18.0	Support of Project
Bentzen, Mardi	SFL-58a	2.3.9	Other Comments about Surface Water
Bitz, Margaret	SI-2a	26.0	Requests to Deny the Interconnection
	SI-2b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-2c	12.3.2	Wind is a Better Option
12.3.7		Comments Promoting Renewable Energy and Conservation	
Blonigan, Bill	SFL-5a	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SFL-5b	12.3.7	Comments Promoting Renewable Energy and Conservation
	SFL-5c	2.1.1	Concerns and Objections to Water Use by Proposed Plant
12.3.2		Wind is a Better Option	
		12.3.7	Comments Promoting Renewable Energy and Conservation

Name	Comment No.	Sub-category No.	Comment Sub-category
Boettcher, Margaret	FL-9a	1.3.10	Other Air Quality Comments
		2.3.6	General Comments or Concerns about Surface Water Quality
Braun, Lois	I-2a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		1.2.2	Mercury Emission Reductions or Mitigation
	I-2c	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.5	Cost of Public Health Impacts due to Mercury Emissions
		1.3.3	Air Quality Impacts on Health and Safety
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
	7.1.4	Public Health Impacts and their Costs of Public Health Impacts due to Other Emissions (e.g., SO ₂ , NO _x , PM)	
	I-2d	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
Braun, Lois	SFL-59a	1.1.22	Other Comments noted Related to Climate Change/Greenhouse Gas Emissions
		13.3	Concerns about Coal Use
Brueske, Terry	SFL-33a	18.0	Support of Project
Caldwell, Jayne	SFL-6a	2.6	Other Comments Noted Related to Water
Campbell, Rodney	FL-2a	12.3.7	Comments Promoting Renewable Energy and Conservation
		27.0	Comments Noted by Western
Carleton, George	SFL-34a	28.0	Other Comments
Caso, Patience	FL-3a	12.3.7	Comments Promoting Renewable Energy and Conservation
	FL-3b	1.2.16	Federal and Minnesota Mercury Regulations
		12.3.7	Comments Promoting Renewable Energy and Conservation
FL-3c	12.3.7	Comments Promoting Renewable Energy and Conservation	
Childs, Christopher	PH4-2a	1.2.2	Mercury Emission Reductions or Mitigation
		1.2.15	Federal and Minnesota Mercury Regulations
	PH4-2b	1.2.2	Mercury Emission Reductions or Mitigation
		1.2.2	Mercury Emission Reductions or Mitigation
	PH4-2c	1.2.2	Mercury Emission Reductions or Mitigation
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
	PH4-2d	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	PH4-2e	1.1.1	General Concern about Global Warming/Global Climate Change
PH4-2f	1.1.21	Other General Comments about CO ₂ /Global Warming	
PH4-2g	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change	
PH4-2h	27.0	Comments Noted by Western	
Clower, Katie	SFL-60a	12.3.7	Comments Promoting Renewable Energy and Conservation
	SFL-60b	27.0	Comments Noted by Western
Colehour, Alese	I-3a	12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
Councilman, Dave	SFL-35a	1.1.6	Big Stone II Emissions' Impacts on Global Climate Change

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Name	Comment No.	Sub-category No.	Comment Sub-category
Davison, Keith	I-4a	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.7	Comments Promoting Renewable Energy and Conservation
	I-4b	1.2.15	Federal and Minnesota Mercury Regulations
	I-4c	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
Deal, Steve	SFL-7a	27.0	Comments Noted by Western
Dehmer, Jean	SI-3a	26.0	Requests to Deny the Interconnection
	SI-3b	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SI-3c	27.0	Comments Noted by Western
Dempsey, Dave	SI-4a	26.0	Requests to Deny the Interconnection
	SI-4b	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	SI-4c	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-4d	2.1.1	Concerns and Objections to Water Use by Proposed Plant
		2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
SI-4e	26.0	Requests to Deny the Interconnection	
DenHerder-Thomas, Timothy	FL-4a	12.3.7	Comments Promoting Renewable Energy and Conservation
		22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
	FL-4b	12.3.7	Comments Promoting Renewable Energy and Conservation
	FL-4c	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		13.3	Concerns about Coal Use
	FL-4d	10.1.1	Social Values
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		17.1	True Cost of the Project
	FL-4e	17.1	True Cost of the Project
	FL-4f	1.2.13	Economic Impacts due to Mercury Emissions
		7.1.6	Other Public Health Comments
	FL-4g	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
6.1.2		Recreation	
7.1.5		Health Concerns from Eating Contaminated Fish	
FL-4h	10.1.6	Economic Impacts to Recreation/Tourism	
	1.1.2	Comments on Alternatives Analysis Related to Climate Change	
FL-4i	1.1.16	Impacts of Future Mandatory CO ₂ Regulation	
	12.3.7	Comments Promoting Renewable Energy and Conservation	
Dobervich, Eric	SFL-8a	12.3.7	Comments Promoting Renewable Energy and Conservation
Domeier, Chris	SI-5a	12.3.7	Comments Promoting Renewable Energy and Conservation
		27.0	Comments Noted by Western
	SI-5c	27.0	Comments Noted by Western

Name	Comment No.	Sub-category No.	Comment Sub-category
Donovan, Thomas	SFL-36a	1.1.22	Other Comments noted Related to Climate Change/Greenhouse Gas Emissions
		27.0	Comments Noted by Western
Dooley, Retha	SFL-37a	2.2.10	Other Comments about Groundwater
Dought, Peter	SFL-9a	2.3.6	General Comments or Concerns about Surface Water Quality
		2.6	Other Comments Noted Related to Water
Duea, Joe	SFL-10a	12.3.2	Wind is a Better Option
		12.3.7	Comments Promoting Renewable Energy and Conservation
Erickson, Delor	SFL-11a	27.0	Comments Noted by Western
Erjavec, Joe et al	I-36a	10.1.1	Social Values
		19.0	Requests for the EIS to be Reissued
	I-36b	1.1.6	Economic Impacts due to Global Warming
		1.2.1	Analysis of Mercury Emissions
		17.1	True Cost of the Project
	I-36c	14.1	Co-Owners' Needs
	I-36d	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.8	Demand Side Management
		12.3.9	IGCC and Clean Coal Technologies
	I-36e	1.2.10	Water and Wetland Impacts due to Mercury Emissions
	I-36f	1.2.16	Sources of Mercury
	I-36g	1.2.2	Mercury Emission Reductions or Mitigation
	I-36h	1.2.2	Mercury Emission Reductions or Mitigation
	I-36i	19.0	Requests for the EIS to be Reissued
I-36j	12.3.8	Demand Side Management	
I-36k	27.0	Comments Noted by Western	
Falk, Andrew	PH3-2a	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
	PH3-2b	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
	PH3-2c	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
	PH3-2d	14.2	Export versus Local Power Market
	PH3-2e	28.0	Other Comments
	PH3-2f	27.0	Comments Noted by Western
	PH3-2g	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	PH3-2h	1.1.21	Other General Comments about CO ₂ /Global Warming
	PH3-2i	22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
	PH4-6a	28.0	Other Comments
	PH4-6b	14.1	Co-Owners' Needs
14.2		Export versus Local Power Market	
14.3		Comments Offered on Need for Project	

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Name	Comment No.	Sub-category No.	Comment Sub-category
	PH4-6c	22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
	PH4-6d	22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
	PH4-6e	1.2.1	Analysis of Mercury Emissions
	PH4-6f	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		7.1.5	Health Concerns from Eating Contaminated Fish
	PH4-6g	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.5	Health Concerns from Eating Contaminated Fish
	PH4-6h	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.2	Comments on Alternatives Analysis Related to Climate Change
	PH4-6i	17.3	Impacts due to the Use of Coal
		17.4	Potential for Future CO ₂ Regulation
Falk, Beverly	I-5a	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
Falk, Eva	PH4-4a	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
Falk, Jim	I-6a	1.1.18	CO ₂ Emission Reduction Technology Alternatives
	I-6b	28.0	Other Comments
	I-6c	12.3.7	Comments Promoting Renewable Energy and Conservation
	I-6d	1.2.10	Water and Wetland Impacts due to Mercury Emissions
	I-6e	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	I-6f	12.3.7	Comments Promoting Renewable Energy and Conservation
	PH4-7a	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
		12.3.7	Comments Promoting Renewable Energy and Conservation
	PH4-7b	28.0	Other Comments
	PH4-7c	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	PH4-7d	12.3.2	Wind is a Better Option
	PH4-7e	12.2.2	Areas to Avoid
Falk, Karen	PH4-8a	27.0	Comments Noted by Western
	PH4-8b	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		2.3.6	General Comments or Concerns about Surface Water Quality
		7.1.5	Health Concerns from Eating Contaminated Fish
	PH4-8c	27.0	Comments Noted by Western
Falk, Wendell	I-7a	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	I-7b	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		2.3.6	General Comments or Concerns about Surface Water Quality
	I-7c	12.3.7	Comments Promoting Renewable Energy and Conservation

Name	Comment No.	Sub-category No.	Comment Sub-category
Feuerstein, Rhonda	SFL-12a	12.3.2	Wind is a Better Option
	SFL-12b	12.3.2	Wind is a Better Option
		12.3.7	Comments Promoting Renewable Energy and Conservation
Foss, Joe	I-8a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		13.3	Concerns about Coal Use
	I-8b	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		1.3.10	Other Air Quality Comments
	I-8c	12.3.7	Comments Promoting Renewable Energy and Conservation
	I-8d	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-8e	1.3.3	Air Quality Impacts on Health and Safety
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		7.1.4	Public Health Impacts and their Costs of Public Health Impacts due to Other Emissions (e.g., SO ₂ , NO _x , PM)
	I-8f	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	I-8g	1.2.2	Mercury Emission Reductions or Mitigation
	I-8h	1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)
	I-8i	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	I-8j	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	I-8k	1.1.1	General Concern about Global Warming/Global Climate Change
	I-8l	1.1.1	General Concern about Global Warming/Global Climate Change
I-8m	12.3.7	Comments Promoting Renewable Energy and Conservation	
I-8n	12.3.7	Comments Promoting Renewable Energy and Conservation	
	12.3.8	Demand Side Management	
I-8o	12.3.7	Comments Promoting Renewable Energy and Conservation	
Gaitan, Sergio	I-9a	1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)
	I-9b	12.3.7	Comments Promoting Renewable Energy and Conservation
	I-9c	1.1.9	Public Health Impacts due to Global Climate Change
		1.1.12	Air Quality Impacts due to CO ₂
		1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
1.2.5		Cost of Public Health Impacts due to Mercury Emissions	
1.2.12		Fish and Aquatic Ecosystem Impacts due to Mercury Emissions	
I-9c	1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions	
	7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions	

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Name	Comment No.	Sub-category No.	Comment Sub-category
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)
	I-9d	12.3.2	Wind is a Better Option
	I-9e	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		17.1	True Cost of the Project
		17.4	Potential for Future CO ₂ Regulation
	I-9f	28.0	Other Comments
Gaylord, Helmbrecht	FL-5a	1.3.7	Water Quality Impacts due to Air Emissions
Granger, Susan	I-10a	1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		6.1.2	Recreation
	I-10b	1.2.15	Federal and Minnesota Mercury Regulations
	I-10c	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	SI-6a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
		26.0	Requests to Deny the Interconnection
	SI-6b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-6c	2.3.9	Other Comments about Surface Water
		4.9.3	General Concerns about Impacts to Wetlands
		27.0	Comments Noted by Western
	SI-6d	2.3.9	Other Comments about Surface Water
		4.9.3	General Concerns about Impacts to Wetlands
		27.0	Comments Noted by Western
	SI-6e	10.1.4	Regional Economics
	SI-6f	2.3.6	General Comments or Concerns about Surface Water Quality
		12.3.7	Comments Promoting Renewable Energy and Conservation
	SI-6g	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-6h	27.0	Comments Noted by Western
Graziano, Judith	SFL-13a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
Greene, Merle	I-11a	12.3.7	Comments Promoting Renewable Energy and Conservation
	I-11b	1.1.10	Cost of Public Health Impacts due to Global Climate Change
		1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.5	Cost of Public Health Impacts due to Mercury Emissions
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)

Name	Comment No.	Sub-category No.	Comment Sub-category
		17.1	True Cost of the Project
	I-11c	1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
	I-11d	1.1.21	Other General Comments about CO ₂ /Global Warming
Handlin, Michelle	PH2-4a	17.3	Impacts due to the Use of Coal
	PH2-4b	12.3.7	Comments Promoting Renewable Energy and Conservation
Hanson, Clyde	SFL-38a	27.0	Comments Noted by Western
Harding, Ian	SFL-39a	1.3.3	Air Quality Impacts on Health and Safety
		7.1.2	General Project-Related Concerns about Health
Harkness, John	SI-21a	1.1.22	Other Comments noted Related to Climate Change/Greenhouse Gas Emissions
	SI-21b	1.1.6	Big Stone II Emissions' Impacts on Global Climate Change
	SI-21c	13.3	Concerns about Coal Use
	SI-21d	1.1.22	Other Comments noted Related to Climate Change/Greenhouse Gas Emissions
	SI-21e	27.0	Comments Noted by Western
	SI-21f	28.0	Other Comments
Harp, Maggy	SPH-2a	25.0	Native American Concerns
	SPH-2b	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SPH-2c	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
Harrison, Jo	SFL-40a	27.0	Comments Noted by Western
Hauge, Earl	PH2-3a	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	PH2-3b	12.3.7	Comments Promoting Renewable Energy and Conservation
	PH2-3c	12.3.7	Comments Promoting Renewable Energy and Conservation
	PH2-3d	12.3.2	Wind is a Better Option
	PH2-3e	1.1.21	Other General Comments about CO ₂ /Global Warming
Hazen, Jeffrey	SFL-41a	12.3.7	Comments Promoting Renewable Energy and Conservation
Hesser, Clay	SI-22a	12.3.1	General Comments about Alternatives to Coal-Based Generation
Hillenbrand, Thomas A.	I-12a	1.3.8	Coal Plants Cause Pollution
	I-12b	7.1.2	General Project-Related Concerns about Health
		14.1	Co-Owners' Needs
	I-12c	1.1.9	Public Health Impacts due to Global Climate Change
		1.2.3	Public Health Impacts due to Mercury Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
	I-12d	12.3.7	Comments Promoting Renewable Energy and Conservation

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Name	Comment No.	Sub-category No.	Comment Sub-category
Holt, Izaak	PH3-3a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
	PH3-3b	27.0	Comments Noted by Western
	PH3-3c	1.1.1	General Concern about Global Warming/Global Climate Change
Holm, Mary	SFL-42a	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		12.3.7	Comments Promoting Renewable Energy and Conservation
Homan, Mary	SFL-61a	27.0	Comments Noted by Western
Indermaur, Kurt	SFL-43a	1.3.11	Other Comments Noted Related to Air
		12.3.2	Wind is a Better Option
		12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
		12.3.7	Comments Promoting Renewable Energy and Conservation
Iverson, Terry	SFL-44a	12.3.2	Wind is a Better Option
		12.3.7	Comments Promoting Renewable Energy and Conservation
Jackson, Steve	PH1-6a	24.0	Requests for Extension
	PH1-6b	25.0	Native American Concerns
Jansen, Julie	PH3-6a	1.2.2	Mercury Emission Reductions or Mitigation
		1.2.1	Analysis of Mercury Emissions
		1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.5	Cost of Public Health Impacts due to Mercury Emissions
		1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.5	Health Concerns from Eating Contaminated Fish
			PH3-6c
	PH3-6d	24.0	Requests for Extension
Johnson, Gary	PH3-9a	18.0	Support of Project
		12.2.2	Areas to Avoid
		12.2.6	Other Transmission Comments
		6.2.1	Farming Issues Related to Location of Transmission Structures
			12.2.1
PH3-9e	18.0	Support of Project	
Johnson, Lee	FL-10a	27.0	Comments Noted by Western
		1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
			1.3.3
FL-10c	12.3.7	Comments Promoting Renewable Energy and Conservation	

Name	Comment No.	Sub-category No.	Comment Sub-category	
Johnson, Patrick	I-13a	7.1.2	General Project-Related Concerns about Health	
	I-13b	13.3	Concerns about Coal Use	
	I-13c	12.3.7	Comments Promoting Renewable Energy and Conservation	
Johnson, Shirley	SFL-62a	12.3.2	Wind is a Better Option	
Johnson, Susan	SFL-45a	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions	
		1.2.13	Economic Impacts due to Mercury Emissions	
		2.3.9	Other Comments about Surface Water	
		7.1.5	Health Concerns from Eating Contaminated Fish	
		12.3.2	Wind is a Better Option	
	12.3.7	Comments Promoting Renewable Energy and Conservation		
	SFL-45b	1.2.3	Public Health Impacts due to Mercury Emissions	
Joplin, Glenn	I-14a	12.3.1	General Comments about Alternatives to Coal-Based Generation	
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies	
		14.3	Comments Offered on Need for Project	
	I-14b	27.0	Comments Noted by Western	
Kearns, Cesia	PH4-1a	28.0	Other Comments	
	PH4-1b	1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)	
			1.2.1	Analysis of Mercury Emissions
			1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
	PH4-1c	1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)	
			17.3	Impacts due to the Use of Coal
	PH4-1d	1.2.3	Public Health Impacts due to Mercury Emissions	
			1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
1.2.18			Concerns and Opposition to Proposed Project due to Mercury Emissions	
1.3.3			Air Quality Impacts on Health and Safety	
1.3.4			Public Health Impacts/Cost of Public Health Impacts due to Other Emissions	
7.1.3			Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions	
PH4-1e	7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)		
		7.1.5	Health Concerns from Eating Contaminated Fish	
Keeler, Liz	SFL-46a	12.3.1	General Comments about Alternatives to Coal-Based Generation	
	SFL-46b	12.3.7	Comments Promoting Renewable Energy and Conservation	
Kelly, Scott	I-15a	1.2.10	Water and Wetland Impacts due to Mercury Emissions	
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions	
	I-15b	12.3.7	Comments Promoting Renewable Energy and Conservation	

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Name	Comment No.	Sub-category No.	Comment Sub-category
Kelzenberg, Michaelleen	SI-7a	26.0	Requests to Deny the Interconnection
	SI-7b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-7c	26.0	Requests to Deny the Interconnection
	SI-7d	2.5	Other Water Comments
		4.9.3	General Concerns about Impacts to Wetlands
	SI-7e	1.1.1	General Concern about Global Warming/Global Climate Change
	SI-7f	1.2.2	Mercury Emission Reductions or Mitigation
		1.3.5	Reducing Air Emissions through Other Technologies
SI-7g	2.6	Other Comments Noted Related to Water	
Kennedy, Pete	I-16a	14.1	Co-Owners' Needs
		14.2	Export versus Local Power Market
	I-16b	14.1	Co-Owners' Needs
	I-16c	14.2	Export versus Local Power Market
	I-16d	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
I-16e	14.1	Co-Owners' Needs	
Kirsch, Gary	SFL-47a	28.0	Other Comments
Koster, Jeanne	I-17a	12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
		12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
	I-17b	28.0	Other Comments
	I-17c	14.1	Co-Owners' Needs
	I-17d	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
	I-17e	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
	I-17f	12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
	I-17g	1.2.3	Public Health Impacts due to Mercury Emissions
		7.1.1	Analysis of Public Health Impacts (General)
	I-17h	1.2.15	Federal and Minnesota Mercury Regulations
	I-17i	1.2.2	Mercury Emission Reductions or Mitigation
	I-17j	1.2.1	Analysis of Mercury Emissions
		1.2.2	Mercury Emission Reductions or Mitigation
		1.2.3	Public Health Impacts due to Mercury Emissions
7.1.6		Other Public Health Comments	
I-17k	19.0	Requests for the EIS to be Reissued	
I-17l	12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies	
I-17m	12.3.1	General Comments about Alternatives to Coal-Based Generation	
I-17n	12.3.8	Demand Side Management	

Name	Comment No.	Sub-category No.	Comment Sub-category
	I-17o	12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
		12.3.8	Demand Side Management
	PH1-5a	1.2.17	Commitment to Reducing Mercury Emissions
	PH1-5b	1.2.15	Federal and Minnesota Mercury Regulations
	PH1-5c	1.2.2	Mercury Emission Reductions or Mitigation
	PH1-5d	1.2.2	Mercury Emission Reductions or Mitigation
	PH1-5e	28.0	Other Comments
	PH1-5f	1.2.15	Federal and Minnesota Mercury Regulations
Krause, Daniel and Ruth	I-18a	2.1.3	Inability to Operate Big Stone I/Big Stone II during Drought
		2.1.5	Support for Change in Water Supply
	I-18b	7.2	Hazardous Materials and Waste Management
	I-18c	1.1.19	Mitigation
	I-18d	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
Krebs, Colleen	SFL-48a	2.6	Other Comments Noted Related to Water
		27.0	Comments Noted by Western
Kroeger, Amelia	SFL-14a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		2.3.9	Other Comments about Surface Water
Kroger, Richard	I-19a	19.0	Requests for the EIS to be Reissued
	I-19b	1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
	I-19c	1.2.16	Sources of Mercury
	I-19d	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-19e	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		1.3.8	Coal Plants Cause Pollution
	I-19f	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	I-19g	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-19h	1.1.19	Mitigation
	I-19i	17.3	Impacts due to the Use of Coal
I-19j	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change	
	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions	
I-19k	27.0	Comments Noted by Western	
Kuchenreuther, Margaret	PH2-5a	24.0	Requests for Extension
Labatte, Michael	PH1-3a	24.0	Requests for Extension
LaChappelle, Carmen	SFL-15a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SFL-15b	2.6	Other Comments Noted Related to Water

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Name	Comment No.	Sub-category No.	Comment Sub-category
		4.6	Wildlife Impacts
	SFL-15c	27.0	Comments Noted by Western
Lanners, Gil	I-20a	6.1.1	Easement Compensation and Loss of Farming Revenue
	I-20b	6.1.1	Easement Compensation and Loss of Farming Revenue
	I-20c	6.2.2	Electrical Interference
	I-20d	6.2.1	Farming Issues Related to Location of Transmission Structures
	I-20e	4.11	Other Biological Resources Comments
	I-20f	12.2.2	Areas to Avoid
	I-20g	12.2.2	Areas to Avoid
		12.2.3	Transmission Design
	I-20h	12.2.3	Transmission Design
	I-20i	6.2.1	Farming Issues Related to Location of Transmission Structures
		12.2.3	Transmission Design
	I-20j	6.1.1	Easement Compensation and Loss of Farming Revenue
	I-20k	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	I-20l	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	I-20m	4.6	Wildlife Impacts
		4.7	Wildlife Impacts due to Electric and Magnetic Fields
	I-20n	6.2.2	Electrical Interference
	I-20o	6.1.1	Easement Compensation and Loss of Farming Revenue
		6.2.1	Farming Issues Related to Location of Transmission Structures
		6.2.3	Underground Transmission
		12.2.6	Other Transmission Comments
	I-20p	6.2.2	Electrical Interference
		12.2.1	Corridor or Route Preference
	I-20q	6.2.2	Electrical Interference
	I-20r	6.2.1	Farming Issues Related to Location of Transmission Structures
	I-20s	6.2.2	Electrical Interference
	I-20t	6.2.2	Electrical Interference
	I-20u	4.7	Wildlife Impacts due to Electric and Magnetic Fields
		4.8	Avian Species Impacts, including Raptors and Bald Eagles
	I-20v	7.1.6	Other Public Health Comments
	I-20w	8.0	Visual Resources
		10.1.3	Land Values
	I-20x	10.1.4	Regional Economics
		28.0	Other Comments
	I-20y	12.2.1	Corridor or Route Preference
		27.0	Comments Noted by Western
	I-20z	6.2.1	Farming Issues Related to Location of Transmission Structures

Name	Comment No.	Sub-category No.	Comment Sub-category
		12.2.1	Corridor or Route Preference
Laughlin, Katie	PH3-4a	17.1	True Cost of the Project
	PH3-4b	1.2.13	Economic Impacts due to Mercury Emissions
		1.3.6	Air Quality Costs to Health and the Environment
		4.5	Indirect Effects of Vegetation and Wildlife Loss
		7.1.6	Other Public Health Comments
		17.1	True Cost of the Project
	PH3-4c	13.2	Coal Supply Impacts
		17.3	Impacts due to the Use of Coal
	PH3-4d	17.1	True Cost of the Project
	PH3-4e	12.3.7	Comments Promoting Renewable Energy and Conservation
17.1		True Cost of the Project	
PH3-4f	17.1	True Cost of the Project	
Livesay, Corinne	FL-11a	12.3.7	Comments Promoting Renewable Energy and Conservation
	SFL-49a	1.1.1	General Concern about Global Warming/Global Climate Change
		12.3.7	Comments Promoting Renewable Energy and Conservation
Louks, Ron	PH1-1a	14.1	Co-Owners' Needs
	PH1-1b	14.1	Co-Owners' Needs
Lysne, Mary	SFL-63a	2.6	Other Comments Noted Related to Water
		27.0	Comments Noted by Western
Maas, Jeffrey	SFL-16a	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
Makepeace, Joe	SI-8a	1.1.21	Other General Comments about CO ₂ /Global Warming
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		1.3.11	Other Comments Noted Related to Air
	SI-8b	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		2.5	Other Water Comments
		3.1	Soil
		6.1.2	Recreation
	SI-8c	12.3.2	Wind is a Better Option
		12.3.7	Comments Promoting Renewable Energy and Conservation
	SI-8d	1.1.21	Other General Comments about CO ₂ /Global Warming
1.2.18		Concerns and Opposition to Proposed Project due to Mercury Emissions	
SI-8e	26.0	Requests to Deny the Interconnection	
SI-8f	1.1.21	Other General Comments about CO ₂ /Global Warming	
	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions	
Makepeace, Terry	I-21a	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		1.3.3	Air Quality Impacts on Health and Safety

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Name	Comment No.	Sub-category No.	Comment Sub-category
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		1.3.10	Other Air Quality Comments
		7.1.1	Analysis of Public Health Impacts (General)
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)
		7.2	Hazardous Materials and Waste Management
	I-21b	1.2.11	Vegetation and Wildlife Impacts due to Mercury Emissions
		4.3	Impacts to Vegetation and Wildlife due to Mercury Emissions
		7.1.6	Other Public Health Comments
	I-21c	12.3.7	Comments Promoting Renewable Energy and Conservation
	I-21d	7.1.6	Other Public Health Comments
	I-21e	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
Mamer, Ellen	I-22a	7.1.1	Analysis of Public Health Impacts (General)
	I-22b	12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
	I-22c	1.1.12	Air Quality Impacts due to CO ₂
	I-22d	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	I-22e	13.2	Coal Supply Impacts
	I-22f	27.0	Comments Noted by Western
Markus, Duane	SI-9a	18.0	Support of Project
Marran, Christine	SI-10a	26.0	Requests to Deny the Interconnection
	SI-10b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-10c	2.3.3	Surface Water Use Impacts to Fisheries and Aquatic Ecosystems
		4.6	Wildlife Impacts
	SI-10d	27.0	Comments Noted by Western
McIntyre, Carson	SI-11a	18.0	Support of Project
McKay, Deb	SFL-50a	27.0	Comments Noted by Western
Miller, Adam	SI-12a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-12b	4.6	Wildlife Impacts
Miller, Ann Galbraith	SFL-17a	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
Miller, Delores	PH1-4a	1.2.3	Public Health Impacts due to Mercury Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
	PH1-4b	13.1	Coal Supply
		17.3	Impacts due to the Use of Coal
	PH1-4c	1.3.5	Reducing Air Emissions through Other Technologies
	PH1-4d	12.3.2	Wind is a Better Option

Name	Comment No.	Sub-category No.	Comment Sub-category
	PH3-7a	13.1	Coal Supply
		17.2	Comparison of Cost with Renewable Energy Sources
		17.3	Impacts due to the Use of Coal
	PH3-7b	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	PH3-7c	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	PH3-7d	27.0	Comments Noted by Western
	PH3-7e	1.2.1	Analysis of Mercury Emissions
		1.2.3	Public Health Impacts due to Mercury Emissions
		7.1.2	General Project-Related Concerns about Health
	PH3-7f	1.2.2	Mercury Emission Reductions or Mitigation
		12.3.7	Comments Promoting Renewable Energy and Conservation
Miller, Stacy	I-23a	12.3.1	General Comments about Alternatives to Coal-Based Generation
		14.3	Comments Offered on Need for Project
	I-23b	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-23c	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.14	Bush Administration's Goals for Emission Reduction
	I-23d	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-23e	1.1.11	Social Impacts due to CO ₂ Emissions
		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		10.1.1	Social Values
12.3.4		Analysis of Wind and Other Renewable Energy Technologies	
Moore, James	SFL-18a	27.0	Comments Noted by Western
Moore, Patrick	PH3-8a	4.6	Wildlife Impacts
	PH3-8b	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	PH3-8c	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	PH3-8d	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	PH3-8e	1.2.11	Vegetation and Wildlife Impacts due to Mercury Emissions
		4.3	Impacts to Vegetation and Wildlife due to Mercury Emissions
	PH3-8f	4.10.2	Vegetation Mitigation Measures
	PH3-8g	4.4	Impacts to Special Status Species
	PH3-8h	4.1	Habitat Loss
SFL-19a	28.0	Other Comments	
Morello, Phyl	SFL-51a	12.3.7	Comments Promoting Renewable Energy and Conservation
Mueller, Shirley	SFL-20a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
Neiman, Tom	SI-13a	26.0	Requests to Deny the Interconnection
	SI-13b	13.3	Concerns about Coal Use

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Name	Comment No.	Sub-category No.	Comment Sub-category
	SI-13c	12.3.1	General Comments about Alternatives to Coal-Based Generation
	SI-13d	12.3.7	Comments Promoting Renewable Energy and Conservation
	SI-13e	1.1.12	Air Quality Impacts due to CO ₂
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		1.3.11	Other Comments Noted Related to Air
Nester, Julie	SFL-52a	12.3.2	Wind is a Better Option
		12.3.7	Comments Promoting Renewable Energy and Conservation
	SFL-52b	27.0	Comments Noted by Western
Newmark, Richard	SFL-64a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	SFL-64b	12.3.7	Comments Promoting Renewable Energy and Conservation
	SFL-64c	1.1.22	Other Comments noted Related to Climate Change/Greenhouse Gas Emissions
		27.0	Comments Noted by Western
Ninneman, Duane	PH3-5a	1.2.1	Analysis of Mercury Emissions
	PH3-5b	1.2.1	Analysis of Mercury Emissions
	PH3-5c	1.2.16	Sources of Mercury
	PH3-5d	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	PH3-5e	1.2.15	Federal and Minnesota Mercury Regulations
	PH3-5f	22.0	Proposed Plant is not Considering Minnesota Environmental Laws
	PH3-5g	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.7	Comments Promoting Renewable Energy and Conservation
	PH3-5h	6.1.2	Recreation
		27.0	Comments Noted by Western
	PH3-5i	12.3.7	Comments Promoting Renewable Energy and Conservation
	PH3-10a	1.2.1	Analysis of Mercury Emissions
	PH3-10b	1.2.1	Analysis of Mercury Emissions
	PH3-10c	1.2.16	Sources of Mercury
	PH3-10d	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	PH3-10e	1.2.15	Federal and Minnesota Mercury Regulations
		22.0	Proposed Plant is not Considering Minnesota Environmental Laws
	PH3-10f	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.7	Comments Promoting Renewable Energy and Conservation
	PH3-10g	6.1.2	Recreation
		27.0	Comments Noted by Western
	PH3-10h	12.3.7	Comments Promoting Renewable Energy and Conservation
	PH3-10i	12.3.2	Wind is a Better Option
		12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
		12.3.7	Comments Promoting Renewable Energy and Conservation

Name	Comment No.	Sub-category No.	Comment Sub-category
Nuechterlein, Gary	SFL-65a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SFL-65b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SFL-65c	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
Nordberg, Rod	SFL-21a	12.3.7	Comments Promoting Renewable Energy and Conservation
Noy, Brian	SFL-22a	27.0	Comments Noted by Western
O'Brien, Julie	SFL-23a	2.6	Other Comments Noted Related to Water
		27.0	Comments Noted by Western
O'Leary, Margaret	SFL-24a	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
		2.3.6	General Comments or Concerns about Surface Water Quality
Orrick, Becca	I-24a	1.3.3	Air Quality Impacts on Health and Safety
	I-24b	12.3.7	Comments Promoting Renewable Energy and Conservation
Ottman, Dick	SFL-53a	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
Overland, Carol	I-25a	7.1.6	Other Public Health Comments
Perrine, Elsie	I-26a	13.3	Concerns about Coal Use
	I-26b	12.1	Proposed Plant Site
		14.1	Co-Owners' Needs
	I-26c	1.1.2	Comments on Alternatives Analysis Related to Climate Change
		1.1.18	CO ₂ Emission Reduction Technology Alternatives
	I-26d	12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
	I-26e	12.3.9	IGCC and Clean Coal Technologies
I-26f	14.1	Co-Owners' Needs	
I-26g	27.0	Comments Noted by Western	
Peterson, Bob	SFL-54a	1.2.3	Public Health Impacts due to Mercury Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
Profant, Carmine	SFL-66a	12.3.1	General Comments about Alternatives to Coal-Based Generation
	SFL-66b	4.6	Wildlife Impacts
		7.1.6	Other Public Health Comments
Prokott, Tony	FL-12a	12.1	Proposed Plant Site
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.8	Demand Side Management
	FL-12b	17.4	Potential for Future CO ₂ Regulation
Proulx, Mary Ellen	SFL-25a	2.3.2	Surface Water Use Impacts on Recreation
	SFL-25b	12.3.2	Wind is a Better Option
Rasmussen-Myers, Traci	SI-14a	12.3.7	Comments Promoting Renewable Energy and Conservation
	SI-14b	2.6	Other Comments Noted Related to Water

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Name	Comment No.	Sub-category No.	Comment Sub-category
	SI-14c	2.6	Other Comments Noted Related to Water
	SI-14d	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-14e	26.0	Requests to Deny the Interconnection
	SI-14f	2.1.1	Concerns and Objections to Water Use by Proposed Plant
Raymond, Deborah	SFL-26a	2.6	Other Comments Noted Related to Water
		27.0	Comments Noted by Western
Redlin, Erin Jordahl	PH4-5a	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	PH4-5b	1.2.15	Federal and Minnesota Mercury Regulations
	PH4-5c	1.2.15	Federal and Minnesota Mercury Regulations
	PH4-5d	1.2.2	Mercury Emission Reductions or Mitigation
	PH4-5e	1.2.17	Commitment to Reducing Mercury Emissions
	PH4-5f	1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		1.1.17	Costs To Ratepayers Associated With CO ₂ Regulation
	PH4-5g	1.1.16	Impacts of Future Mandatory CO ₂ Regulation
	PH4-5h	1.1.18	CO ₂ Emission Reduction Technology Alternatives
		12.3.2	Wind is a Better Option
Refsland, Mike	FL-13a	27.0	Comments Noted by Western
Reindl, Leslie	SI-15a	27.0	Comments Noted by Western
	SI-15b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-15c	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	SI-15d	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SI-15e	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SI-15f	26.0	Requests to Deny the Interconnection
Ritchie, Lynn	SFL-55a	27.0	Comments Noted by Western
Rogers, Beth	SI-16a	26.0	Requests to Deny the Interconnection
	SI-16b	13.3	Concerns about Coal Use
	SI-16c	2.6	Other Comments Noted Related to Water
Russell, Trever	SFL-27a	26.0	Requests to Deny the Interconnection
		27.0	Comments Noted by Western
Sabin, Julie	FL-6a	10.1.4	Regional Economics
		27.0	Comments Noted by Western
Sens, John	SI-23a	12.3.1	General Comments about Alternatives to Coal-Based Generation
	SI-23b	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		7.1.2	General Project-Related Concerns about Health
		12.3.1	General Comments about Alternatives to Coal-Based Generation

Name	Comment No.	Sub-category No.	Comment Sub-category
		13.3	Concerns about Coal Use
	SI-23c	17.1	True Cost of the Project
	SI-23d	27.0	Comments Noted by Western
Shores, Ellen	SFL-67a	27.0	Comments Noted by Western
Simpson, Dustin	SFL-28a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SFL-28b	12.3.7	Comments Promoting Renewable Energy and Conservation
Smith, Elizabeth	I-27a	7.1.2	General Project-Related Concerns about Health
	I-27b	12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
	I-27c	12.3.7	Comments Promoting Renewable Energy and Conservation
	I-27d	1.1.17	Costs To Ratepayers Associated With CO ₂ Regulation
		1.2.13	Economic Impacts due to Mercury Emissions
	I-27e	19.0	Requests for the EIS to be Reissued
Smith, Roy	I-28a	1.1.6	Economic Impacts due to Global Warming
		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
		1.3.3	Air Quality Impacts on Health and Safety
		1.3.6	Air Quality Costs to Health and the Environment
		1.3.10	Other Air Quality Comments
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)
	I-28b	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	I-28c	4.9.2	Wetlands Impact Analysis for Transmission Lines
		4.10.3	Wetland Mitigation Measures
	I-28d	1.1.16	Impacts of Future Mandatory CO ₂ Regulation
	I-28e	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.5	Cost of Public Health Impacts due to Mercury Emissions
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)
		10.1.1	Social Values
	I-28f	1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
	I-28g	1.1.14	Bush Administration's Goals for Emission Reduction
	I-28h	7.1.1	Analysis of Public Health Impacts (General)

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Name	Comment No.	Sub-category No.	Comment Sub-category
Stancevic, Aleksandra	SI-24a	13.3	Concerns about Coal Use
	SI-24b	12.3.1	General Comments about Alternatives to Coal-Based Generation
Standing Eagle, Carol Eastman	PH1-8a	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	PH1-8b	12.3.7	Comments Promoting Renewable Energy and Conservation
	PH1-8c	2.3.6	General Comments or Concerns about Surface Water Quality
	PH1-8d	2.3.6	General Comments or Concerns about Surface Water Quality
Starr, David	SFL-68a	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
Staub, Dave	SI-17a	1.1.1	General Concern about Global Warming/Global Climate Change
		1.3.11	Other Comments Noted Related to Air
		2.6	Other Comments Noted Related to Water
		13.3	Concerns about Coal Use
	SI-17c	12.3.7	Comments Promoting Renewable Energy and Conservation
	SI-17d	12.3.7	Comments Promoting Renewable Energy and Conservation
	SI-17e	12.3.7	Comments Promoting Renewable Energy and Conservation
		12.3.8	Demand Side Management
	SI-17f	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
		12.3.7	Comments Promoting Renewable Energy and Conservation
		27.0	Comments Noted by Western
	SI-17g	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	SI-17h	1.1.7	Vegetation Impacts due to Global Warming
		1.1.8	Wildlife Impacts due to Global Warming
		1.1.9	Public Health Impacts due to Global Climate Change
		1.1.21	Other General Comments about CO ₂ /Global Warming
	SI-17i	1.1.22	Other Comments noted Related to Climate Change/Greenhouse Gas Emissions
27.0		Comments Noted by Western	
SI-17j	12.3.7	Comments Promoting Renewable Energy and Conservation	
	27.0	Comments Noted by Western	
SI-17k	12.3.7	Comments Promoting Renewable Energy and Conservation	
SI-17l	12.3.7	Comments Promoting Renewable Energy and Conservation	
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		12.3.7	Comments Promoting Renewable Energy and Conservation
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	I-29d	12.3.7	Comments Promoting Renewable Energy and Conservation
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		12.3.7	Comments Promoting Renewable Energy and Conservation
	I-29g	7.1.2	General Project-Related Concerns about Health
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	I-29j	7.1.2	General Project-Related Concerns about Health
	I-29k	27.0	Comments Noted by Western
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	PH1-2c	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
		12.3.7	Comments Promoting Renewable Energy and Conservation
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		17.3	Impacts due to the Use of Coal
	PH1-2d	12.3.7	Comments Promoting Renewable Energy and Conservation
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	PH1-9b	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed
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	28.0	Other Comments	
SI-18f	27.0	Comments Noted by Western	
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Stueve, Mary Jo	PH1-7a	15.0	Coordination with Other Processes
	PH1-7b	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
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		1.2.5	Cost of Public Health Impacts due to Mercury Emissions
	PH1-7h	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
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	PH2-1b	1.2.1	Analysis of Mercury Emissions
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		1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)
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	PH2-1d	1.2.17	Commitment to Reducing Mercury Emissions
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		25.0	Native American Concerns
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		10.1.4	Regional Economics
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Tester, Richard	SFL-30a	12.3.2	Wind is a Better Option
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Thacker, Mary	SFL-56a	27.0	Comments Noted by Western

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		10.2.2	Environmental Effects on Population of the Lake Traverse Reservation
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Thornton, Brynan	I-31a	1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)
		1.3.2	Air Quality Downwind and other Geographic Regions
	I-31b	13.3	Concerns about Coal Use
	I-31c	12.3.7	Comments Promoting Renewable Energy and Conservation
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		12.3.7	Comments Promoting Renewable Energy and Conservation
Tkach, Patresha	FL-15a	27.0	Comments Noted by Western
Tokheim, Gene	SI-19a	26.0	Requests to Deny the Interconnection
	SI-19b	2.6	Other Comments Noted Related to Water
	SI-19c	2.1.1	Concerns and Objections to Water Use by Proposed Plant
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	SI-19e	27.0	Comments Noted by Western
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		2.6	Other Comments Noted Related to Water
	SI-19g	2.1.1	Concerns and Objections to Water Use by Proposed Plant
		27.0	Comments Noted by Western
SI-19h	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River	
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Unger, Richard	I-32a	1.2.16	Sources of Mercury
	I-32b	22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
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	I-32e	1.3.2	Air Quality Downwind and other Geographic Regions
	I-32f	10.1.6	Economic Impacts to Recreation/Tourism
	I-32g	10.1.4	Regional Economics
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	PH3-1c	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
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		10.1.3	Land Values
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		12.3.8	Demand Side Management
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		7.1.5	Health Concerns from Eating Contaminated Fish
	SFL-31b	27.0	Comments Noted by Western
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Weirens, Don	SFL-69a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
Wilder, Arwen	FL-7a	12.3.3	Western Needs to Examine Wind as an Alternative in the EIS
Willard, Ian	SFL-57a	27.0	Comments Noted by Western
Wilson, Nancy	I-34a	12.3.7	Comments Promoting Renewable Energy and Conservation
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Wold, Allen	PH2-2a	28.0	Other Comments
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		14.2	Export versus Local Power Market
	PH2-2d	14.2	Export versus Local Power Market
	PH2-2e	28.0	Other Comments
	PH2-2f	28.0	Other Comments
	PH2-2g	1.2.17	Commitment to Reducing Mercury Emissions
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Wolfington, Rob	PH4-3a	18.0	Support of Project
Zupp, Jessica	I-35a	27.0	Comments Noted by Western
	I-35b	12.3.8	Demand Side Management
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Zweifel, Erica	SI-20a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
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	SI-20b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
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	B-1f	21.0	Modifications by Co-owners
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Clean Water Action, Midwest Regional Office	O-1a	12.1	Proposed Plant Site
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	SO-1ak	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
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	SO-1an	2.5	Other Water Comments
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	FL-1e	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
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	FL-1f	1.2.1	Analysis of Mercury Emissions
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Name	Comment No.	Sub-category No.	Comment Sub-category
Clean Water Action Form Letter –SDEIS	SFL-1a	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SFL-1b	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SFL-1c	2.1.2	Clarification of SDDENR Water Appropriation Permit Withdrawals and Restrictions
	SFL-1d	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SFL-1e	2.1.1	Concerns and Objections to Water Use by Proposed Plant
		2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
		28.0	Other Comments
SFL-1f	26.0	Requests to Deny the Interconnection	
Joint Commenters – Izaak Walton League of America – Midwest Office, Fresh Energy, Union of Concerned Scientists, and the Minnesota Center of Environmental Advocacy	O-3a	19.0	Requests for the EIS to be Reissued
	O-3b	19.0	Requests for the EIS to be Reissued
	O-3c	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
	O-3d	1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
		1.2.1	Analysis of Mercury Emissions
	O-3e	16.0	Scoping Comments
	O-3f	11.3	Cumulative Impacts on Climate Change
		16.0	Scoping Comments
	O-3g	16.0	Scoping Comments
	O-3h	15.0	Coordination with Other Processes
	O-3i	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.8	Demand Side Management
	O-3j	12.3.1	General Comments about Alternatives to Coal-Based Generation
12.3.3		Western Needs to Examine Wind as an Alternative in the EIS	
12.3.4		Analysis of Wind and Other Renewable Energy Technologies	
15.0		Coordination with Other Processes	
O-3k	12.3.4	Analysis of Wind and Other Renewable Energy Technologies	
	14.1	Co-Owners’ Needs	
O-3l	12.3.3	Western Needs to Examine Wind as an Alternative in the EIS	
O-3m	12.3.8	Demand Side Management	
O-3n	12.3.2	Wind is a Better Option	
O-3o	12.2.5	Transmission Outlets for Renewable Energy Sources are Needed	

Name	Comment No.	Sub-category No.	Comment Sub-category
		12.3.2	Wind is a Better Option
O-3p		12.3.2	Wind is a Better Option
O-3q		12.3.2	Wind is a Better Option
		12.3.8	Demand Side Management
O-3r		12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
O-3s		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
O-3t		28.0	Other Comments
O-3u		12.3.2	Wind is a Better Option
		14.1	Co-Owners' Needs
O-3v		1.1.2	Comments on Alternatives Analysis Related to Climate Change
		1.1.17	Costs To Ratepayers Associated With CO ₂ Regulation
		12.3.2	Wind is a Better Option
O-3w		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		1.1.17	Costs To Ratepayers Associated With CO ₂ Regulation
		1.1.18	CO ₂ Emission Reduction Technology Alternatives
O-3x		1.1.2	Comments on Alternatives Analysis Related to Climate Change
		12.3.2	Wind is a Better Option
		12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
O-3y		1.2.2	Mercury Emission Reductions or Mitigation
O-3z		12.3.8	Demand Side Management
		12.3.9	IGCC and Clean Coal Technologies
		14.1	Co-Owners' Needs
O-3aa		12.4	No Action Alternative
O-3ab		19.0	Requests for the EIS to be Reissued
		28.0	Other Comments
O-3ac		1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
O-3ad		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
O-3ae		1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
O-3af		1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
O-3ag		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		11.3	Cumulative Impacts on Climate Change
O-3ah		17.1	True Cost of the Project
O-3ai		1.2.1	Analysis of Mercury Emissions
O-3aj		1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions

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Name	Comment No.	Sub-category No.	Comment Sub-category
	O-3ak	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	O-3al	1.2.1	Analysis of Mercury Emissions
	O-3am	1.2.5	Cost of Public Health Impacts due to Mercury Emissions
		17.1	True Cost of the Project
	O-3an	1.2.14	Costs for Regulating Mercury
	O-3ao	1.2.1	Analysis of Mercury Emissions
	O-3ap	2.1.1	Concerns and Objections to Water Use by Proposed Plant
		2.3.9	Other Comments about Surface Water
		15.0	Coordination with Other Processes
	O-3aq	2.3.9	Other Comments about Surface Water
	O-3ar	2.3.3	Surface Water Use Impacts to Fisheries and Aquatic Ecosystems
		2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	O-3as	2.3.3	Surface Water Use Impacts to Fisheries and Aquatic Ecosystems
	O-3at	2.3.9	Other Comments about Surface Water
		19.0	Requests for the EIS to be Reissued
	O-3au	19.0	Requests for the EIS to be Reissued
Minnesota Department of Natural Resources	SS-1a	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	SS-1b	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	SS-1c	2.2.2	Impacts of Groundwater Withdrawal on Surface Water
		2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	SS-1d	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	SS-1e	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
		2.3.4	Adequacy of Modeling
	SS-1f	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	SS-1g	2.3.4	Adequacy of Modeling
	SS-1h	2.3.3	Surface Water Use Impacts to Fisheries and Aquatic Ecosystems
		2.3.4	Adequacy of Modeling
	SS-1i	2.3.4	Adequacy of Modeling
		2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
	SS-1j	2.3.3	Surface Water Use Impacts to Fisheries and Aquatic Ecosystems
	SS-1k	2.3.3	Surface Water Use Impacts to Fisheries and Aquatic Ecosystems
	SS-1l	2.3.2	Surface Water Use Impacts on Recreation
	SS-1m	2.3.6	General Comments or Concerns about Surface Water Quality
	SS-1n	1.2.1	Analysis of Mercury Emissions
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
	SS-1o	2.3.1	Downstream Effects

Name	Comment No.	Sub-category No.	Comment Sub-category
	SS-1p	2.1.1	Concerns and Objections to Water Use by Proposed Plant
	SS-1q	1.1.15	Impacts of Climate Change on Water Resource Availability
		2.1.3	Inability to Operate Big Stone I/Big Stone II during Drought
	SS-1r	2.3.5	Effects of Water Use on Big Stone Lake and the Minnesota River
Minnesota Pollution Control Agency	S-1a	1.1.19	Mitigation
	S-1b	1.2.18	Concerns and Opposition to Proposed Project due to Mercury Emissions
	S-1c	1.2.2	Mercury Emission Reductions or Mitigation
	S-1d	1.2.2	Mercury Emission Reductions or Mitigation
Minnesota Renewable Energy Society, Inc.	O-4a	19.0	Requests for the EIS to be Reissued
	O-4b	1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	O-4c	12.3.7	Comments Promoting Renewable Energy and Conservation
	O-4d	12.3.1	General Comments about Alternatives to Coal-Based Generation
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	O-4e	12.3.8	Demand Side Management
	O-4f	1.1.2	Comments on Alternatives Analysis Related to Climate Change
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.8	Demand Side Management
	O-4g	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.15	Federal and Minnesota Mercury Regulations
		22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
	O-4h	1.2.2	Mercury Emission Reductions or Mitigation
	O-4i	22.0	Proposed Plant Is Not Considering Minnesota Environmental Laws
	O-4j	1.1.6	Economic Impacts due to Global Warming
		1.1.9	Public Health Impacts due to Global Climate Change
		1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.13	Economic Impacts due to Mercury Emissions
		7.1.1	Analysis of Public Health Impacts (General)
	O-4k	1.1.9	Public Health Impacts due to Global Climate Change
	O-4l	1.1.16	Impacts of Future Mandatory CO ₂ Regulation
	O-4m	1.1.6	Economic Impacts due to Global Warming
		1.1.9	Public Health Impacts due to Global Climate Change
	O-4n	1.2.3	Public Health Impacts due to Mercury Emissions
	O-4o	1.2.10	Water and Wetland Impacts due to Mercury Emissions
	O-4p	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	O-4q	13.2	Coal Supply Impacts

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Name	Comment No.	Sub-category No.	Comment Sub-category
		17.3	Impacts due to the Use of Coal
	O-4r	17.1	True Cost of the Project
	O-4s	1.1.10	Cost of Public Health Impacts due to Global Climate Change
		7.1.1	Analysis of Public Health Impacts (General)
		17.1	True Cost of the Project
	O-4t	27.0	Comments Noted by Western
Missouri River Energy Services	B-2a	18.0	Support of Project
Rose Creek Anglers	B-3a	18.0	Support of Project
	B-3b	28.0	Other Comments
	B-3c	13.3	Concerns about Coal Use
	B-3d	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		7.1.2	General Project-Related Concerns about Health
	B-3e	1.3.10	Other Air Quality Comments
	B-3f	1.2.15	Federal and Minnesota Mercury Regulations
		7.1.2	General Project-Related Concerns about Health
	B-3g	1.2.15	Federal and Minnesota Mercury Regulations
	B-3h	1.2.15	Federal and Minnesota Mercury Regulations
	B-3i	12.2.2	Areas to Avoid
	B-3j	1.3.9	Acid Deposition
	B-3k	1.1.16	Impacts of Future Mandatory CO ₂ Regulation
	B-3l	13.2	Coal Supply Impacts
	B-3m	13.3	Concerns about Coal Use
	B-3n	12.3.9	IGCC and Clean Coal Technologies
	B-3o	12.3.7	Comments Promoting Renewable Energy and Conservation
	B-3p	7.1.2	General Project-Related Concerns about Health
		17.1	True Cost of the Project
Sierra Club, North Star Chapter	O-2a	1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
	O-2b	1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
		1.1.4	Incomplete or Unavailable Information on Environmental Impacts
	O-2c	1.1.4	Incomplete or Unavailable Information on Environmental Impacts
	O-2d	1.1.19	Mitigation
	O-2e	1.2.1	Analysis of Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		1.2.19	Cumulative Impacts of Mercury
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions

Name	Comment No.	Sub-category No.	Comment Sub-category
	O-2f	1.2.1	Analysis of Mercury Emissions
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
	O-2g	1.2.1	Analysis of Mercury Emissions
	O-2h	1.2.2	Mercury Emission Reductions or Mitigation
	O-2i	1.2.2	Mercury Emission Reductions or Mitigation
	O-2j	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
		4.10.3	Wetland Mitigation Measures
	O-2k	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
	O-2l	12.1	Proposed Plant Site
	O-2m	1.1.2	Comments on Alternatives Analysis Related to Climate Change
		1.1.18	CO ₂ Emission Reduction Technology Alternatives
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.5	EIS Needs to Examine Wind Combined with other Generation Technologies
		12.3.8	Demand Side Management
		12.3.9	IGCC and Clean Coal Technologies
	O-2n	15.0	Coordination with Other Processes
	O-2o	12.3.8	Demand Side Management
		14.1	Co-Owners' Needs
Sierra Club Form Letter –DEIS	FL-8a	12.1	Proposed Plant Site
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.7	Comments Promoting Renewable Energy and Conservation
		12.3.8	Demand Side Management
	FL-8b	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
		4.9.2	Wetlands Impact Analysis for Transmission Lines
		4.10.3	Wetland Mitigation Measures
	FL-8c	1.1.11	Social Impacts due to CO ₂ Emissions
		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.5	Cost of Public Health Impacts due to Mercury Emissions
		1.3.4	Public Health Impacts/Cost of Public Health Impacts due to Other Emissions
		1.3.6	Air Quality Costs to Health and the Environment
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
		7.1.4	Public Health Impacts and their Costs due to Other Emissions (e.g., SO ₂ , NO _x , PM)
		10.1.1	Social Values
		10.1.5	Costs of Coal/Gasoline for Coal Transport

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Name	Comment No.	Sub-category No.	Comment Sub-category
		17.1	True Cost of the Project
		17.4	Potential for Future CO ₂ Regulation
	FL-8d	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
	FL-8e	1.1.2	Comments on Alternatives Analysis Related to Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
		1.1.14	Bush Administration's Goals for Emission Reduction
		1.1.19	Mitigation
	FL-8f	27.0	Comments Noted by Western
	FL-8g	7.1.1	Analysis of Public Health Impacts (General)
		12.3.4	Analysis of Wind and Other Renewable Energy Technologies
Sierra Club Postcard	FL-16a	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
		12.3.7	Comments Promoting Renewable Energy and Conservation
		12.3.8	Demand Side Management
	FL-16b	1.1.11	Social Impacts due to CO ₂ Emissions
		1.1.16	Impacts of Future Mandatory CO ₂ Regulation
		7.1.2	General Project-Related Concerns about Health
	FL-16c	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
		7.1.2	General Project-Related Concerns about Health
		7.1.5	Health Concerns from Eating Contaminated Fish
	FL-16d	1.2.1	Analysis of Mercury Emissions
		1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.15	Federal and Minnesota Mercury Regulations
		7.1.3	Public Health Impacts and their Costs due to CO ₂ and Mercury Emissions
Sierra Club Form Letter –SDEIS	SFL-32a	1.3.3	Air Quality Impacts on Health and Safety
		2.6	Other Comments Noted Related to Water
	SFL-32b	2.1.1	Concerns and Objections to Water Use by Proposed Plant
		2.2.3	Impacts of Groundwater Withdrawal on Wildlife
		4.6	Wildlife Impacts
		6.1.2	Recreation
		10.1.7	Economic Impacts to Region due to Water Use
	SFL-32c	1.1.1	General Concern about Global Warming/Global Climate Change
		1.1.5	Big Stone II Emissions' Impacts on Global Climate Change
	SFL-32d	1.2.3	Public Health Impacts due to Mercury Emissions

Name	Comment No.	Sub-category No.	Comment Sub-category
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		1.3.3	Air Quality Impacts on Health and Safety
		1.3.7	Water Quality Impacts due to Air Emissions
		1.3.8	Coal Plants Cause Pollution
		12.3.7	Comments Promoting Renewable Energy and Conservation
		27.0	Comments Noted by Western
	SFL-32e	26.0	Requests to Deny the Interconnection
		27.0	Comments Noted by Western
Sisseton-Wahpeton Oyate	T-1a	25.0	Native American Concerns
	T-1b	25.0	Native American Concerns
	T-1c	1.3.3	Air Quality Impacts on Health and Safety
		7.1.2	General Project-Related Concerns about Health
		10.2.1	Health and Safety of Native Americans (General)
	T-1d	1.2.4	Public Health Impacts from Mercury Contaminated Fish Consumption
		1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
		7.1.5	Health Concerns from Eating Contaminated Fish
	T-1e	25.0	Native American Concerns
	T-1f	25.0	Native American Concerns
	T-1g	1.2.11	Vegetation and Wildlife Impacts due to Mercury Emissions
		1.3.3	Air Quality Impacts on Health and Safety
		1.3.7	Water Quality Impacts due to Air Emissions
		4.3	Impacts to Vegetation and Wildlife due to Mercury Emissions
		10.2.1	Health and Safety of Native Americans (General)
		25.0	Native American Concerns
	T-1h	7.1.6	Other Public Health Comments
		25.0	Native American Concerns
	T-1i	7.1.6	Other Public Health Comments
	T-1j	12.3.4	Analysis of Wind and Other Renewable Energy Technologies
	PH1-10a	24.0	Requests for Extension
	ST-1a	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1b	2.1.3	Inability to Operate Big Stone I/Big Stone II during Drought
		2.2.2	Impacts of Groundwater Withdrawal on Surface Water
		2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1c	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1d	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling

Name	Comment No.	Sub-category No.	Comment Sub-category
	ST-1e	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	ST-1f	2.2.10	Other Comments about Groundwater
	ST-1g	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1h	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	ST-1i	2.2.1	Further Analysis of Impacts of Groundwater Withdrawal Needed
		2.2.2	Impacts of Groundwater Withdrawal on Surface Water
	ST-1j	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1k	1.1.15	Impacts of Climate Change on Water Resource Availability
		2.3.4	Adequacy of Modeling
	ST-1l	2.3.4	Adequacy of Modeling
	ST-1m	2.2.2	Impacts of Groundwater Withdrawal on Surface Water
	ST-1n	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	ST-1o	2.2.7	Veblen Aquifer Recharge
		2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	ST-1p	2.2.5	Impacts of Groundwater Withdrawal on Domestic Wells
	ST-1q	2.4	Requests for Information or Source Identification
	ST-1r	2.4	Requests for Information or Source Identification
	ST-1s	2.5	Other Water Comments
	ST-1t	2.2.2	Impacts of Groundwater Withdrawal on Surface Water
	ST-1u	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	ST-1v	2.4	Requests for Information or Source Identification
	ST-1w	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
		2.4	Requests for Information or Source Identification
	ST-1x	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1y	2.4	Requests for Information or Source Identification
	ST-1z	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
		2.4	Requests for Information or Source Identification
	ST-1aa	2.4	Requests for Information or Source Identification
	ST-1ab	2.1.3	Inability to Operate Big Stone I/Big Stone II during Drought
	ST-1ac	2.4	Requests for Information or Source Identification
	ST-1ad	2.2.9	Questions about the SDDENR Report
	ST-1ae	2.2.9	Questions about the SDDENR Report
	ST-1af	2.2.7	Veblen Aquifer Recharge

Name	Comment No.	Sub-category No.	Comment Sub-category
	ST-1ag	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1ah	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
		2.2.7	Veblen Aquifer Recharge
	ST-1ai	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1aj	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1ak	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
	ST-1al	2.2.8	Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water
	ST-1am	10.2.2	Environmental Effects on Population of the Lake Traverse Reservation
		20.0	Corrections to Report
	ST-1an	1.2.1	Analysis of Mercury Emissions
		1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.7	Impacts of Mercury Emissions on Minority Populations (Environmental Justice)
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	ST-1ao	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
	ST-1ap	1.2.3	Public Health Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		1.2.19	Cumulative Impacts of Mercury
		11.1	General Comments Related to Cumulative Impacts
		11.2	Cumulative Impacts on Fish and Wildlife
	ST-1aq	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		1.2.19	Cumulative Impacts of Mercury
	ST-1ar	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
	ST-1as	1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
	ST-1at	2.3.1	Downstream Effects
	ST-1au	1.2.1	Analysis of Mercury Emissions
		1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
South Dakota Department of Environment and Natural Resources	S-3a	1.3.10	Other Air Quality Comments
	S-3b	1.3.10	Other Air Quality Comments
	S-3c	1.3.10	Other Air Quality Comments
South Dakota Public Utilities Commission	S-2a	20.0	Corrections to Report
	S-2b	7.1.6	Other Public Health Comments

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Name	Comment No.	Sub-category No.	Comment Sub-category
		7.2	Hazardous Materials and Waste Management
	S-2c	20.0	Corrections to Report
	SS-2a	2.1.5	Support for Change in Water Supply
	SS-2b	2.1.5	Support for Change in Water Supply
	SS-2c	1.3.10	Other Air Quality Comments
		27.0	Comments Noted by Western
U.S. Fish and Wildlife Service	F-2a	12.2.1	Corridor or Route Preference
	F-2b	12.2.2	Areas to Avoid
	F-2c	4.9.4	Other Wetland Comments
		12.2.2	Areas to Avoid
	F-2d	12.2.1	Corridor or Route Preference
	F-2e	12.2.2	Areas to Avoid
	F-2f	12.2.2	Areas to Avoid
	F-2g	4.9.4	Other Wetland Comments
		12.2.3	Transmission Design
	F-2h	4.8	Avian Species Impacts, including Raptors and Bald Eagles
		12.2.3	Transmission Design
	F-2i	4.10.1	General Biological Mitigation Measures
		12.2.6	Other Transmission Comments
	F-2j	12.2.4	More Detailed Information on Alternatives
	F-2k	11.2	Cumulative Impacts on Fish and Wildlife
	F-2l	2.3.9	Other Comments about Surface Water
		12.2.3	Transmission Design
	F-2m	4.10.1	General Biological Mitigation Measures
	F-2n	4.10.3	Wetland Mitigation Measures
	F-2o	4.10.3	Wetland Mitigation Measures
	F-2p	4.10.2	Vegetation Mitigation Measures
	F-2q	4.10.2	Vegetation Mitigation Measures
	F-2r	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2s	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2t	4.10.1	General Biological Mitigation Measures
	F-2u	1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)
	F-2v	1.2.1	Analysis of Mercury Emissions
	F-2w	1.2.8	Impacts to the Surrounding Environment due to Mercury Emissions (General)
	F-2x	20.0	Corrections to Report
	F-2y	1.3.2	Air Quality Downwind and other Geographic Regions

Name	Comment No.	Sub-category No.	Comment Sub-category
	F-2z	20.0	Corrections to Report
	F-2aa	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2ab	4.10.1	General Biological Mitigation Measures
	F-2ac	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2ad	4.4	Impacts to Special Status Species
	F-2ae	4.10.3	Wetland Mitigation Measures
	F-2af	4.10.2	Vegetation Mitigation Measures
	F-2ag	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2ah	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2ai	4.8	Avian Species Impacts, including Raptors and Bald Eagles
	F-2aj	4.10.1	General Biological Mitigation Measures
	F-2ak	4.6	Wildlife Impacts
U.S. Department of the Interior, Office of Environmental Policy and Compliance	F-3a	28.0	Other Comments
	F-3b	12.2.1	Corridor or Route Preference
	F-3c	12.2.2	Areas to Avoid
	F-3d	4.9.4	Other Wetland Comments
		12.2.2	Areas to Avoid
	F-3e	12.2.1	Corridor or Route Preference
	F-3f	12.2.2	Areas to Avoid
	F-3g	12.2.2	Areas to Avoid
	F-3h	4.9.4	Other Wetland Comments
		12.2.3	Transmission Design
	F-3i	12.2.4	More Detailed Information on Alternatives
	F-3j	11.2	Cumulative Impacts on Fish and Wildlife
	F-3k	4.10.1	General Biological Mitigation Measures
	F-3l	2.3.9	Other Comments about Surface Water
	F-3m	20.0	Corrections to Report
	SF-2a	1.2.2	Mercury Emission Reductions or Mitigation
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
		1.2.12	Fish and Aquatic Ecosystem Impacts due to Mercury Emissions
		1.2.17	Commitment to Reducing Mercury Emissions
	SF-2b	2.2.4	Impacts of Groundwater Withdrawal on Wetlands
		4.10.3	Wetland Mitigation Measures
	SF-2c	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
	SF-2d	4.10.3	Wetland Mitigation Measures
	SF-2e	2.2.3	Impacts of Groundwater Withdrawal on Wildlife

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Name	Comment No.	Sub-category No.	Comment Sub-category
	SF-2f	2.2.4	Impacts of Groundwater Withdrawal on Wetlands
	SF-2g	2.1.2	Clarification of SDDENR Water Appropriation Permit Withdrawals and Restrictions
		20.0	Corrections to Report
	SF-2h	2.4	Requests for Information or Source Identification
		20.0	Corrections to Report
	SF-2i	28.0	Other Comments
	SF-2j	2.2.4	Impacts of Groundwater Withdrawal on Wetlands
		4.10.3	Wetland Mitigation Measures
U.S. Department of Health & Human Services, Centers for Disease Control and Prevention	F-4a	7.1.6	Other Public Health Comments
		27.0	Comments Noted by Western
U.S. Environmental Protection Agency	F-1a	12.2.1	Corridor or Route Preference
		12.2.6	Other Transmission Comments
	F-1b	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
		4.9.2	Wetlands Impact Analysis for Transmission Lines
	F-1c	1.2.1	Analysis of Mercury Emissions
	F-1d	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
	F-1e	1.2.2	Mercury Emission Reductions or Mitigation
	F-1f	1.2.1	Analysis of Mercury Emissions
		1.3.10	Other Air Quality Comments
	F-1g	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
		4.9.2	Wetlands Impact Analysis for Transmission Lines
	F-1h	1.2.2	Mercury Emission Reductions or Mitigation
	F-1i	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
	F-1j	4.9.2	Wetlands Impact Analysis for Transmission Lines
	F-1k	1.2.1	Analysis of Mercury Emissions
	F-1l	1.2.2	Mercury Emission Reductions or Mitigation
	F-1m	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
		1.2.10	Water and Wetland Impacts due to Mercury Emissions
	F-1n	15.0	Coordination with Other Processes
F-1o	20.0	Corrections to Report	
F-1p	1.3.9	Acid Deposition	
	2.3.9	Other Comments about Surface Water	
F-1q	1.2.2	Mercury Emission Reductions or Mitigation	
	1.3.10	Other Air Quality Comments	
F-1r	1.3.1	Air Modeling (Air Impact Analysis)	
F-1s	1.3.1	Air Modeling (Air Impact Analysis)	

Name	Comment No.	Sub-category No.	Comment Sub-category
	F-1t	1.3.1	Air Modeling (Air Impact Analysis)
	F-1u	1.3.1	Air Modeling (Air Impact Analysis)
	F-1v	4.9.2	Wetlands Impact Analysis for Transmission Lines
	F-1w	4.9.4	Other Wetland Comments
	F-1x	4.9.2	Wetlands Impact Analysis for Transmission Lines
	F-1y	12.2.4	More Detailed Information on Alternatives
	SF-1a	4.9.1	Wetlands Impact Analysis for the Proposed Plant Site
	SF-1b	4.9.2	Wetlands Impact Analysis for Transmission Lines
	SF-1c	2.2.2	Impacts of Groundwater Withdrawal on Surface Water
	SF-1d	1.3.1	Air Modeling (Air Impact Analysis)
	SF-1e	1.2.1	Analysis of Mercury Emissions
	SF-1f	1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
		1.1.19	Mitigation
		1.1.20	Settlement Agreement with Minnesota PUC
		11.3	Cumulative Impacts on Climate Change
	SF-1g	2.2.1	Further Analysis of Impacts of Groundwater Withdrawal Needed
	SF-1h	2.2.2	Impacts of Groundwater Withdrawal on Surface Water
	SF-1i	2.2.2	Impacts of Groundwater Withdrawal on Surface Water
	SF-1j	4.9.4	Other Wetland Comments
	SF-1k	2.2.5	Impacts of Groundwater Withdrawal on Domestic Wells
	SF-1l	2.1.2	Clarification of SDDENR Water Appropriation Permit Withdrawals and Restrictions
	SF-1m	4.9.2	Wetlands Impact Analysis for Transmission Lines
	SF-1n	4.9.2	Wetlands Impact Analysis for Transmission Lines
	SF-1o	1.1.19	Mitigation
		1.1.20	Settlement Agreement with Minnesota PUC
	SF-1p	1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
		1.1.21	Other General Comments about CO ₂ /Global Warming
	SF-1q	1.1.20	Settlement Agreement with Minnesota PUC
	SF-1r	1.1.3	Climate Change/Greenhouse Gas Emissions Impacts Analysis
	SF-1s	1.2.17	Commitment to Reducing Mercury Emissions
		23.0	Settlement Agreement
	SF-1t	1.2.17	Commitment to Reducing Mercury Emissions
		23.0	Settlement Agreement
	SF-1u	1.2.9	Analysis of Local Water Quality Impacts due to Mercury Emissions
	SF-1v	20.0	Corrections to Report
	SF-1w	1.3.9	Acid Deposition

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Name	Comment No.	Sub-category No.	Comment Sub-category
	SF-1x	1.3.1	Air Modeling (Air Impact Analysis)
	SF-1y	1.3.1	Air Modeling (Air Impact Analysis)
	SF-1z	1.3.1	Air Modeling (Air Impact Analysis)
	SF-1aa	1.3.1	Air Modeling (Air Impact Analysis)
	SF-1ab	4.9.2	Wetlands Impact Analysis for Transmission Lines
	SF-1ac	4.9.2	Wetlands Impact Analysis for Transmission Lines
	SF-1ad	4.9.4	Other Wetland Comments
	SF-1ae	4.9.2	Wetlands Impact Analysis for Transmission Lines
	SF-1af	12.2.4	More Detailed Information on Alternatives
	SF-1ag	2.4	Requests for Information or Source Identification
	SF-1ah	20.0	Corrections to Report
	SF-1ai	2.2.7	Veblen Aquifer Recharge
	SF-1aj	2.2.6	Adequacy of Aquifer Test/Groundwater Modeling
		2.3.4	Adequacy of Modeling
Yellow Medicine Soil and Water Conservation District	L-1a	12.2.1	Corridor or Route Preference
		12.2.2	Areas to Avoid
	L-1b	4.9.4	Other Wetland Comments

RESPONSES TO COMMENTS

1.0 Air Quality

1.1 Climate Change/Greenhouse Gas Emissions

1.1.1 General Concern about Global Warming/Global Climate Change

Comment Number	Name	Comment Summary
Draft EIS (DEIS) Comments		
O-3af	Joint Commenters	The commenters express that global warming is a long-term problem and measures to control it should be taken immediately.
I-8k	Joe Foss	“The science is clear that adding tons of carbon to the atmosphere warms the air. This increases the risks of climate instability: droughts, heat waves, wildfires, coastal flooding, heavy rains, etc.”
I-8l	Joe Foss	“We don’t know exactly what will happen with climate change, but we do know we are increasing the risks.”
I-23c	Stacy Miller	“Also, we can no longer ignore that anthropogenically induced global warming is a recognized phenomenon among the scientific community. More and more, it is also acknowledged by the media, the public, and even public servants. The Bush Administration has agreed that global warming merits attention and has defined goals for reducing the United States’ carbon intensity.”
I-29c	Gerald Steele	“We also have enough greenhouse gasses now. We need not add to what we already have.”
PH2-3a	Public Hearing Morris, MN Earl Hauge	“Global warming is an issue for me. I don’t know how serious it is but I am concerned. And I do know that carbon dioxide from coal makes global warming worse. I don’t want my life to be about making this world worse. As a farmer, we irrigate our crops.”
PH3-3c	Public Hearing Granite Falls, MN Izaak Holt	“I am concerned that the Draft EIS did not address the impact that Big Stone II’s carbon dioxide emissions will have on global warming, nor did it address the economics of future greenhouse gas regulation. The Draft EIS needs to examine the effects of carbon dioxide emissions in the forward-looking manner required by the National Environment Policy Association.”
PH4-2e	Public Hearing Benson, MN Christopher Childs	“But the larger issue for me is really the issue of carbon dioxide and climate change. I have been involved with the climate change issue to one degree or another now for about 15 or 16 years. I was formerly the national speaker for the environmental organization Green Piece [Greenpeace], and our campaigners began work on the greenhouse issue around 1989, around the time I was first working for that organization.”
PH4-6h	Public Hearing Benson, MN Andrew Falk	“. . . carbon dioxide is playing a huge role in changing our global climate. We just need to address this problem. We need to look at alternatives to going – shorten there or stop this problem, because we are seeing climate change. We are seeing a lot of issues that we wouldn’t have dreamed of, and we are looking at this nearsightedly and shortsightedly for the case of chief [cheap] power, or perceived to be the chief [cheap] power, which that’s, once again, proven to be not necessarily sustainable with coal.”

Comment Number	Name	Comment Summary
Supplemental Draft EIS (SDEIS) Comments		
SO-1m	CWA (Attachment)	“Application 6846-3 based its modeling of water use on past climatic conditions and did not take into account irrefutable scientific evidence of rise in temperature associated with global warming, in great part due to heat-trapping emission from fossil-fueled power plants.”
SI-7e	Michaeleen Kelzenberg	“The older I get the less trust I have in corporate projections and more trust in my own observations of unforeseen negative impacts. No water = no life, given the uncertainties of future climate change I am not willing to risk an unforeseen circumstance.”
SI-15c	Leslie Reindl	“...coal-burning plants have no more place in a world now facing global warming.”
SI-17a	Dave Staub	“It does take time to collect thoughts on paper of what is the concern of many residents like myself in the vicinity [vicinity] of Big Stone II. There is a lot of concern about giving up wind rights to outside corporations and financial markets as well as air quality and water rights to the heavy hand of the coal industry, especially in a time of awakening to the alarming rate of rise of CO ₂ and global warming.”
SI-20c	Erica Zweifel	“The impact of global climate change on this region is not yet fully known and so we should not make decisions on the water resources of this area based on past data.”
SFL-17a	CWA Form Letter for SDEIS Ann Galbriath Miller	“We are already seeing the effects of ignoring the signs of global warming on our planet. Let’s not perpetuate the idea that future generations will pay for the mistakes in judgment we make today.”
SFL-32c	Sierra Club Form Letter for SDEIS	“Global warming is widely acknowledged as a reality that we must address now. Building another massive, coal-fired power plant will only launch us further in the wrong direction, altering Minnesota’s natural resources and our families’ futures irrevocably.”
SFL-42a	Sierra Club Form Letter for SDEIS Mary Holm	“The message below, crafted by the Sierra Club, says so well what I want to shout! Please open your eyes! Let’s get on the GREEN bandwagon ASAP, so that we have a chance—A CHANCE!—to escape the direst catastrophes which global warming will bring! Environmental scientists are alarmed at how much faster the effects of global warming are occurring than they believed just months ago. The absolute necessity to stop carbon emissions is URGENT! URGENT! Do NOT allow this or any other coal plant to go forward!”
SFL-49a	Sierra Club Form Letter for SDEIS Corinne Livesay	“HARD TO BELIEVE THAT WITH THE REALITY OF GLOBAL WARMING, WE’RE STILL HARPING ON THIS. THERE ARE BENIGN ALTERNATIVES SO THE IDEA OF COAL COMES DOWN TO MONIED INTERESTS, NOT THE GOOD OF THE PLANET.”
SFL-65c	Gary Nuechterlein	“Building another massive, coal-fired power plant will contribute significantly to global warming, at a time when we should be doing our best to decrease such pollution to protect the future of our state.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft Environmental Impact Statement (Draft EIS) did not sufficiently address greenhouse gases (GHG) and how they impact global warming and climate change. Commenters also expressed concern that the Draft EIS did not adequately address the contribution of the carbon dioxide (CO₂) emissions from the proposed Big Stone II plant to global warming and climate change. Western notes these comments regarding concern about Climate Change and will consider these comments

when determining whether to grant the applicant's request for interconnection. Western expanded its discussion of the proposed Project's GHG emissions and Climate Change in response to these and other comments it received. Any further analyses would require making assumptions about unknown or uncertain factors such as climate change science, GHG regulations, allowance prices¹, technology developments and performances, new plant construction, and plant retirements. Under the CEQ's NEPA regulations at 40 CFR 1502.22, "When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking." Western recognizes that the proposed plant would emit CO₂, which could have an undetermined effect on local, regional, or global climate change, but because there is insufficient information and numerous models that produce widely divergent results, Western is unable to identify the source-specific impacts of the proposed plant's CO₂ emissions on global warming and climate change. As a result, Western believes that any attempt to analyze and predict the local or regional economic impacts of the proposed plant's CO₂ emissions on human health and the environment cannot be done in any way that produces reliable results.² For further reference regarding the link between the sources of global warming and the impact they have on climate change, please see the Intergovernmental Panel on Climate Change (IPCC) report mentioned in Section 4.1.2.1 of the Final EIS. Western took guidance from the DOE NEPA Lessons Learned Quarterly Report (DOE, 2007) to ensure that the Final EIS properly addresses GHGs, as they relate to the proposed Project. Western provided additional discussion and analysis on GHGs under this NEPA guidance in Section 3.1.1 (under the subheading Greenhouse Gas Emissions and Climate Change) and in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS. Western describes global warming and climate change, the likely causes of climate change, and potential consequences of climate change in Section 3.1.1; Western discloses the proposed Plant's likely CO₂ emissions and provides several comparisons for the reader to put these potential emissions into context in Section 4.1.2.1. Additionally, the Final EIS describes the ways in which the proposed Plant seeks to limit its contribution of CO₂ through design and control technologies as well as offsets, described in the following paragraph and in the Final EIS. The sections that relate to climate change address the findings of various studies such as a November 2007 report by the IPCC titled "the Fourth Assessment Report" and a May 2008 report by the Committee on Environment and Natural Resources (CENR) titled "Scientific Assessment of the Effects of Global Change on the United States." These reports and many other studies find that human activities are likely primary contributors to global warming and that global warming can lead to impacts such as more heat waves, droughts, fires, and coastal flooding, as well as, decreased snowpack, more severe hurricanes, increased spread of

¹ Emissions trading is an administrative approach used to control emissions by providing economic incentives for achieving reductions in the emissions. It is sometimes called cap and trade. A central authority (usually a government or international body) sets a limit or cap on the amount of an emission. Companies or other groups are issued emission permits and are required to hold an equivalent number of allowances (or credits) which represent the right to emit a specific amount. The total amount of allowances and credits cannot exceed the cap, limiting total emissions to that level. Companies that need to increase their emission allowance must buy credits from those who emit less. The transfer of allowances is referred to as a trade. In effect, the buyer is paying a charge for emitting, while the seller is being rewarded for having reduced emissions by more than was needed. Thus, allowance price is the amount of money that an emitting entity pays the seller for the allowance or credit.

² The lack of sufficient information and the use of widely diverging models is evident in the IPCC report where it states in the Key Uncertainty section "Difficulties remain in reliably simulating and attributing observed temperature changes to natural or human causes at smaller than continental scales. At these smaller scales, factors such as land use change and pollution also complicate the detection of anthropogenic warming influence on physical and biological systems." The same section also states, "Models differ considerably in their estimates of the strength of different feedbacks in the climate system, particularly cloud feedbacks, oceanic heat uptake, and carbon cycle feedbacks, although progress has been made in these areas." The lack of information and differences in predictive models have made it difficult for scientists and other experts to link a direct cause and effect of anthropogenic impacts of climate change on a global scale, much less on a local scale. As a result, Western believes that any attempt to analyze and predict the local or regional impacts of the proposed plant's CO₂ emissions on human health and the environment cannot be done in any way that produces reliable results.

infectious diseases, and more heart and respiratory ailments. They find with a high degree of certainty that CO₂ (one of the GHGs) emitted from fossil-fuel burning plants is one of the sources contributing to global warming.

The proposed Project design and the conditions of the Co-owners’ Settlement Agreement with the MnDOC are projected to result in a relatively low net emission rate of CO₂ when compared to other existing coal-fired power generators. As shown in the Final EIS, when the projected emission rate (net of offsets from the Settlement Agreement) for the proposed Project is compared to emission performance standards in various states California, Washington, etc.), the proposed Project’s emissions would always be lower.³ The Final EIS also compares the CO₂ emission rates for existing plants and other technologies to the projected emission rate for the proposed Project and again the proposed Project would turn out to have a lower CO₂ emission rate in all cases. Based on these comparisons, employing super-critical technology would make the proposed plant’s emission rate of 0.98 tons CO₂/MWh lower than the U.S. 2005 average emission rate of 1.18 tons CO₂/MWh for coal plants (EIA, 2008). In addition, when the offsets provided in the Settlement Agreement are factored in, the net CO₂ emissions for the proposed Project would be reduced further to 0.54 tons CO₂/MWh.⁴ This compares to a performance standard of 0.55 tons CO₂/MWh in California and Washington.

More than one commenter in this section (Section 1.1.1) referred to the water requirements for the proposed Project and the impact of climate change on water. One commenter stated, “The impact of global climate change on this region is not yet fully known and so we should not make decisions on the water resources of this area based on past data.” While Western did use historical data in assessing the water needs for the proposed Project, it used data that spans across some of the most severe drought conditions, including the worst conditions recorded in the 1930s. Western believes that the conditions represented in this historical data are the best available at this time for assessing the proposed Project’s requirements and impacts.

1.1.2 Comments on Alternatives Analysis Related to Climate Change

Comment Number	Name	Comment Summary
DEIS Comments		
O-2m	Sierra Club	The commenter explained how the Draft EIS failed to adequately consider technology alternatives. Such absences which they felt should have been included are: wind + biomass + DSM, wind + IGCC + carbon capture technology, IGCC + carbon capture technology, and lignite coal with carbon capture. In addition, the commenter found the effect future carbon dioxide allowances would have on the price of coal generation a critical point of discussion which was not included.
O-3v	Joint Commenters	The commenters discuss the absence of analysis of potential future regulation of carbon dioxide. Additionally, commenters discuss how the potential future regulation would affect the economic feasibility of the proposed Project.

³ California and Washington adopted GHG Emissions Performance Standards, which are facility-based emissions standards requiring generation have emissions no greater than a combined cycle gas turbine plant. That level is established at 0.55 tons CO₂/MWh.

⁴ Before or after the four year period when offsets are required under the Settlement Agreement, it is possible that national or regional GHG regulation will be in place that would cap total emissions from electric generators, including the proposed Project.

Comment Number	Name	Comment Summary
O-3x	Joint Commenters	The commenters discuss in detail a wind feasibility study and compare it to the proposed Big Stone II Project. Based on the Synapse Energy Economics analysis, using different assumptions for future carbon costs and production costs for wind, wind power may be a viable option, which Western has an obligation to discuss in the EIS.
O-4f	MnRES	“Demand-side management (DSM) is one of the most widely-accepted, first-recourse, and cost –effective means of dealing with projected demand. To pass over, without exhaustive examination, both renewable technologies and DSM in favor of coal-fired power – especially in the face of an ever-growing body of evidence suggesting that climate change threatens regional and global meteorological stability, prospects for essential agriculture, public health (see item 3 below), and the very fabric of society and culture – is inexplicable.”
I-26c	Elsie Perrine	“Why coal which produces so much CO ₂ and mercury pollution.”
FL-4h	CWA Form Letter Timothy DenHerder- Thomas	“The determination that a new coal plant is the only alternative that would result in reasonable long term operating costs seems incomplete, since the draft Environmental Impact Statement did not consider the potential for future costs related to the emission of greenhouse gases. . . . significant reductions of carbon emissions will be necessary to stabilize global climate and avert a substantial increase in major disastrous climatic events. . . As a project that produces energy through the most carbon intensive means, this project imposes a massive un-counted cost on our future.”
FL-8e	Sierra Club Form Letter	The commenter does not feel the Draft EIS took into account alternatives that could mitigate or control the projected CO ₂ .
PH4-6h	Public Hearing Benson, MN Andrew Falk	“. . . carbon dioxide is playing a huge role in changing our global climate. We just need to address this problem. We need to look at alternatives to going – shorten there or stop this problem, because we are seeing climate change. We are seeing a lot of issues that we wouldn’t have dreamed of, and we are looking at this nearsightedly and shortsightedly for the case of chief [cheap] power, or perceived to be the chief [cheap] power, which that’s, once again, proven to be not necessarily sustainable with coal.”
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently consider alternative analyses such as (1) the economic impact of future GHG regulation, (2) technology alternatives, and (3) alternatives to mitigate and control GHGs. As mentioned in Section 1.1.1 above, Western took guidance from the DOE NEPA Lessons Learned Quarterly Report (DOE, 2007) to ensure that the Final EIS properly addresses GHGs, as they relate to the proposed Project. Western provided additional discussion and analysis on GHGs in Section 3.1.1 (under the subheading Greenhouse Gas Emissions and Climate Change) and Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS. The discussions and analyses presented in these sections are consistent with those provided in the DOE NEPA Lessons Learned Quarterly Report. Western believes these discussions and analyses properly address GHGs, as they relate to the proposed Project, in the Final EIS. A comparison of projected GHG emissions from the proposed Big Stone II plant with various technologies, as well as, GHG emissions on national and global scales is provided in Section 4.1.2.1. An analysis of alternative generation technologies is presented in Section 2.5.1 of the Final EIS. There is also a related discussion of generation alternatives in Section 12.3 of this Response to Comments document.

As discussed above in Section 1.1.1, Western cannot perform analyses beyond those mentioned above due to the uncertainties associated with future GHG regulations and the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

In the Final Decision and Order: Notice of Entry made before the Public Utilities Commission of the State of South Dakota Findings of Fact Number 137 (SDDENR, 2006), the PUC wrote, “Issues arose at the hearing as to whether costs should be imputed to the project for possible future regulation of CO₂ emissions. Neither Federal government regulations nor South Dakota regulations have been established for CO₂ emissions. The Minnesota Public Utilities Commission (MnPUC) has established estimates of future cost values for CO₂ emissions from electric generation of \$4 to \$30 per ton (MnPUC, 2007b). It is speculative whether the Federal government or South Dakota will regulate CO₂, and, if either does so, what the timing and stringency of those regulations will be. Quantifying the cost of future CO₂ regulations is therefore a speculative undertaking, and the evidence shows that only a small minority of states utilize quantified values to approximate the cost of future regulation.” Findings of Fact Number 137 highlights the unknown and uncertain factor related to the lack of GHG regulations and the ability to estimate emission costs for the proposed Project. The emission costs of future CO₂ regulations are speculative because they depend on many regulatory factors and market factors that are not yet defined or whose costs change over time. The uncertainty of costs associated with future CO₂ regulations exists because neither Congress nor Executive agencies with authority have developed regulations on this issue. Legislators have submitted many proposals over the past few years (for example, see Table 3.1-3 in the Final EIS), but nothing has been finalized and many of the details that drive CO₂ costs are still undefined. The emission cap (if a cap-and-trade system is employed) is one of the biggest undefined regulatory factors that impacts CO₂ costs. In general, the lower the cap on emissions, the higher the CO₂ costs. Another undefined factor is the ability to use offsets. In general, the more offsets that can be used, the lower the CO₂ costs. Some of the other regulatory factors that are still undefined and impact CO₂ costs include the number of free allowances available, the ability to bank allowances, the use of safety-valves, and the incentives to adopt abatement technologies. In addition to undefined factors in the regulation itself, there are many uncertain market factors that impact CO₂ costs. Some of these market factors include the adoption level and the cost of employing carbon-friendly generating technologies (nuclear, renewables, etc.), the development time and cost of bringing abatement technologies like carbon capture and sequestration (CCS) to the market, and the cost of offsets. The uncertainty created by the undefined regulatory factors results in a situation where most market participants wait for regulations to be defined before making investments to minimize emission costs. Once regulations are defined, participants can better estimate the regulatory cost that they will face. This waiting by market participants was observed when NO_x and SO₂ regulations in the U.S. were being developed. Very few market participants retrofitted control technologies prior to the NO_x State Implementation Plan (SIP) Call and the Acid Rain Programs being defined. However, after these regulations were in place, market participants invested heavily in control technologies and allowance purchases.

At least one commenter was concerned about how future CO₂ allowances would impact the price of coal generation. While a rigorous analysis was not conducted, Western is able to provide some insights into the likely outcome based on analyses prepared by private and public entities, including the Energy Information Administration (EIA). Specifically, EIA studied a number of proposed cap-and-trade programs, including Senate Bill S.2191 put forth by Lieberman-Warner last year. This study, and others, found that higher allowance prices increase the cost of fossil-burning plants. In later

years, when allowance prices increased to higher levels, allowance costs were high enough to force older and less efficient coal plants to retire if they could not economically retrofit CCS. The studies also found that the increases in electricity prices from GHG regulation would offset the allowance cost to some extent, but not entirely. While higher costs in the form of purchased allowances would likely be imposed on many GHG emitting sources, they would be relatively lower for more efficient plants such as the proposed Big Stone II Project than they would be for the vast majority of the coal-fired power generators in the U.S. Further, many coal plants would have the option to reduce allowance costs in the future when CCS technology become commercially available.

Another commenter stated, "...significant reductions of carbon emissions will be necessary to stabilize global climate and avert a substantial increase in major disastrous climate events...As a project that produces energy through the most carbon intensive means, this project imposes a massive un-counted cost on our future." Another commenter asked, "Why coal which produces so much CO₂ and mercury pollution?" Western notes both of these comments and will consider these comments in determining whether to grant the applicant's request to interconnect to the Federal transmission system. Presently, coal-fired power generation is not constrained by any regulations that limit CO₂ emissions. With respect to demand side management (DSM), the Co-owners are implementing DSM programs, as described in the DSM Paper (Response Paper C, Volume II). Western believes that implementation of these DSM programs will result in lower CO₂ emissions.

1.1.3 Climate Change/Greenhouse Gas Emissions Impacts Analysis

Comment Number	Name	Comment Summary
DEIS Comments		
O-2a	Sierra Club	The commenter feels the Draft EIS does not adequately address the indirect and cumulative impacts of carbon dioxide emissions from proposed Big Stone II and that this must be included in the Final EIS. The indirect effects discussed include air, water, and other natural systems and more specifically on the environment of the upper Midwest region.
O-2b	Sierra Club	The commenter explains the effects of large-scale carbon dioxide emissions are both significant and reasonably foreseeable for the purpose of the Draft EIS and therefore should be discussed regardless of the availability of direct information about those effects. The Draft EIS failed to address incomplete or unavailable information regarding the environmental impacts of carbon dioxide emissions from proposed Big Stone II.
O-3d	Joint Commenters	The commenters state that the Draft EIS should be withdrawn due to its failure to analyze environmental impacts associated with the project, namely carbon dioxide and mercury.
O-3ac	Joint Commenters	The commenters do not feel the Draft EIS discussed global warming or the impacts of carbon dioxide emissions from the proposed Project and the Final EIS must do so. The comment references testimony by Dr. Ezra Hausman, which discussed the effects global warming has on the environment. The commenters state the necessity for Western to recognize the scientific findings regarding climate change in the EIS.
O-3ae	Joint Commenters	NEPA requires an EIS to exhibit concern of an energy facility's long-term environmental impacts. The commenter notes that the carbon emissions from proposed Big Stone II will remain in the atmosphere for extended periods of time; the commenters do not feel the EIS addressed the long-term effects of the proposed Project as necessary.

Comment Number	Name	Comment Summary
O-3af	Joint Commenters	The commenters express the opinion that global warming is a long-term problem and measures to control it should be taken immediately.
SDEIS Comments		
SF-1f	USEPA	The commenter recommends that the Final EIS include the following: the disclosure of the steps necessary to meet reductions of CO ₂ mentioned in settlement agreement and the resultant CO ₂ emission reductions anticipated; the identification of additional possible mitigation measures; a comparison annual projected GHG emissions from proposed project to annual emissions from other existing and reasonably foreseeable projects; and a comparison of annual GHG emissions at a regional, national, and global scale.
SF-1p	USEPA	The commenter expresses the need for an expanded GHG emissions section in the Final EIS even though there are currently no EPA regulatory standards directly limiting GHG emissions.
SF-1r	USEPA	The commenter recommends as part of the cumulative impact analysis in the Final EIS, the comparison of annual projected GHG emissions from proposed Project to annual emissions from other existing and reasonably foreseeable projects and an annual GHG emissions at a regional, national, and global scale. In addition the commenter suggests that the EIS, compare the quantities of GHG emitted from power plants to other GHG emitting actions to help understand the scale of a power plant.

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently address the impact of GHG and did not perform related analyses of GHG emissions from the proposed Big Stone II plant. Based on these comments, Western has provided additional discussion and analysis in Section 3.1.1 (under the subheading Greenhouse Gas Emissions and Climate Change) and in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS. Western followed the guidance provided by DOE NEPA Lessons Learned Quarterly Report (DOE, 2007) to ensure that the Final EIS properly addressed GHGs, as they relate to the proposed Project. Specifically, Western included a comparison of projected GHG emission rates from the proposed Big Stone II plant with various technologies, as well as, GHG emission rates on regional and national scales. Western indicated that 4.7 million tons of CO₂ per year from the proposed Big Stone II plant would be roughly equivalent to the CO₂ emissions from 780,910 passenger cars. Western also included a comparison of projected GHG emission rates from the proposed Big Stone II plant with state-level CO₂ emission performance standards from Washington and California (as discussed above in Section 1.1.1) and implied CO₂ emission rates from state regulations of Massachusetts and New Hampshire. Further, Western included a discussion of the impact of GHG on climate change and current and proposed regulation and legislation to reduce GHGs. Additionally, the Final EIS discusses potential cumulative impacts on climate in Section 4.11.4 (under the Air Quality subheading). Western based this discussion and the analysis of impacts on the review of various scientific studies and reports, some of which are cited in the text.

One commenter felt that the Draft EIS should have contained an analysis of the indirect effects of CO₂ emissions on air, water, and other natural systems. The same commenter stated that the Draft EIS failed to address incomplete or unavailable information regarding the environmental impacts of CO₂ emissions. Another commenter stated that the Draft EIS should be withdrawn due to the failure to analyze environmental impacts associated with the proposed Project, namely CO₂ and mercury. The

same commenter expressed that the Draft EIS failed to discuss GHG or the impacts of CO₂ emissions from the proposed Project. The Final EIS, Chapter 4, now includes a discussion of incomplete and unavailable information regarding environmental impacts of CO₂ emissions. As mentioned above, Western provided these analyses consistent with the NEPA Lessons Learned document. Western recognizes that the proposed plant would emit CO₂, which could have an undetermined effect on local, regional, or global climate change, but because there is insufficient information and numerous models that produce widely divergent results, Western is unable to identify the specific impacts of the proposed plant’s CO₂ emissions on global warming and climate change. As a result, Western believes that any attempt to analyze and predict the local or regional impacts of the proposed plant’s CO₂ emissions on human health and the environment cannot be done in any way that produces reliable results. The Final EIS provides a general description of the potential impacts associated with climate change in Section 3.1.1 under the subheading Greenhouse Gas Emissions and Climate Change and in Section 4.1.2.1 under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants. See Section 1.1.1 above for more details on the uncertainties of the source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

A commenter also stated the necessity for Western to recognize the scientific findings regarding climate change in the EIS. Western recognizes and agrees with the scientific findings of the IPCC in its “Fourth Assessment Report” and the findings of the CENR report titled “Scientific Assessment of the Effects of Global Change on the United States.” The findings of both are discussed in Sections 3.1.1 and 4.1.2.1 of the Final EIS.

1.1.4 Incomplete or Unavailable Information on Environmental Impacts

Comment Number	Name	Comment Summary
DEIS Comments		
O-2b	Sierra Club	The commenter explains the effects of large-scale carbon dioxide emissions are both significant and reasonably foreseeable for the purpose of the Draft EIS and therefore should be discussed regardless of the availability of direct information about those effects. The Draft EIS failed to address incomplete or unavailable information regarding the environmental impacts of carbon dioxide emissions from proposed Big Stone II.
O-2c	Sierra Club	The Draft EIS discussed current research into carbon dioxide capture and sequestration yet the commenter does not feel it provided the information on the effects of carbon dioxide emissions nor the scientific evidence behind such effects.
SDEIS Comments		
No comments received.		

Response: The commenter provided comments on climate change expressing general concern about how Western addressed incomplete or unavailable information regarding the impact of CO₂ emissions from the proposed Big Stone II plant. The commenter was also concerned that Western did not address the scientific evidence related to the impact of CO₂ on climate change. Based on these comments, Western provided additional discussion and analyses on GHG emissions, such as CO₂ in Section 3.1.3 (under the subheading Greenhouse Gas Emissions and Climate Change), in Section 4.1.1

(Impact Assessment Methods), and in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS. These sections provide detailed discussions consistent with NEPA guidance in its Lessons Learned Quarterly Report (DOE, 2007), and the CEQ’s NEPA regulations at 40 CFR 1502.22, which indicates, “When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.” In the Final EIS and this Responses to Comments document, Western has identified the areas where information does not yet exist and relies on available information with respect to climate change where it does exist.

As discussed above in Section 1.1.1, Western cannot analyze the impact of CO₂ emissions from the proposed Project due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

Regarding the comment that the Draft EIS did not address the scientific evidence related to the impact of CO₂ on climate change, Section 4.1.2.1 of the Final EIS addresses the scientific findings of various studies, such as a November 2007 report by the IPCC titled “the Fourth Assessment Report” and a May 2008 report by the CENR titled “Scientific Assessment of the Effects of Global Change on the United States.” These reports and many other studies find that human activities are likely primary contributors to global warming, and that global warming can lead to impacts such as more heat waves, droughts, fires, and coastal flooding, as well as, decreased snowpack, more severe hurricanes, increased spread of infectious diseases, and more heart and respiratory ailments.

1.1.5 Big Stone II Emissions’ Impacts on Global Climate Change

Comment Number	Name	Comment Summary
DEIS Comments		
O-3ad	Joint Commenters	The commenters explain the output of carbon dioxide from the proposed Big Stone II and question any permitting agency approving this proposed plant due to its worsening global warming.
O-3ae	Joint Commenters	NEPA requires an EIS to exhibit concern of an energy facility’s long-term environmental impacts. The commenter notes that the carbon emissions from proposed Big Stone II will remain in the atmosphere for extend periods of time; the commenters did not feel the EIS discussed long-term effects of the proposed Project as necessary.
O-3ag	Joint Commenters	The commenters do not feel the cumulative effects of proposed Big Stone II were discussed sufficiently in the EIS based on NEPA and CEQ regulations. The argument by the proposed Project Co-owners that proposed Big Stone II will amount to just a fraction of global anthropogenic emissions was felt inadequate by the commenters.

Comment Number	Name	Comment Summary
O-4b	MnRES	“The WAPA Draft EIS wholly fails to address the implications of the fact that the Big Stone II facility will, if built and operated, singlehandedly increase by one-third South Dakota’s emissions of carbon dioxide (CO ₂), the greenhouse gas most responsible for long-term global climate change – which has profound local and regional implications for South Dakota and neighboring states, for the nation, and for the planet entire.”
I-1d	Lori Askelin	“It states that Big Stone II would emit 8.9 million tons of carbon dioxide every year, making a serious contribution to global warming.”
I-2a	Lois Braun	“It will increase emissions of greenhouse gases at a rate of 8.9 million tons per year, this at a time when we are already seeing the effects of global warming. We need to be reducing, not increasing CO ₂ emissions.”
I-4c	Keith Davison	“All reputable scientists agree that coal plants significantly contribute to global warming. We should all be concerned about that.”
I-6e	Jim Falk	“We can no longer ignore the devastating effects of excessive CO ₂ emissions resulting in global warming. The Big Stone II Power Plant proposal is a failed design in a time when stronger regulation is needed and South Dakota is under regulated.”
I-8a	Joe Foss	“I am writing today to express my opposition to the proposed Big Stone II expansion. I believe building more coal plants is a bad choice for our future.”
I-8j	Joe Foss	“. . . concern is global warming-induced climate change. . . . I believe we need to show leadership to reduce and eliminate carbon emissions instead of waiting for someone else to do it.”
I-19e	Richard Kroger	“Coal fired power plants spewing their dirty emissions of CO ₂ , Hg, Noxides [NOx] cannot continue.”
I-19f	Richard Kroger	“Have you heard of global warming or are you part of Bush’s Flat Earth Society?”
I-19j	Richard Kroger	The commenter asks why increased global warming, Hg pollution, poisoning of our minorities, and increasing suffering by asthmatics have to be accepted, just to satisfy Big Stone’s pursuit of the almighty dollar.
I-34b	Nancy Wilson	“Coal-burning power plants produce too much CO ₂ – adding to global warming and the greenhouse effect.”
FL-4c	CWA Form Letter-Timothy DenHerder-Thomas	“We are looking at a decision that will effect [affect] my future, and that of future generations for decades to come as (in its current support of another coal plant at Big Stone) a major contributor to fossil fuel dependence and global warming.”
FL-8e	Sierra Club Form Letter	The commenter does not feel the Draft EIS took into account alternatives that could mitigate or control the projected CO ₂ .
FL-14a	Sierra Club Form Letter William Steele	“We Minnesotans will be suffering for years and years from increased mercury and other pollutants downwind of this expanded plant. And the increased burning of coal will significantly increase global warming. I am glad to see that last week temperatures in the Dakotas were well into the triple digits on the F scale. I hope that temperatures this summer have been sufficient to warm your brains into the thinking mode.”
PH2-3a	Public Hearing Morris, MN Earl Hauge	“Global warming is an issue for me. I don’t know how serious it is but I am concerned. And I do know that carbon dioxide from coal makes global warming worse. I don’t want my life to be about making this world worse. As a farmer, we irrigate our crops.”

Comment Number	Name	Comment Summary
PH3-3a	Public Hearing Granite Falls, MN Izaak Holt	“I would like to present specifically on the increased risk of carbon dioxide that the proposed plant would emit. Big Stone II’s operations will release an estimated \$4.7 million tons of carbon dioxide in the air each year. Carbon dioxide is the main greenhouse gas contributing to global warming. All major scientific organizations in the United States have stated that the anthropogenic climate change due to an increase in greenhouse gases appears to be real. Such scientific consensus informs national and international law and policy. Scientists and policy-makers alike recognize that rising global temperatures will have a profound effect on wildlife and people worldwide. Based on policy trends in the other industrialized countries, Japan, the United Kingdom, etc., carbon dioxide emissions are likely to be regulated in the United States very soon. The costs of meeting any future carbon constraints will increase the cost of Big Stone II.”
PH4-2g	Public Hearing Benson, MN Christopher Childs	“We’re talking here about building a 600 MW coal-fired power plant that all by itself will increase South Dakota’s carbon dioxide emissions by about one-third. I would argue, and it is nothing personal to the folks from Big Stone, but I would argue that this country cannot afford to continue constructing any type of unit that will have that kind of output of greenhouse gases.”
SDEIS Comments		
SO-1ac	CWA	The commenter refers to the anticipated CO ₂ emissions attributable to Big Stone II and quotes testimony regarding the material, adverse and irreversible damage to the environment caused by these emissions.
SI-4b	Dave Dempsey	“A dirty coal-fired power plant is bad public policy when we are struggling to control greenhouse gas emissions.”
SI-15c	Leslie Reindl	“...coal-burning plants have no more place in a world now facing global warming.”
SI-15d	Leslie Reindl	“Taking water from a public water body and groundwater supply to burn more coal is an infringement on the rights of people to an adequate public water supply and to a stable climate.”
SI-15e	Leslie Reindl	“It is not possible to mitigate or lessen the environmental impact of what Big Stone II will do to Big Stone Lake as well as what another coal-burning plant will contribute to climate change.”
SI-21b	John Harkness	“We are at a crucial tipping point, beyond which we will push the earth into feed back loops that will drive the temperature of the earth rapidly and beyond our control far into ranges not seen since humans first evolved. Now is not the time to find more ways to burn up the dirtiest of fossil fuels. Not when we are starting to learn how to conserve and how to generate our energy without burning fuels that overheat the planet.”
SI-23b	John Sens	“Building a new coal plant is a step backwards, as it will be bad for the health of the area, it will pollute, and it contributes to global warming. Why should we use this technology when newer technologies that will be cheaper in the long run are available.”
SFL-13a	CWA Form Letter for SDEIS Judith Graziano	“I do not want another coal fired power plant sending mercury and CO ₂ into the atmosphere. There should be a moratorium [moratorium] on such power plants until a comprehensive energy plan is drawn up by Congress, and takes into account carbon trading and caps.”
SFL-14a	CWA Form Letter for SDEIS Amelia Kroeger	“Draining a public body of water to accommodate an industry that produces substantial greenhouse gas emissions is, in my view, simply a poor long term decision.”

Comment Number	Name	Comment Summary
SFL-17a	CWA Form Letter for SDEIS Ann Galbraith Miller	“We are already seeing the effects of ignoring the signs of global warming on our planet. Let’s not perpetuate the idea that future generations will pay for the mistakes in judgment we make today.”
SFL-32c	Sierra Club Form Letter for SDEIS	“Global warming is widely acknowledged as a reality that we must address now. Building another massive, coal-fired power plant will only launch us further in the wrong direction, altering Minnesota’s natural resources and our families’ futures irrevocably.”
SFL-35a	Sierra Club Form Letter for SDEIS Dave Councilman	“GLOBAL WARMING IS THE BIGGEST ENVIRONMENTAL CHALLENGE FACING OUR WORLD, AND BUILDING COAL POWER PLANTS IS JUST ONE MORE LAZY WAY TO DELAY OUR DEALING WITH THIS ISSUE.”
SFL-42a	CWA Form Letter for SDEIS Mary Holm	“. . . Please open your eyes! Let’s get on the GREEN bandwagon ASAP, so that we have a chance—A CHANCE!—to escape the direst catastrophes which global warming will bring! Environmental scientists are alarmed at how much faster the effects of global warming are occurring than they believed just months ago. The absolute necessity to stop carbon emissions is URGENT! URGENT! Do NOT allow this or any other coal plant to go forward!”
SFL-53a	Sierra Club Form Letter for SDEIS Dick Ottman	“We can not afford to have more carbon dioxide put into the air for the life of this coal fired power plant (as much as 50 years).”
SFL-64a	Sierra Club Form Letter for SDEIS Richard Newmark	“Global warming is widely acknowledged as a reality that we must address now. Both MN Governor Pawlenty and the State Legislature, in bi-partisan legislation, passed the Next Generation Act in MN in 2007. Building another coal-fired power plant will make achieving the greenhouse gas reduction goals of the state of MN (30% by 2025) almost impossible to achieve.”
SFL-65c	Gary Nuechterlein	“Building another massive, coal-fired power plant will contribute significantly to global warming, at a time when we should be doing our best to decrease such pollution to protect the future of our state.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently address the proposed Big Stone II GHG emission impacts on climate change. Some commenters wanted more information about the effects of increased CO₂ on the environment at the local, regional, national, and global levels. Other inadequacies included the long-term and cumulative effects. Several commenters expressed opposition to the proposed Project due to its contribution to global warming.

Western compared projected CO₂ emission rates from the proposed plant with historical emission rates by State and other defined regions (see Section 4.1.2.1, under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants). Additionally, Western determined that a regional approach was appropriate to evaluate cumulative impacts of CO₂ emissions (see Section 4.11.4 of the Final EIS), and therefore, Western selected the three-state region of South Dakota, North Dakota, and Minnesota for this comparison. As discussed above in Section 1.1.1, Western cannot analyze the impact of CO₂ emissions from the proposed Project due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS. In summary, the proposed Project design (i.e., the selection of super-critical boiler technology to reduce carbon intensity emissions compared to

other coal-fired boiler technology) and conditions of the Settlement Agreement (in which the Co-owners have agreed to offset 100 percent of the emissions of CO₂ from the proposed Big Stone II plant that are attributable to the generation of electricity for Minnesota consumers for up to four years) together lead to a relatively low projected net emissions for the proposed Project. Emissions of CO₂ from the proposed plant’s boiler would be projected to average approximately 4.7 million tons per year (excluding any offsets), not 8.9 million tons per year as suggested by two commenters. Further, as shown in the Final EIS, when the projected emission rate (net after offsets from the Settlement Agreement) for the proposed Project is compared to emission performance standards in various states (California, Washington, etc., as discussed above in Section 1.1.1), the Project’s emissions would always be lower for the four years the Settlement Agreement applies. The Final EIS also compares the CO₂ emission rates for existing plants and other technologies to the projected emission rate for the proposed Project and again the proposed Project turns out to have a lower CO₂ emission rate in all cases in years where the Settlement Agreement applies. Based on these comparisons, employing super-critical technology would make the proposed plant’s emission rate of 0.98 tons CO₂/MWh lower than the U.S. 2005 average emission rate of 1.18 tons CO₂/MWh for coal plants (EIA, 2008). In addition, when the offsets provided in the Settlement Agreement are factored in, the net CO₂ emissions for the proposed Project would be reduced further to 0.54 tons CO₂/MWh. This compares to a performance standard of 0.55 tons CO₂/MWh in California and Washington.

More than one commenter in this section (Section 1.1.5) referred to the water requirements for the proposed Project. Data that spans across some of the most severe drought conditions were used, including the worst conditions recorded in the 1930s. Western believes that the conditions represented in this historical data are the best available at this time for assessing the proposed Project’s requirements and impacts.

1.1.6 Economic Impacts due to Global Warming

Comment Number	Name	Comment Summary
DEIS Comments		
O-1aa	CWA	CWA believes the Draft EIS should have estimated the economic effect proposed Big Stone II will have on state parks, scientific and natural areas due to wildlife and vegetation loss.
O-1ar	CWA	“How will Big Stone II’s carbon dioxide emissions contribute to global warming and what will be the economic and social impacts of this contribution?”
O-1at	CWA	“From a geographically broad perspective, what are the economic and environmental consequences of the air pollution that Big Stone II will export to other regions?”
O-4j	MnRES	“Both the issue of global climate change and mercury deposition raised above have profound implications for public health and for the regional economy that are either ignored or insufficiently addressed in the DEIS – as are other externalities.”
O-4m	MnRES	“... a power plant is proposed that will emit a staggering quantity of a pollutant that is of primary concern – in fact, of unspeakable significance – to society, for which no cost-effective, proven capture-and-disposal technology is currently available, and the DEIS for that plant addresses the scope of neither the environmental implications (see item 1 above), nor the implications for public health, nor the economic implications.”

I-1b	Lori Askelin	“It doesn’t look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of carbon dioxide, and the significant social costs.”
I-28a	Roy Smith	“At age 73, I’ve seen the transformation of our atmosphere into a sewer for short-term economic gain. We just can’t continue “more of the same.” It’s not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO ₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates.”
I-29c	Gerald L Steele	“We also have enough greenhouse gasses now. We need not add to what we already have.”
I-36b	Joe Erjavec, et al	“Big Stone II construction would result in excessive mercury emissions, contributions to global warming from carbon dioxide emissions, and higher than projected costs associated with its operation. WAPA should withdraw the current EIS and do a full analysis of these and other costs associated with the proposed project.”
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the economic impacts that the proposed Project would have due to global warming. One commenter stated, “How will Big Stone II’s CO₂ emissions contribute to global warming and what will be the economic and social impacts of this contribution?” Another commenter stated, “It doesn’t look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of CO₂, and the significant social costs.” Yet another commenter stated, “From a geographically broad perspective, what are the economic and environmental consequences of the air pollution that Big Stone II will export to other regions?”

As discussed above in Section 1.1.1, Western cannot analyze the economic impacts of CO₂ emissions from the proposed Project due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of GHG emissions and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

However, in accordance with Section 4.1 and 4.10 of the Settlement Agreement, the Co-owners have agreed (in absence of Minnesota and Federal rules applicable to the proposed Big Stone II plant) to offset 100 percent of the emissions of CO₂ from the proposed Big Stone II plant that are attributable to the generation of electricity for Minnesota consumers, for a period not to exceed four years after the commercial operation date of the proposed Big Stone II plant. After the four year period, it is likely that a State or Federal GHG program will be implemented. Western believes that the proposed Project design (e.g., use of super-critical boiler technology to reduce carbon intensity emissions compared to other coal-fired boiler technology) and conditions of the Settlement Agreement together would lead to a relatively low projected net emission rate for the proposed Project.

1.1.7 Vegetation Impacts due to Global Warming

Comment Number	Name	Comment Summary
DEIS Comments		
O-1z	CWA	The commenter asked how the proposed Big Stone II will contribute to the global warming impact on vegetation and wildlife.
O-1aw	CWA	“How will Big Stone II’s contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?”
SDEIS Comments		
SI-17h	Dave Staub	“4.7 million tons of CO ₂ per year raises the question of what is the total tons of CO ₂ per year around the world? The latter EIS issue is a global and national environmental policy issue of super-critical importance to the survival of flora/fauna of the planet and human life as well.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the impacts that the proposed Project would have on vegetation due to global warming. One commenter stated, “How will Big Stone II’s contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?” Another commenter stated, “4.7 million tons of CO₂ per year raises the question of what is the total tons of CO₂ per year around the world? The latter EIS issue is a global and national environmental policy issue of super-critical importance to the survival of flora/fauna of the planet and human life as well.” As discussed above in Section 1.1.1, Western cannot analyze the impact of CO₂ emissions from the proposed Project on vegetation due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

1.1.8 Wildlife Impacts due to Global Warming

Comment Number	Name	Comment Summary
O-1z	CWA	The commenter asks how the proposed Big Stone II will contribute to the global warming impact on vegetation and wildlife.
O-1aa	CWA	CWA believes the Draft EIS should have estimated the economic effect the proposed Big Stone II will have on state parks, scientific and natural areas due to wildlife and vegetation loss.
O-1aw	CWA	“How will Big Stone II’s contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?”
SDEIS Comments		
SO-1ad	CWA	The commenter submits quoted material from Minnesota Public Radio regarding impacts to fish caused by global warming. The material states “Scientists expect the state’s rivers and lakes to get warmer. That would mean cold water fish, such as walleye, could decline. Warm water fish might move north into Minnesota...” The submitted text discusses the subsequent actions state natural resources agencies may be required to take in such an event.

Comment Number	Name	Comment Summary
SI-17h	Dave Staub	“4.7 million tons of CO ₂ per year raises the question of what is the total tons of CO ₂ per year around the world? The latter EIS issue is a global and national environmental policy issue of super-critical importance to the survival of flora/fauna of the planet and human life as well.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the impacts that the proposed Project would have on wildlife, locally as well as globally, due to global warming. One commenter stated, “How will Big Stone II’s contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?” The same commenter, suggests that the Draft EIS should have estimated the economic effect the proposed Big Stone II will have on state parks and scientific and natural areas due to wildlife and vegetation loss.

As discussed above in Section 1.1.1, Western cannot analyze the impact of CO₂ emissions from the proposed Project on wildlife due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

1.1.9 Public Health Impacts due to Global Climate Change

Comment Number	Name	Comment Summary
DEIS Comments		
O-4j	MnRES	“Both the issue of global climate change and mercury deposition raised above have profound implications for public health and for the regional economy that are either ignored or insufficiently addressed in the DEIS – as are other externalities.”
O-4k	MnRES	“The extraordinary onrushing impact of climate change on public health is increasingly well understood and well publicized, and ranges from the lethal impacts of summer heat waves especially on elder populations, and on those rendered most vulnerable by preexisting illness, as witnessed in both the Midwest and Western Europe in recent years – to the establishment of new vectors for disease as the ranges of both insect and microbial carriers expands. No mention of these or other health-related effects is made in the DEIS.”
O-4m	MnRES	“...a power plant is proposed that will emit a staggering quantity of a pollutant that is of primary concern – in fact, of unspeakable significance – to society, for which no cost-effective, proven capture-and-disposal technology is currently available, and the DEIS for that plant addresses the scope of neither the environmental implications (see item 1 above), nor the implications for public health, nor the economic implications.”
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado ...”

Comment Number	Name	Comment Summary
I-12c	Thomas A. Hillenbrand	“Let’s try to make this an environmental issue rather than an economic one. Health over economic prosperity. The mercury and carbon dioxide emissions for these plants are very serious health issues for local and global residents. I would like to ask the PUC to go slowly and to seriously consider the concerns of the local citizens who live in the immediate area.”
SDEIS Comments		
SO-1ad	CWA	<p>“...[A]ccording to an article appearing in the Washington [P]ost on November 17, 2005, ‘Earth’s warming climate is estimated to contribute to more than 150,000 deaths and 5 million illnesses each year, according to the World Health Organization, a toll that could double by 2030.’”</p> <p>The commenter also refers to the U.S. Supreme Court decision <i>Massachusetts v. EPA</i>, quoting the following from the decision: “The harms associated with climate change are serious and well recognized. Indeed, the NRC Report itself—which EPA regards as an ‘objective and independent assessment of the relevant science,’ 68 Fed. Reg. 52930—identifies a number of environmental changes that have already inflicted significant harms, including ‘the global retreat of mountain glaciers, reduction in snow-cover extent, the earlier spring melting of rivers and lakes, [and] the accelerated rate of rise of sea levels during the 20th century relative to the past few thousand years...’ NRC Report 16.”</p>
SI-17h	Dave Staub	“4.7 million tons of CO ₂ per year raises the question of what is the total tons of CO ₂ per year around the world? The latter EIS issue is a global and national environmental policy issue of super-critical importance to the survival of flora/fauna of the planet and human life as well.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the impacts that the proposed Project would have on public health due to global warming. One commenter stated, “The extraordinary onrushing impact of climate change on public health is increasingly well understood and well publicized, and ranges from the lethal impacts of summer heat waves especially on elder populations, and on those rendered most vulnerable by preexisting illness, as witnessed in both the Midwest and Western Europe in recent years – to the establishment of new vectors for disease as the ranges of both insect and microbial carriers expands. No mention of these or other health-related effects is made in the DEIS.” Another commenter stated, “Let’s try to make this an environmental issue rather than an economic one. Health over economic prosperity. The mercury and CO₂ emissions for these plants are very serious health issues for local and global residents. I would like to ask the PUC to go slowly and to seriously consider the concerns of the local citizens who live in the immediate area.”

As discussed above in Section 1.1.1, Western cannot analyze the impact of CO₂ emissions from the proposed Project on public health due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS. This report concluded that global warming could lead to increased malnutrition, increased deaths, diseases, and injury due to extreme weather events, increased cardio-respiratory diseases, and the altered spatial distribution of some infectious diseases. It is also projected to bring some benefits, including fewer deaths from cold exposure and changes in range and transmission potential of malaria in Africa.

Regarding the references to vectors for disease as the ranges of both insect and microbial carriers expand and comments quoting findings from the World Health Organization and National Research Council, Western acknowledges these findings and reports and has no basis for disputing their findings. However, as mentioned above, these studies did not assess the health impacts of a specific source such as the proposed Project. Therefore, they could not be used in any analysis for the Final EIS to determine the impact of the emissions from the proposed Project on climate change and related health impacts.

The proposed Project design (i.e., the use of super-critical boiler technology to reduce carbon intensity emissions compared to other coal-fired boiler technology) and conditions of the Settlement Agreement (in which the Co-owners have agreed to offset 100 percent of the emissions of CO₂ from the proposed Big Stone II plant that are attributable to the generation of electricity for Minnesota consumers for up to four years, at which time it is assumed that national standards would be in place) together lead to a relatively low projected net emissions for the proposed Project. Emissions of CO₂ from the proposed plant’s boiler would be projected to average approximately 4.7 million tons per year. Further, as shown in the Final EIS, when the projected emission rate (net after offsets from the Settlement Agreement) for the proposed Project is compared to emission performance standards in various states (California, Washington, etc, as described in Section 1.1.1, above), the Project’s emissions would always be lower. The Final EIS also compares the CO₂ emission rates for existing plants and other technologies to the projected emission rate for the proposed Project and again the proposed Project turns out to have a lower CO₂ emission rate in all cases. Based on these comparisons, employing super-critical technology would make the proposed plant’s emission rate of 0.98 tons CO₂/MWh lower than the U.S. 2005 average emission rate of 1.18 tons CO₂/MWh for coal plants (EIA, 2008). In addition, when the offsets provided in the Settlement Agreement are factored in, the net CO₂ emissions for the proposed Project would be reduced further to 0.54 tons CO₂/MWh. This compares to a performance standard of 0.55 tons CO₂/MWh in California and Washington.

1.1.10 Cost of Public Health Impacts due to Global Climate Change

Comment Number	Name	Comment Summary
DEIS Comments		
O-4s	MnRES	“...externalities related to any and all other ‘backside’ health impacts are simply ignored. A rather conservative estimate using established externalities values for new coal-fired power plants would suggest that a billion-dollar coal-plant project – even when fitted with modern pollution controls – is, over the probable half-century lifetime of the plant, likely to impose an additional dollar cost on society of at least half again that much via the health-impairing, often lethal impact of fine particulates and other pollutants (see e.g. Abt Associates, 2002; Burtraw & Toman, 1997) – even if one were shortsighted enough to set aside the extraordinary costs, and risks, to public health stemming from carbon dioxide emissions and global warming.”
I-11b	Merle Greene	“The financial cost of using coal is increasing as are its health and environmental costs – Mercury and other matter from coal plant emissions contribute to respiratory problems.”
SDEIS Comments		
No comments received.		

Response: Western recognizes that the proposed plant would emit CO₂, which could have an undetermined effect on public health and related costs, but because there is insufficient information and numerous models that produce widely divergent results, Western is unable to identify the specific impacts of the proposed plant’s CO₂ emissions on global warming and climate change. As a result, Western believes that any attempt to analyze and predict the impact of the proposed plant’s CO₂ emissions on public health costs cannot be done in any way that produces reliable results.

Regarding the comment stating “. . .externalities related to any and all other ‘backside’ health impacts are simply ignored. A rather conservative estimate using established externalities values for new coal-fired power plants would suggest that a billion-dollar coal-plant project – even when fitted with modern pollution controls – is, over the probable half-century lifetime of the plant, likely to impose an additional dollar cost on society of at least half again that much via the health-impairing, often lethal impact of fine particulates and other pollutants (see e.g. Abt Associates, 2002; Burtraw & Toman, 1997) – even if one were shortsighted enough to set aside the extraordinary costs, and risks, to public health stemming from carbon dioxide emissions and global warming.”, please see Section 7.1.1 below (Analysis of Public Health Impacts) for a complete response to this comment.

1.1.11 Social Impacts due to CO₂ Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
I-1b	Lori Askelin	“It doesn’t look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of carbon dioxide, and the significant social costs.”
I-23e	Stacy Miller	“Given the gravity of global warming and mercury pollution, WAPA should prepare a revised EIS that objectively estimates the full cost of operating Big Stone II, including social costs, environmental impacts, and the likelihood of a carbon credit system being established during its service lifetime. Only when these costs are assessed can a fair and objective comparison be made to the costs and impacts of alternative technologies.”
FL-8c	Sierra Club Form Letter	The commenter expressed concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.
FL-16b	Sierra Club Postcard	“Cost- The DEIS does not consider the full range of costs related to future operation and expansion of a coal plant including the rising cost of coal and its transport, the likely future regulation of carbon dioxide, and the significant social costs such as a recently estimated \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Coal plants contribute significantly to such diseases.”
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the social impacts that the proposed Project would have due to global warming. One commenter stated, “It doesn’t look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of CO₂, and the significant social costs.” Another

commenter stated, “Given the gravity of global warming and mercury pollution, WAPA should prepare a revised EIS that objectively estimates the full cost of operating Big Stone II, including social costs, environmental impacts, and the likelihood of a carbon credit system being established during its service lifetime. Only when these costs are assessed can a fair and objective comparison be made to the costs and impacts of alternative technologies.”

As discussed above in Section 1.1.1, Western cannot analyze the social impact of CO₂ emissions from the proposed Project due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

Regarding the comments quoting an estimated social impact of \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children, Western notes that these costs were provided by the commenter, who did not provide any reference for these costs. Nevertheless, Western acknowledges the commenter’s estimates and has no basis for disputing them. However, as mentioned above, there is no way to assess the social impacts of a specific source such as the proposed Project. The commenter’s estimates will be taken into consideration by Western’s decision of whether or not to interconnect the proposed Project with Western’s transmission system.

Social impacts of the proposed Big Stone II plant are discussed more generally in Section 10 of this Responses to Comments document. Also, please refer to Response to Comments at Section 1.1.9, above.

1.1.12 Air Quality Impacts due to CO₂

Comment Number	Name	Comment Summary
DEIS Comments		
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado ...”
I-22c	Ellen Mamer	“Carbon dioxide also is affecting the quality of our air.”
SDEIS Comments		
SI-13e	Tom Nieman	“...we’re filling the air with mercury, S02, ash, and CO ₂ .”

Response: The commenters focused on CO₂ and its effect on air quality. As discussed above in Section 1.1.1, Western cannot analyze the air quality impact of CO₂ emissions from the proposed Project due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS This report concluded that global warming could lead to increased malnutrition, increased deaths, diseases, and injury due to extreme weather events, increased cardio-respiratory diseases, and the altered spatial distribution of some infections diseases. It is also projected to bring some benefits,

including fewer deaths from cold exposure and changes in range and transmission potential of malaria in Africa.

1.1.13 Water Quality Impacts due to Global Warming

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SO-1ad	CWA	The commenter submits quoted material from Minnesota Public Radio regarding impacts to fish caused by global warming. The material states “Scientists expect the state’s rivers and lakes to get warmer. That would mean cold water fish, such as walleye, could decline. Warm water fish might move north into Minnesota...” The submitted text discusses the subsequent actions state natural resources agencies may be required to take in such an event.
SI-20c	Erica Zweifel	“The impact of global climate change on this region is not yet fully known and so we should not make decisions on the water resources of this area based on past data.”
SPH-3b	Public Hearing Milbank, SD Mary Jo Stueve	“We have concerns that the modeling component, engineering, investigation, analysis as done by Barr Engineering, Black and Veatch, etc., used a computer model using past climatological data and did not include years 2000 to 2007, for example, which have been drought years; and had those years been included, we might come out with a different outcome, as far as water table levels and how much the drop might be for groundwater draw. And the computer model also did not account for or project the future prediction with global warming, changes in temperatures that we know we can expect in the Midwest within a range, and our water variations. And that would be helpful to see.”

Response: The commenters focused on a general link between climate change and water quality, and the potential impacts on fish. Regarding these comments, the IPCC recently released a technical paper titled “Climate Change and Water” (IPCC, 2008), which stated, “Observational records and climate projections provide abundant evidence that freshwater resources are vulnerable and have the potential to be strongly impacted by climate change, with wide-ranging consequences for human societies and ecosystems.” The report also stated, “Higher water temperatures and changes in extremes, including floods and droughts, are projected to affect water quality and exacerbate many forms of water pollution.” Western also notes that the USEPA stated on its Climate Change website (USEPA, 2008e), “In general, the Intergovernmental Panel on Climate Change concludes that climate change will strain many of North America’s water resources, increasing the competition for water. A warmer climate will affect the seasonable availability of water by increasing evaporation and reducing snowpacks. The Columbia River and other heavily used water systems of western North America are expected to be particularly vulnerable. Groundwater-based systems in the Southwest are also likely to be stressed by climate change. Heavier precipitation will very likely increase waterborne diseases and affect water quality, and higher variability of precipitation will make water management more difficult.” Further, regarding the impact on water resources in the Midwest, the USEPA stated, “America’s agricultural heartland is mostly rainfed, with some areas relying heavily on irrigation. Potential water resource impacts for the midwest region include (1) Annual streamflow decreasing/increasing; possible large declines in summer streamflow, (2) Increased likelihood of

severe droughts, (3) Possible increasing aridity in semi-arid zones, and (4) Increases or decreases in irrigation demand and water availability – uncertain impacts on farm-sector income, groundwater levels, streamflows, and water quality.” Western has reviewed the information provided in the IPCC study and on the USEPA Climate Change website and acknowledges the findings of how climate change may impact water quality and resources. However, in determining how this information can be used in the Final EIS to evaluate the impact of the proposed Project on climate change and water quality or the impact of climate change and water quality on the proposed Project, Western is not aware of any climate change models designed to evaluate specific sources, such as the proposed Project. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

Regarding the comment about the modeling conducted by Barr Engineering, Black and Veatch, etc., historical data was used in assessing the needs for the proposed Project. The modeling used data that spans across some of the most severe drought conditions, including the worst conditions recorded in the 1930s. Western believes that the conditions represented in this historical data are the best available at this time for assessing the proposed Project’s requirements and impacts. Refer to the surface water model developed by the Co-owners is described in Section 4.2.1 of the Final EIS under the Impact Assessment Methods subheading.

Western reviewed the text from a May 22, 2003, Minnesota Public Radio interview with John Magnuson, a retired zoology professor (see comment number SO-1ad). Western determined that the interview does not provide sufficient information to perform any analyses that would help in determining the impact on water quality of source specific emissions such as those from the proposed Project. Also, refer to Section 4.4.2.1 (under the Air Emissions Impacts to Fisheries subheading) for a discussion on the impacts of climate change on fish.

1.1.14 Bush Administration’s Goals for Emission Reduction

Comment Number	Name	Comment Summary
DEIS Comments		
O-11	CWA	“Constructing and operating Big Stone II would delay meeting the President’s directives to reduce carbon intensity and the United Nations’ goal to stabilize greenhouse gas emissions.”
I-23c	Stacy Miller	“Also, we can no longer ignore that anthropogenically induced global warming is a recognized phenomenon among the scientific community. More and more, it is also acknowledged by the media, the public, and even public servants. The Bush Administration has agreed that global warming merits attention and has defined goals for reducing the United States’ carbon intensity.”
I-28g	Roy Smith	“Carbon dioxide emissions and climate change – The DEIS says that Big Stone II would emit 8.9 million tons of carbon dioxide every year and does not consider alternatives to mitigate or control the projected CO ₂ emissions. Does this not compromise or violate the President’s national goal for reducing intensity of carbon emissions in the American economy 18% by 2012?”
FL-8e	Sierra Club Form Letter	The commenter does not feel the Draft EIS took into account alternatives that could mitigate or control the projected CO ₂ .
SDEIS Comments – No comments received.		

Response: The commenters provided a number of comments on climate change, implying that the proposed Project would not be consistent with the Bush administration’s goal of reducing carbon intensity in the U.S. by 18 percent over 10 years. Specifically, the plan sets a target of 151 metric tons (166 tons) per million dollars of gross domestic product by 2012. Carbon intensity in the U.S. has declined naturally for a number of years; moreover, employing super-critical technology would make the proposed plant’s emission rate of 0.98 tons CO₂/MWh lower than the U.S. 2005 average emission rate of 1.18 tons CO₂/MWh for coal plants (EIA, 2008). In addition, when the offsets provided in the Settlement Agreement are factored in, the net CO₂ emissions for the proposed Project would be reduced further to 0.54 tons CO₂/MWh. This compares to a performance standard of 0.55 tons CO₂/MWh in California and Washington. Based on these findings, Western believes that the proposed Project would contribute to meeting the Bush administration’s goal of reducing carbon intensity by 18 percent. Western provided additional discussion regarding net emission rates resulting from the technology choice and the Settlement Agreement in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS.

1.1.15 Impacts of Climate Change on Water Resource Availability

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SS-1q	MnDNR	The commenter questions the ability for Big Stone I and proposed Big Stone II to operate during short periods of drought of 12-24 months as well as a longer-term drought of 48-120 months, such as the drought in the 1930s.
ST-1k	Sisseton-Wahpeton Oyate	The commenter wanted to know the period of record of historical climatic data used with the surface-water model. The commenter requested a model using climatic data for time intervals of 10 and 20 years and stated that use of recent data would more accurately reflect future conditions.
SO-1af	CWA (attachment)	Given the state of climate science, future conditions will not likely replicate past conditions due to global warming. Therefore, none of the applicants modeling data should be accepted.
SI-20c	Erica Zweifel	“The impact of global climate change on this region is not yet fully known and so we should not make decisions on the water resources of this area based on past data.”
SPH-3b	Mary Jo Stueve	“We have concerns that the modeling component, engineering, investigation, analysis as done by Barr Engineering, Black and Veatch, etc., used a computer model using past climatological data and did not include years 2000 to 2007, for example, which have been drought years; and had those years been included, we might come out with a different outcome, as far as water table levels and how much the drop might be for groundwater draw. And the computer model also did not account for or project the future prediction with global warming, changes in temperatures that we know we can expect in the Midwest within a range, and our water variations. And that would be helpful to see.”

Response: The commenters provided a variety of comments on climate change, implying that the Draft EIS should have considered the impacts that climate change would have on water resources that

in turn would potentially affect the proposed Project. Regarding these comments, Western notes above in Section 1.1.13 a climate change study focusing on water that was prepared by the IPCC and statements made by the USEPA on its Climate Change website. As mentioned above, Western has reviewed the information provided in the IPCC study and on the USEPA Climate Change website and acknowledges the findings of how climate change may impact water quality and resources. However, in determining how this information can be used in the Final EIS to evaluate the impact of the proposed Project on climate change and water supply or the impact of climate change on water supply for the proposed Project, Western is not aware of any climate change models designed to evaluate specific sources such as the proposed Project. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

One commenter questions the ability for Big Stone I and proposed Big Stone II to operate during short periods of drought of 12-24 months as well as a longer-term drought of 48-120 months, such as the drought in the 1930s. In addition, several commenters questioned using past data in the surface water modeling conducted for the proposed Project given the uncertainty of the effect of global warming. Historical data was used in assessing the needs for the proposed Project (Barr, 2008). The period 1930 through 2000 was chosen because reliable climatological and hydrologic data were available and because this period is representative of drought, normal, and wet climatological conditions, including the worst conditions recorded in the 1930s. The years 2001 through 2007 have been a period of somewhat wetter than normal conditions in the area of the proposed Project (OTP, 2008a). While wetter than normal conditions may persist into the future, it was deemed more appropriate to assume that longer periods of drought, similar to those experienced in the historical record, would likely occur. Western believes that the conditions represented in this historical data are the best available at this time for assessing the proposed Project’s requirements and impacts. It is also believes that with GHG regulations on the horizon in the near-term, the impact of GHG and climate change on water will be decreased as a result of the impact of regulation. Refer to the surface water model developed by the Co-owners described in Section 4.2.1 of the Final EIS under the Impact Assessment Methods subheading.

1.1.16 Impacts of Future Mandatory CO₂ Regulation

Comment Number	Name	Comment Summary
DEIS Comments		
O-1m	CWA	The commenter feels that the risk of future carbon constraints must be examined in the EIS because the costs of meeting such constraints will increase the cost of proposed Big Stone II. CWA believes that the EIS needs to examine the effects of carbon dioxide emissions in the forward-looking manner envisioned by NEPA.
O-3w	Joint Commenters	The commenters state that the potential future regulation on carbon dioxide may increase the proposed plant’s cost by 37-46% and feel it is a reckless assumption that carbon emission costs would remain at zero.

Comment Number	Name	Comment Summary
O-4l	MnRES	“The governor of Minnesota . . . recently went on record . . . warning them that a carbon tax – presumably at the federal level – will be coming their way in the near future. The DEIS declares that carbon–related costs are beyond its scope, and avoids any evaluation of the certain near-, mid-, and long–term additional carbon-related regional costs of choosing to construct a coal-fired power plant. It does, however, offer the observation that According to DOE, current technology for CO ₂ capture and sequestration is not economically cost effective. Additionally, with the exception of enhanced oil recovery, none of the storage technologies have been developed past the conceptual stage. (p. 4-11)”
B-3k	Rose Creek Anglers	“There are a number of costs related to this proposal that are not being adequately addressed. With Carbon Dioxide levels increasing in the atmosphere, there is a rapid growing concern of this waste product. Coal-fired power plants emit approximately one third of the Carbon Dioxide gases and Otter Tail officials do not offer any way of eliminating this problem. Most European countries already have an average surcharge of \$20 US per ton, and with all of the scientific reports that have been published recently, it will not be long before there are penalties for big emitters.”
I-1b	Lori Askelin	“It doesn’t look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of carbon dioxide, and the significant social costs.”
I-23e	Stacy Miller	“Given the gravity of global warming and mercury pollution, WAPA should prepare a revised EIS that objectively estimates the full cost of operating Big Stone II, including social costs, environmental impacts, and the likelihood of a carbon credit system being established during its service lifetime. Only when these costs are assessed can a fair and objective comparison be made to the costs and impacts of alternative technologies.”
I-28d	Roy Smith	“Cost – The DEIS does not consider the full range of costs including the likelihood of future regulation of carbon dioxide.”
FL-1d	CWA Form Letter-	“The determination that a new coal plant is the only alternative that would result in reasonable long-term operating costs seems incomplete, since the draft Environmental Impact Statement did not consider the potential for future costs related to the emission of greenhouse gases. Carbon dioxide is not currently regulated under the Clean Air Act, but it will most likely be a regulated pollutant in the near future.”
FL-4h	CWA Form Letter-Timothy DenHerder-Thomas	“The determination that a new coal plant is the only alternative that would result in reasonable long term operating costs seems incomplete, since the draft Environmental Impact Statement did not consider the potential for future costs related to the emission of greenhouse gases. . . .significant reductions of carbon emissions will be necessary to stabilize global climate and avert a substantial increase in major disastrous climatic events . . . As a project that produces energy through the most carbon intensive means, this project imposes a massive un-counted cost on our future.”
FL-8c	Sierra Club Form Letter	The commenter expresses concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.

Comment Number	Name	Comment Summary
FL-16b	Sierra Club Postcard	“Cost- The DEIS does not consider the full range of costs related to future operation and expansion of a coal plant including the rising cost of coal and its transport, the likely future regulation of carbon dioxide, and the significant social costs such as a recently estimated \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Coal plants contribute significantly to such diseases.”
PH3-3a	Public Hearing Granite Falls, MN Izaak Holt	“I would like to present specifically on the increased risk of carbon dioxide that the proposed plant would emit. Big Stone II’s operations will release an estimated \$4.7 million tons of carbon dioxide in the air each year. Carbon dioxide is the main greenhouse gas contributing to global warming. All major scientific organizations in the United States have stated that the anthropogenic climate change due to an increase in greenhouse gases appears to be real. Such scientific consensus informs national and international law and policy. Scientists and policy-makers alike recognize that rising global temperatures will have a profound effect on wildlife and people worldwide. Based on policy trends in the other industrialized countries, Japan, the United Kingdom, etc., carbon dioxide emissions are likely to be regulated in the United States very soon. The costs of meeting any future carbon constraints will increase the cost of Big Stone II.”
PH4-5f	Public Hearing Benson, MN Erin Jordahl Redlin	“. . . The EIS, we don’t feel that it adequately addressed the risks to the rate payers, that it will be inherent because of carbon. You know, the Senate has been holding bipartisan hearings for months, and they’re talking about new law that will limit emission carbon dioxide. . . So we feel that because carbon dioxide limits will probably be in place and operational before Big Stone II would be operational, and certainly, in place before – early in the plant’s working life, that those risks that will be passed on to rate payers should be accounted for in the EIS. I think that it was already mentioned that Big Stone II would emit more than 4.5 million tons of carbon dioxide. So this would increase. . . the entire state of South Dakota’s carbon emissions by more than a third. This would be almost as much as 670,000 cars. So that’s more than all the cars in South Dakota, the emission combined.”
PH4-5g	Public Hearing Benson, MN Erin Jordahl Redlin	“. . . because these costs have not been accounted for, we believe that the costs are dramatically underestimated; that even if we assumed midrange estimates for future CO ₂ cost, Big Stone II would cost 37 to 46 percent more than the co-owners are estimating. And this information comes from the Union of Concerned Scientists.”
SDEIS Comments		
SI-18g	Lanny Stricherz	“Our environment is precious and when the rules change to make the cost of burning coal prohibitive, as they certainly will as time passes, it will certainly not make sense to be burning coal and it will cost the consumers more than necessary for their electricity.”
SFL-13a	CWA Form Letter for SDEIS Judith Graziano	“I do not want another coal fired power plant sending mercury and CO ₂ into the atmosphere. There should be a moritorium [moratorium] on such power plants until a comprehensive energy plan is drawn up by Congress, and takes into account carbon trading and caps.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the impacts that future anticipated GHG regulations would have on the cost of the proposed Project. Several commenters stated the cost of the proposed Project has been underestimated because of costs that were not included, such as the rising cost of coal and its transport, social costs, and the likely future regulation of CO₂.

As discussed above in Section 1.1.1, Western cannot analyze the impact that future anticipated GHG regulations would have on the proposed Project due to the uncertainties associated with future GHG regulations and the impacts of GHGs on climate change at a local level. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS. One comment stated, “. . . because these costs have not been accounted for, we believe that the costs are dramatically underestimated; that even if we assumed midrange estimates for future CO₂ cost, Big Stone II would cost 37 to 46 percent more than the co-owners are estimating. And this information comes from the Union of Concerned Scientists.” Regarding this comment, as well as other comments above concerned about assessments focusing on the proposed Project costs versus the costs of alternative technologies, this sort of economic comparison was not performed. Instead, the Final EIS included a discussion on the qualitative assessment undertaken by the Co-owners of the available technology alternatives. This qualitative assessment considered the technologies’ ability to meet the proposed Project’s objectives. As discussed in the Final EIS, those objectives included the following:

- Ability to reliably meet customer baseload energy and demand requirements.
- Commercially proven technology at the several hundred MW scale.
- Minimize environmental and community impacts by leveraging existing generation site and transmission infrastructure.
- Enhance customer value and reduce customer risk by implementing a proven, efficient technology.

The Final EIS provided some fuel price comparisons between various technologies (see Table 2.5-2 in Section 2.5.1), but not an analysis that compared the proposed Project’s cost to the costs of alternative technologies. Regarding an economic assessment of the proposed Project, several expert opinions have been provided in response to the MnPUC Certificate of Need process that address this issue. Each expert addressed one or more of three main factors related to these assessments: (1) construction cost assumptions for various technologies, (2) CO₂ allowance (or tax) price assumptions under anticipated future GHG regulations, and (3) fuel price assumptions. While the testimonies provided in the MnPUC proceedings included such evaluation, the validation of the assessment results against actual cost information cannot be completed until actual costs have been realized and regulations are defined. Nevertheless, in our review of these testimonies, the following are opinions provided during expert testimonies to the MnPUC:

- Co-owners should have used a wider range of CO₂ prices, including \$8, \$20, \$40, and \$60 per ton of CO₂.
- The Co-owners used \$0, \$9, and \$30.
- The MnPUC approved a range of \$4 to \$30 per ton of CO₂.
- Co-owners’ construction cost estimate of \$2,545/kW for the proposed Project is too low.
- The cost estimate should have been between \$2,600 and \$3,000 per kW.
- The Co-owners’ construction cost assumptions for combined cycle technology should have been between \$1,000 and \$1,200 per kW instead of \$1,200 to \$1,795 per kW assumed by the Co-owner.

- At least one expert generally agreed with the Co-owners' assumed wind turbine construction cost range of \$1,810 to \$2,270 per kW.
- One expert also agreed with the Co-owners' base case fuel price assumptions, but argued that the gas price sensitivities should have include price changes of plus and minus 25 percent around the base case price of \$8 per million Btu.
- A 500 MW super-critical coal plant like the proposed Project represents a lower baseload generation alternative on a life-cycle basis compared to a combination of combined-cycle gas turbine and wind turbine technologies across the entire range of CO₂ costs of \$4 to \$30 per ton of CO₂ if the Federal production tax credit (PTC) for wind is not renewed.
- If the PTC is extended, the breakeven CO₂ is approximately \$26 per ton for a 500 MW super-critical coal plant when compared to a combined-cycle plus wind turbine combination for investor owned utilities.
- For public utilities, a 500 MW super-critical coal plant is a lower cost alternative across the entire \$4 to \$30 per ton CO₂ cost compared to the alternative technology combination with or without the PTC.
- A 500 MW super-critical coal plant is a lower baseload generation alternative than a 500 MW combined-cycle plant alone (without wind) at a CO₂ cost up to around \$40 per ton. The Co-owners agreed with another expert's \$2,600 per kW to \$3,000 kW range of construction cost estimates for a new coal plant for in-service in 2014, but the expert failed to adjust the cost for an in-service date of 2013. This adjustment would have shown that the construction cost of the proposed Big Stone II plant would have fallen within the expert's range of estimates.
- The Co-owners agreed with an expert's construction cost estimate of \$1,000 to \$1,200 per kW for large combined-cycle gas turbine technologies.
- The Co-owners would likely select smaller units with higher construction costs per kW.
- The Co-owners did not agree with an expert's assumption that a reasonable range of gas prices should be \$8 per million Btu plus and minus 25 percent.
- One expert noted that another expert did not state whether it considered any one of the four values presented as being more likely than the others.
- The Co-owners believed the lower prices are more likely than the higher prices.
- The \$40 and \$60 values used by one expert were outside of the range established by the MnPUC and the value that intervenors found to be most likely.
- One expert indicated that CO₂ costs are more likely to be on the lower end of another expert's range of \$8, \$20, \$40, and \$60 per ton of CO₂.
- It would be extremely unlikely for Henry Hub natural gas prices to sustain level at 25 percent below \$8 per million Btu, especially with future GHG regulations in place.
- For the high end of gas prices, CO₂ regulations could force gas prices to levels over \$20 per million Btu.
- The extension of PTCs by lawmakers over the long run is uncertain; thus, scenarios should assume both the inclusion and exclusion of PTCs.

All of these testimonies are valuable in evaluating the economics of alternative technologies. There is much uncertainty around the CO₂ cost, construction cost, and fuel cost assumptions made by the

experts. This uncertainty was discussed in Boston Pacific’s testimony where it was stated, “...all decision makers face at least three big uncertainties as reflected in the three questions Boston Pacific was asked to address: (a) What will be the nature and cost of CO₂ (and other GHG) regulations? (b) What will be the construction costs for all the resource alternatives (demand-and-supply side)? and (c) What will be the path for natural gas and coal prices?” Boston Pacific also noted divergences created by using different models when it was stated, “This divergence in results is driven by differences in models, and the assumptions used within the study.” Despite the value of these testimonies and the uncertainties of the underlying assumptions, the final decisions regarding proposed Project costs are the responsibility of the regulatory agencies that have jurisdiction over electricity rates. Therefore, Western has not undertaken any economic analyses that examine the proposed Project’s cost or the cost of alternative technologies.

1.1.17 Costs To Ratepayers Associated With CO₂ Regulation

Comment Number	Name	Comment Summary
DEIS Comments		
O-1ap	CWA	“How will Big Stone respond to future carbon regulations in a manner that minimizes risks to energy consumers.”
O-3v	Joint Commenters	The commenters discuss the absence of analysis into the potential future regulation of carbon dioxide and how it would affect the economic feasibility of the proposed Project.
O-3w	Joint Commenters	The commenters state that the potential future regulation on carbon dioxide may increase the proposed plant’s cost by 37-46% and feel it is a reckless assumption that carbon emission costs would remain at zero.
I-27d	Elizabeth Smith	“I do not believe that we can assume, as the EIS does, that coal fired plants are financially and environmentally sustainable in the long term. Given the recent evidence available in the field of environmental science, we can expect costs of operating old fashioned coal fired plants to increase in the future as they are forced to control carbon dioxide emissions, mercury pollution and greenhouse gases. These problems will result in unknown and uncontrollable future costs that will ultimately passed on to rate payers.”
PH4-5f	Public Hearing Benson, MN Erin Jordahl Redlin	“... The EIS, we don’t feel that it adequately addressed the risks to the rate payers, that it will be inherent because of carbon. You know, the Senate has been holding bipartisan hearings for months, and they’re talking about new law that will limit emission carbon dioxide. . . So we feel that because carbon dioxide limits will probably be in place and operational before Big Stone II would be operational, and certainly, in place before – early in the plant’s working life, that those risks that will be passed on to rate payers should be accounted for in the EIS. I think that it was already mentioned that Big Stone II would emit more than 4.5 million tons of carbon dioxide. So this would increase. . . the entire state of South Dakota’s carbon emissions by more than a third. This would be almost as much as 670,000 cars. So that’s more than all the cars in South Dakota, the emission combined.”
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently assess the cost to ratepayers of future anticipated GHG regulations as they relate to the proposed Project. The cost to ratepayers of future GHG regulations as they relate to the proposed Project depends on a number of factors. For example, in a cap-and-trade program similar to the Lieberman-Warner proposal, allowance prices hinge on the following factors: the cap on emissions, the availability and cost of technologies, and the availability and cost of offsets. See Section 1.1.16 above for a more detailed discussion of the uncertain factors related to allowance prices. Further, as discussed in Section 1.1.1 above, Western has not analyzed the impact of future anticipated CO₂ regulations to ratepayers due to the uncertainties related to future GHG regulations and because the analysis of costs to ratepayers is the responsibility of the SDPUC and MnPUC.⁵ For further discussion related to these uncertainties, see Section 4.1.2.1 of the Final EIS. Western believes that there are several ways the proposed Project would lessen the impact of carbon regulations on consumers—first, through the Project’s use of the more efficient super-critical technology, and second, through the Co-owners’ compliance with the conditions of the Settlement Agreement.

Regarding the comment that stated, “I do not believe that we can assume, as the EIS does, that coal fired plants are financially and environmentally sustainable in the long term. Given the recent evidence available in the field of environmental science, we can expect costs of operating old fashioned coal fired plants to increase in the future as they are forced to control CO₂ emissions, mercury pollution and GHGs. These problems will result in unknown and uncontrollable future costs that will ultimately passed on to rate payers.” The proposed Project would be a brand-new plant employing super-critical technology. This technology would be one of the most advanced and reliable coal-fired technologies being built by utilities around the country. The relatively low projected heat rate of this technology combined with the low projected operating costs would minimize the proposed plant’s costs (including emission costs) relative to existing plants. Further, in accordance with Section 4.1 and 4.10 of the Settlement Agreement, the Co-owners have agreed (in absence of Minnesota and Federal rules applicable to the proposed Big Stone II plant) to offset 100 percent of the emissions of CO₂ from the proposed Big Stone II plant that are attributable to the generation of electricity for Minnesota consumers, for a period not to exceed four years after the commercial operation date of the proposed Big Stone II plant. After the four year period, it is likely that a State or Federal GHG program will be implemented. As is observed in many of the current proposals at the State and Federal level, offset would be available for purchase to comply with these programs. However, even with this advance technology, the proposed plant would incur CO₂ costs once GHG regulations are implemented. See Section 1.1.16 above for a more detailed discussion of the uncertain factors related to allowance prices. As discussed above in Section 1.1.1, Western cannot analyze the impact of GHGs on climate change due to the uncertainties associated with determining source-specific impacts of GHGs on climate change. For further reference regarding the link between the sources of global warming and the impact it has on climate change, please see the IPCC report mentioned in Section 4.1.2.1 of the Final EIS.

⁵ The SDPUC and MnPUC typically consider rate increases and decreases at the request of utilities. In addition, Section 3.6 and 3.7 of the Settlement Agreement discusses cost recovery of all operating costs and expenditures that would include CO₂ costs, such as allowances and offsets.

1.1.18 CO₂ Emission Reduction Technology Alternatives

Comment Number	Name	Comment Summary
DEIS Comments		
O-2m	Sierra Club	The commenter explained how the Draft EIS failed to adequately consider technology alternatives. Such absences which they felt should have been included are: wind + biomass + DSM, wind + IGCC + carbon capture technology, IGCC + carbon capture technology, and lignite coal with carbon capture. In addition, the commenter found the effect future carbon dioxide allowances would have on the price of coal generation a critical point of discussion which was not included.
O-3w	Joint Commenters	The commenters state that the potential future regulation on carbon dioxide may increase the proposed plant's cost by 37-46% and feel it is a reckless assumption that carbon emission costs would remain at zero.
I-6a	Jim Falk	"New technology is advancing rapidly that offers more environmentally friendly options at lower costs and certainly a lower cost to the clean up that will be indebted to society when we continue to burn coal. What will we say in response to the obvious problem of global warming and mercury poisoning? That we just didn't know better – when in fact we did. That it cost too much to do the right thing when in fact it cost less."
I-26c	Elsie Perrine	"Why coal which produces so much CO ₂ and mercury pollution."
PH4-5h	Public Hearing Benson, MN Erin Jordahl Redlin	"Then if you looked at a wind-based alternative using midrange estimates for CO ₂ , Big Stone II would cost 28 to 72 more percent. So we just feel that these risks, these additional costs, have not been adequately addressed in the Environmental Impact Statement, and before a decision is made about interconnection, we think that they should be."
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently address the various CO₂ emission reduction technology alternatives. The proposed Project would not have any CO₂ emission control technology installed, and adding carbon capture technology is not proven commercially feasible for a project this size. However, the use of super-critical technology itself for the proposed Project means the plant would be more efficient, and the CO₂ emission rate would be less than most of the existing coal plants in the U.S. Aside from the choice of generation technology, there are no other commercially available CO₂ emission control technologies available at this time (see Section 2.5.1.11 of the Final EIS). Many government and private entities are working on control technologies like CCS, but they are still largely in the development stage. Most estimates assume these technologies will not be commercially available until after 2020. However, even though these control technologies are not commercially available at this time, there are many ways to comply with future GHG regulations and offset the CO₂ emissions from the proposed Project. Two of these options include purchasing offsets and implementing energy efficiency programs like DSM, both of which the Co-owners use. Alternative generation technologies were presented in Section 2.5.1 of the Final EIS. There is also a related discussion of generation alternatives in Section 12.3 of the Responses to Comments, below. We note that, as shown in Section 4.1.2.1 of the Final EIS, the carbon intensity of the proposed Big Stone II plant, when considering the offsets that would take place in accordance with the Settlement Agreement, would be slightly lower than that of a natural gas-fired unit. Western also provided some

discussion of the work the Co-owners have done regarding CCS in Section 4.1.2.1 of the Final EIS. This same section discusses the offsets being purchased by the Co-owners under the Settlement Agreement with Minnesota. A detailed discussion of DSM issues has been provided in Section 2.5.1.10 of the Final EIS and in the DSM Response Paper (Response Paper C, Volume II).

1.1.19 Mitigation

Comment Number	Name	Comment Summary
DEIS Comments		
S-1a	MPCA	“We wish the assessment of addressing CO ₂ emissions had been more rigorous. Because the CO ₂ concentration in the flue gas stream from a pulverized coal plant is likely to be too low to use CO ₂ capture technology, even when the capture technology is fully developed, the most feasible means of addressing CO ₂ emissions from this facility is to offset CO ₂ emissions, use biological sequestration or a combination of both. Neither of these CO ₂ mitigation methods is identified in the list of potential means for dealing with CO ₂ (p. 4-11). Both means are technically feasible. It would have been desirable to have the EIS address the feasibility of using these approaches.”
O-2d	Sierra Club	The commenter feels that the Draft EIS failed to adequately analyze mitigation of the environmental impacts of carbon dioxide emissions from proposed Big Stone II. Western explained this process was beyond the scope of the EIS which the commenter did not feel was in accordance with CEQ regulations.
I-18c	Daniel and Ruth Krause	“Carbon dioxide. Something must be done to minimize the effects of producing more carbon dioxide. Perhaps forest areas that absorb carbon dioxide could be purchased and permanently set aside to compensate for the carbon dioxide production.”
I-19h	Richard Kroger	“The EIS should explain how much it would cost Big Stone II to counteract its CO ₂ emissions with purchase of equal amounts of carbon credits on the Chicago Climate Exchange. This will get at the true societal/hidden costs of dirty coal. This is a valid request for this information in the EIS.”
FL-8e	Sierra Club Form Letter	The commenter does not feel the Draft EIS took into account alternatives that could mitigate or control the projected CO ₂ .
SDEIS Comments		
SF-1f	USEPA	The commenter recommends that the Final EIS include the identification of possible mitigation measures in addition to those covered by the Settlement Agreement.
SF-1o	USEPA	“The FEIS should disclose the steps to be taken to meet the reductions of CO ₂ mentioned in the settlement agreement and specify the resultant CO ₂ emission reductions anticipated. We recommend that the FEIS also identify additional possible mitigation measures (e.g., emissions not covered by the settlement agreement), and compare annual projected GHG emissions from the proposed project to annual emissions from other existing and reasonably foreseeable future projects. Proposed project emissions should also be compared to annual GHG emissions at a regional, national, and global scale.”

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently address additional mitigation measures as they relate to

the proposed Project. Western provided additional discussion on emission performance standards and market-based options to control CO₂ emissions in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS and additional discussion and analysis on GHGs in Section 3.1.1 (under the subheading Greenhouse Gas Emissions and Climate Change). Biological sequestration would be possible by purchasing offsets under the terms of the Settlement Agreement. Carbon capture is not currently available for such a unit and is discussed in Sections 2.5.1.11 and 4.1.2.1 of the Final EIS. The Settlement Agreement prescribes the timing and calculation of emissions to be offset, offset methods, and carbon-trading options such that 100 percent of CO₂ emissions attributed to Minnesota end-users would be offset. One of the options available under the Settlement Agreement is the ability of the Co-owners to purchase carbon credits from a credible offset program. One of the commenters mentioned the Chicago Climate Exchange and the possibility of purchasing credits under that program. It is possible that this program would qualify as one from which credits can be purchased to offset emissions from the proposed Project. However, Western does not believe, as the commenter does, that the cost of such credits would reflect the true societal/hidden costs. This is because measuring societal/hidden costs would go beyond the cost of credits and could include elements such as health costs, tourism costs, and property value costs. Beyond the mitigation options available under the Settlement Agreement, the Co-owners will likely seek additional mitigation options once anticipated future GHG regulations are implemented. Market-based mitigation options may include, among others, purchasing offset credits, purchasing allowances, engaging in energy efficiency programs, installing CO₂ control technologies (if available), and building renewable energy technologies. Should economics allow, or regulations require, these offset methodologies could be investigated further for application to all proposed plant CO₂ emissions.

The USEPA commented that the Final EIS should include the identification of possible mitigation measures in addition to those covered by the Settlement Agreement. Western has included a discussion of incentive and cost-based options to reduce GHGs in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants). The options discussed are in various stages of development by regulators, however, the only measure currently applicable to the proposed Project is the offsets identified within the Settlement Agreement. There are no Federal standards in place for CO₂ or any other GHG in the U.S., but it is likely that a national greenhouse program limiting emissions from multiple sectors (including the power sector) will be passed in the U.S. within the next few years. Therefore, the types of additional incentive and cost-based measures that would become available are unknown at this time.

Regarding the steps to be taken to meet the reductions of CO₂ mentioned in the Settlement Agreement and the resultant CO₂ emission reductions anticipated, the Settlement Agreement states that the Co-owners may achieve the required offsets by any one or a combination of the following methods:

- Capture and sequestration;
- Emission reductions in any of the Minnesota Owners' existing power plants or through other, verifiable efficiency improvements on the Minnesota Owners' systems that result in reductions in CO₂ emissions;
- Trading on a recognized GHG exchange;
- Purchases of carbon credits from a credible offset program;
- Setting aside funds in a separate, readily identifiable account on the Minnesota Owners' books of an amount equal to \$10.00 per ton of CO₂ emissions;

- Making investment in transmission that the Commission certifies will enhance renewable energy development;
- Adding renewable energy beyond any amount required by law;
- Achieving energy efficiency savings beyond any amount required by law; or
- Any other method the Commission concludes will result in economic offsets that will achieve permanent, quantifiable, verifiable, and enforceable reductions in GHG emissions that would not otherwise have occurred.

The steps to be taken by the Co-owners to meet the emission reduction requirements would involve evaluating each of the options listed above in terms of the availability of the options, the overall cost of the option, and the impact of the option on ratepayers. For example, CCS technology is currently not commercially feasible, but may be feasible in the future. Further, some energy efficiency programs could negatively impact non-participating ratepayers. The Co-owners would thoroughly review each option and then implement one or more in a way that leads to compliance with the Settlement Agreement. The emission reductions would be estimated in the process of evaluating each option. The Co-owners cannot assess which options they would choose nor the resultant emission reductions at this time due to the changing economics of each option. As a result, the Co-owners would determine which options they would choose and the resultant emission reductions at a time that is much closer to the time that it must obtain the offsets.

The list of emission reduction options outlined in the Settlement Agreement is a fairly comprehensive list of emission reduction options, but examples of other options that may be available under future GHG regulations include reducing standby losses, reducing transmission losses, employing low GHG capital equipment, co-firing gas, and purchasing renewable power. As for analyzing and comparing these options to the projected emissions from the proposed Project, all of these options require making assumptions about future performance and future cost, which are very uncertain at this time. See Section 1.1.1 above regarding the uncertainty of many factors and resulting difficulty in trying to analyze and compare them to the proposed Project. An analysis of alternative generation technologies is presented in Section 2.5.1 of the Final EIS. There is also a related discussion of generation alternatives in Section 12.3 of the Responses to Comments, below. The proposed Project’s GHG emissions are compared to annual GHG emissions at a regional, national, and global scale in Section 4.11.4 under the Air Quality subsection.

1.1.20 Settlement Agreement with Minnesota PUC

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1f	USEPA	“Our understanding from reading the Co-owners’ settlement agreement with the State of Minnesota Public Utilities Commission is that the Co-owners have agreed to offset GHG emissions from power supplied by the Minnesota owners going to Minnesota customers with a variety of methods including capture/sequestration, emission reductions at other facilities and trading on a greenhouse gas exchange. The FEIS should disclose the steps to be taken to meet the reductions of CO ₂ mentioned in the settlement agreement and specify the resultant CO ₂ emission reductions anticipated.”

Comment Number	Name	Comment Summary
SF-1o	USEPA	“The FEIS should disclose the steps to be taken to meet the reductions of CO ₂ mentioned in the settlement agreement and specify the resultant CO ₂ emission reductions anticipated. We recommend that the FEIS also identify additional possible mitigation measures (e.g., emissions not covered by the settlement agreement), and compare annual projected GHG emissions from the proposed project to annual emissions from other existing and reasonably foreseeable future projects. Proposed project emissions should also be compared to annual GHG emissions at a regional, national, and global scale.”
SF-1q	USEPA	The commenter recommends the Final EIS include the steps taken to meet the reductions of CO ₂ as stated in the settlement agreement and to specify the resultant CO ₂ emission reductions anticipated. Also, the Final EIS should identify the additional possible mitigation measures.

Response: The commenters provided a variety of comments on climate change, expressing general concern that the Draft EIS did not sufficiently address the Settlement Agreement. A discussion of the general terms of the Settlement Agreement, executed between the Co-owners and the Energy Planning and Advocacy function of the Minnesota Department of Commerce (MnDOC) is included in Section 4.1.2 of the Final EIS. In accordance with Section 4.1 and 4.10 of the Settlement Agreement, the Co-owners have agreed (in absence of Minnesota and Federal rules applicable to the proposed Big Stone II plant) to offset 100 percent of the emissions of CO₂ from the proposed Big Stone II plant that are attributable to the generation of electricity for Minnesota consumers, for a period not to exceed four years after the commercial operation date of the proposed Big Stone II plant. After the four year period, it is likely that a State or Federal GHG program will be implemented. The Settlement Agreement is included within the Final EIS as Appendix K (Volume III).

Regarding the USEPA comments about the Settlement Agreement (see comment numbers SF-1o and SF-1q), the Settlement Agreement states that the Co-owners may achieve the required offsets by any one or a combination of the methods listed above in Section 1.1.19. A general discussion about the options available to abate GHGs is included in Section 4.1.2.1 of the Final EIS under the subheading, Greenhouse Gas Emissions from the Existing and Proposed Plants.

1.1.21 Other General Comments about CO₂/Global Warming

Comment I-11d from Merle Green: “Not to mention the known and accepted effects of carbon dioxide/monoxide.”

Response: Your comment has been noted. Refer to the discussion in the Greenhouse Gas subheading of Section 4.1.2.1 of the Final EIS.

Comment PH2-3e from Earl Hauge: Commenter proposed “that in Minnesota we have a tax of one cent per kilowatt on any new electricity generated from coal” in order to make a statement regarding their commitment to not add to global warming.

Response: Your comment has been noted. Minnesota’s ability to tax coal-fired generation is outside of Western’s jurisdiction and beyond the scope of this EIS.

Comment PH3-2h from Andrew Falk: Commenter said “We have to deal with the carbon dioxide.”

Response: Your comment has been noted. CO₂ emissions are addressed in the Greenhouse Gas subheading of Section 4.1.2.1 of the Final EIS and the section on GHGs has now been expanded.

Comment PH4-2f from Christopher Childs: Commenter references the movie “An Inconvenient Truth” and says that he believes that the majority of the scientific evidence cited in the movie is accurate and that “we have one of the largest problems, arguably the largest problem that human beings have ever faced.”

Response: Your comment has been noted. Refer to the Final EIS and the Settlement Agreement for a discussion of GHG emissions and mitigation measures to be implemented by the proposed Project.

Comment SF-1p from USEPA: USEPA suggested that the Final EIS expand the section on GHGs “keeping in mind that there are currently no EPA regulatory standards directly limiting GHG emissions.”

Response: The GHG discussion has been expanded at Section 4.1.2.1 of the Final EIS.

Comment SI-8a from Joe Makepeace: “We do not need to put more mercury, CO₂, and other harmful chemicals into our environment.”

Response: Your comment has been noted. Refer to Section 4.1.2.1 of the Final EIS for a discussion of CO₂ and mercury emissions. Discussion regarding chemical use, materials handling, and waste management may be found in Section 2.2.1.6 of the Final EIS. Procedures that would prevent chemical spills into the environment and into the soils may be found in Section 4.2.2.1 of the Final EIS.

Comment SI-8d from Joe Makepeace: “At some point, people must realize the harmful impact of burning coal to produce energy. I do not support this plant.”

Response: Your comment has been noted. A discussion of impacts can be found in Chapter 4 of the Final EIS.

Comment SI-8f from Joe Makepeace: “How much mercury and carbon dioxide may be SAFELY put into our environment?”

Response: Refer to Section 4.1.2.1 of the Final EIS regarding mercury emissions and Section 7 of this Responses to Comments document for a discussion on Public Health. There is no estimate of the planet’s carrying capacity for CO₂.

Comment SI-17h from Dave Staub: Commenter wanted to know on an annual basis “what is the total tons of CO₂ per year around the world?”

Response: CO₂ emissions from the proposed Big Stone II plant are addressed in Section 4.1.2.1 of the Final EIS. Global CO₂ emissions can be determined from the information included in Section 4.1.2.1. According to EIA (OTP, 2008d), global anthropogenic CO₂ emissions in 2010 will be 30,005 million metric tons.

1.1.22 Other Comments noted Related to Climate Change/Greenhouse Gas Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
None		
SDEIS Comments		
SI-17i	Dave Staub	“Multiple individuals and organizations have challenged conventional thinking, such as James Hanson of NASA, Ed Mazria of the 2030 Challenge and 2010 Imperative for Architecture, Union of Concerned Scientists, the American Academy of Science, the U.N. committee on global warming, etc.”
SI-21a	John Harkness	“The Arctic Ice Cap is now due to melt in the next few years, according to NASA, sixty years ahead of the worst case scenario projected by the UN’s International Panel On Climate Change report from just last spring. Loss of the ice cap means the Arctic Ocean will be turning nearly all the sun light that hits it—twenty four hours a day, seven days a week in the summer—into heat, instead of reflecting most of the light off of the ice back into space. This added heat, if it penetrates deep enough, could start to melt and release into the atmosphere the billions of tons of methane hydrate now locked in ice on the floors of the shallow continental shelves. And methane is a greenhouse gas about 100 times more powerful than CO ₂ in the short term. A hot Arctic Ocean is also likely to greatly accelerate the rate of thawing of the Siberian and North American tundra, which could release further billions of tons of methane and CO ₂ .”
SI-21d	John Harkness	“James Hansen, the top climatologist in the country and perhaps the world, has strongly stated that if we want a livable future for our children, we have to move rapidly away from coal burning. Please listen to the voices of the top scientists on climate change. Listen to the voices of our children and of our children’s children. Listen to the voices of your own best conscience.”
SFL-36a	Thomas Donovan	Instead, I would request that the Environmental Impact Statement reflect the October, 2007, decision of the Kansas Department of Health and Environment which became the first government agency in the United States to cite carbon dioxide emissions as the basis for rejecting an air permit for two proposed 700 megawatt coal-fired plants in Holcomb, Kansas. Climate change is a fact and state regulators need to adjust their regulatory oversight [oversight] accordingly.”
SFL-59a	Lois Braun	“First, coal burning contributes to global warming”
SFL-64c	Richard Newmark	“Approving a plant which will produce carbon for the 50 years without requiring sequestration [sequestration] of the carbon will be an environmental disaster.”

Response: Your comments have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project.

1.2 Mercury

1.2.1 Analysis of Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
F-1c	USEPA	“...the FEIS should include additional information related to the project’s potential mercury emissions.”
F-1f	USEPA	“The Draft EIS states that ‘[a]irborne plant emissions could cause local and regional surface water quality impacts such as acidification or increase in mercury concentration.’ (DEIS at 4-15). The DEIS provides, however, no analysis in support of this statement.” The commenter suggests the Final EIS discuss the potential impacts of these emissions.
F-1k	USEPA	The commenter suggests that the Final EIS clarify its projected mercury emissions by estimating future emissions based on actual projections, not just allowable emissions, and by discussing the goal set in the letter to South Dakota, and the goal of 144 pounds mentioned in the Draft EIS.
F-2v	USFWS	The commenter requested clarification on the discussion of mercury impacts under the Clean Air Mercury Rule standard. Also, the commenter did not feel a satisfactory discussion was made on how the emissions of the existing and proposed plants would meet future emissions standards with allowances and how this would offset impacts to fish and wildlife.
O-1i	CWA	The commenter believes the EIS did not fully consider the economic consequences of Big Stone’s mercury pollution or the environmental consequences. The conclusion that the mercury pollution will be “insignificant” they feel is debatable and warrants a more careful analysis than was provided.
O-1k	CWA	“Under NEPA, agencies must ‘recognize the worldwide and long-range character of environmental problems.’ § 102(f). The limited discussion of mercury in the Draft EIS is clearly not in keeping with this policy.”
O-1ay	CWA	“How will Big Stone recognize the worldwide problem of mercury contamination?”
O-2e	Sierra Club	The commenter does not believe the Draft EIS recognized the significance of mercury emissions from proposed Big Stone II. The comparison between the proposed Big Stone II emissions versus the overall mercury output deemed it insignificant; the commenter did not feel this to be an adequate argument. The commenter further notes that any awareness of scientific studies of the environmental effects of mercury emissions and their deposition and conversion to methyl mercury would make it reasonable to anticipate a cumulatively significant impact on the environment from large-scale emissions of mercury.
O-2f	Sierra Club	The commenter does not feel the Draft EIS provided a basis for the conclusion that the mercury emissions from the proposed Big Stone II would not be significant to water resources and therefore must submit a more thorough analysis in the Final EIS.

Comment Number	Name	Comment Summary
O-2g	Sierra Club	The commenter believes the Draft EIS failed to address incomplete or unavailable information regarding the environmental impacts of mercury emissions from the proposed Big Stone II. While the Draft EIS discussed mercury control technology, it was felt it did not include enough scientific information regarding the effects of mercury nor the scientific evidence relevant to the impacts of those emissions.
O-3d	Joint Commenters	The commenters state that the Draft EIS should be withdrawn due to the statement's failure to analyze environmental impacts associated with the project, namely carbon dioxide and mercury.
O-3ai	Joint Commenters	The commenters do not feel the Draft EIS adequately considered the significance of the impacts of mercury emissions.
O-3al	Joint Commenters	The commenters explain the Draft EIS concluded mercury emissions are now problematic due to the upcoming USEPA Clean Air Mercury Rule. The proposed Big Stone II does not plan to limit its emissions to the CAMR budget of South Dakota which Western should consider.
O-3ao	Joint Commenters	"The DEIS also failed to adequately examine the fate of mercury emissions from this plant, and in particular, where and to what extent will it come to rest in Minnesota's or other wetlands, lakes or other water bodies. In the final EIS, WAPA should include a more detailed analysis of mercury fallout."
I-17j	Jeanne Koster	"The omission of consideration of a mercury reduction alternative is egregious due to mercury's neurotoxicity. Eating mercury tainted fish is one pathway for mercury damage to health and threatens developing fetuses and children under fifteen with neurological impairment. Where is the credible analysis of mercury control alternatives in this DEIS?"
I-36b	Joe Erjavec, et al	"Big Stone II construction would result in excessive mercury emissions, contributions to global warming from carbon dioxide emissions, and higher than projected costs associated with its operation. WAPA should withdraw the current EIS and do a full analysis of these and other costs associated with the proposed project."
FL-1f	CWA Form Letter	". . . The Environmental Impact Statement did not address the contribution that the proposed coal plant's mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement."
FL-16d	Sierra Club Postcard	"Mercury from coal plant emissions contaminate fish tissue and cause neurobehavioral disorders. The DEIS ignores recent studies in Massachusetts, Ohio, Florida, and the Great Lakes showing that local sources of mercury impact local water bodies to a greater extent than previously known. Minnesota recently passed one of the strongest mercury reduction laws in the country. Transmission lines for a new dirty coal plant just over our border destroys the progress of bi-partisan leadership in setting new standards for mercury reduction in Minnesota."

Comment Number	Name	Comment Summary
PH1-7c	Public Hearing Big Stone City, SD Mary Jo Stueve	“The Draft EIS states that Big Stone II’s mercury pollution will be ‘insignificant,’ in quotes, ‘insignificant.’ I noticed it also says there may be a public perception that we have a mercury problem. It’s not a perception. It is a reality. So the conclusion in the Draft EIS, as it stands, that mercury pollution will be insignificant is debatable. It warrants more careful analysis than what was provided in the EIS.”
PH2-1b	Public Hearing Morris, MN Mary Jo Stueve	“. . . our members are deeply concerned about the inconsistency and the lack of analysis on mercury and other toxic emissions.”
PH2-1c	Public Hearing Morris, MN Mary Jo Stueve	“The application does not address in a calculated, cumulative manner what the impact would be on human, plant, and environment surrounding the area. Neither does the Draft EIS.”
PH3-5a	Public Hearing Granite Falls, MN Duane Ninneman	“The Western Area Power Administration Draft Environmental Impact Statement lists a summary of hazardous air pollutants in section 4, page 8. To quote the document, ‘Most of the mercury in the atmosphere is elemental mercury vapor, which circulates in the atmosphere for up to a year, and hence can be widely dispersed and transported thousands of miles from emission sources.’ Recent studies, however, contradict this notion.”
PH3-5b	Public Hearing Granite Falls, MN Duane Ninneman	“Clean up the River Environment contends that the Draft EIS fails to take into consideration published research by the United States Environmental Protection Agency [from] the Ohio River Valley, which concludes that nearly 70 percent of mercury actually originates from nearby coal-burning power plants and not from widely dispersed sources.”
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	The commenter states that her concerns with respect to health include the following: 1) Exposure to mercury pollution is especially harmful to women of child bearing age, fetuses, and children, because it leads to neurological problems. 2) Low birth weight due to mercury exposure and the public costs associated with it; the comment included information on the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.
PH3-6c	Public Hearing Granite Falls, MN Julie Jansen	“The rationale used in the Draft EIS that the problem of mercury is so large that the Big Stone Co-owners should not be held responsible to the rest of the world for the Big Stone II’s contribution to the mercury pollution. This rationale concerns me. Under Section 102 of the National Environmental Policy Act of 1969, federal agencies need to recognize the worldwide and long-range character of environmental problems. Discussion of mercury in the Draft EIS is clearly not in keeping with this policy.”
PH3-7e	Public Hearing Granite Falls, MN Delores Miller	“Like mercury has not been addressed like it should be, as it was stated in this last comment up here. And that is one of my top priorities as far as health of children and the unborn babies and of the elderly, and the carbon dioxide, the asthma problems and all of these other things that come up. We need the coal power, but we also need an alternative”

Comment Number	Name	Comment Summary
PH3-10a	Public Hearing Granite Falls, MN Duane Ninneman	“The WAPA Draft Environmental Impact Statement lists a summary of hazardous Air Pollutants in section 4 page 8. To quote the document, ‘Most of the mercury in the atmosphere is elemental mercury vapor, which circulates in the atmosphere for up to a year, and hence can be widely dispersed and transported thousands of miles from emission sources.’ Recent studies, however contradict this notion.”
PH3-10b	Public Hearing Granite Falls, MN Duane Ninneman	“Clean Up the River Environment contends that the Draft EIS fails to take into consideration published research by the United States Environmental Protection Agency from the Ohio River Valley which concludes that nearly 70 percent of mercury actually originates from nearby coal burning plants and not from widely dispersed sources.”
PH4-1c	Public Hearing Benson, MN Cesia Kearns	“...regardless of what kinds of controls may be used in the plant, it will still be emitting mercury and the deposition. Recent studies are showing it tends to be greater closer to plants, and it concerns me that these populations are going to be more negatively impacted than others because of the amount of mercury that will be emitted from Big Stone. And I feel like there is not adequate attention given to that. And it’s just a pretty serious matter, because it’s wrong basically.”
PH4-6e	Public Hearing Benson, MN Andrew Falk	“Mercury is a stable compound. It doesn’t break down in the environment like you hope. If you put a hundred pounds in the environment one year, put a hundred pounds the next year, it doesn’t go away; it stays there. That’s one of these things we need to address. The fact that we are just meeting the requirements, that we’re not rising above and beyond what potentially we could do to completely eliminate or eliminate to a very small percentage.”
SDEIS Comments		
SF-1e	USEPA	“...the DEIS does not contain clear information about the mercury emissions. The FEIS should clearly indicate how mercury emissions will be addressed.”
ST-1an	SWO	The commenter discussed the yearly trends of mercury deposition and that regardless of the actual mercury amounts emitted from proposed Big Stone II, mercury will continue to accumulate in the aquatic ecosystems on the Lake Traverse Reservation.
ST-1au	SWO	Mercury deposition appears to increase during precipitation events. The majority of precipitation comes during April to October. “This combination suggests that deposition of mercury from stack emissions could be significant for Lake Traverse Reservation. Regardless of the actual mercury amounts emitted from the Big Stone II plant, mercury will continue to accumulate year after year in aquatic ecosystems, therefore impacting the biological resources on and around the Lake Traverse Reservation.”
SS-1n	MnDNR	“...Big Stone Lake is listed as an ‘impaired water’ based on mercury concentrations. The potential for increased mercury release from sediments as a result of lower water levels and anoxic conditions needs to be investigated.”

Response: The commenters provided a variety of comments, expressing general concern about the proposed Project’s mercury emissions, such as the need for additional mercury emission information, the economic consequences of mercury pollution, the failure to analyze mercury emissions and impacts, and the lack of consideration of mercury control options. Based on the comments in this

subcategory, the analysis in Section 4.1.2.1 (see the subheading Mercury Emissions from the Existing and Proposed Plants) and Section 4.11.4 (Mercury portion of the Air Quality cumulative impacts subsection) of the Final EIS has been expanded. Additional details regarding analysis of mercury emissions also have been provided in a Mercury Response Paper (Response Paper A, Volume II). In addition, public health issues with respect to mercury are addressed in Section 4.7.2.1 in the Final EIS under the subheading Public Health and Safety and in the Mercury Response Paper. Western was able to analyze the impacts associated with the projected mercury emissions in accordance with the NEPA regulations at 40 CFR 1502.22, which states: “When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.” With respect to mercury emissions, Western has identified the areas where information does not yet exist and relies on available information where it does exist (such as the information discussed under the Mercury Emissions from the Existing and Proposed Plants subheading in Section 4.1.2.1 of the Final EIS).

With respect to the local impact of projected mercury emissions from the proposed Project, one commenter stated, “The Draft EIS states that ‘[a]irborne plant emissions could cause local and regional surface water quality impacts such as acidification or increase in mercury concentration.’ (DEIS at 4-15). The DEIS provides, however, no analysis in support of this statement.” The commenter suggests the Final EIS discuss the potential impacts of these emissions. Another commenter stated, “. . . regardless of what kinds of controls may be used in the plant, it will still be emitting mercury and the deposition. Recent studies are showing it tends to be greater closer to plants, and it concerns me that these populations are going to be more negatively impacted than others because of the amount of mercury that will be emitted from Big Stone. And I feel like there is not adequate attention given to that. And it’s just a pretty serious matter, because it’s wrong basically.” Other comments above refer to mercury emission studies (including studies done in Massachusetts, the Ohio River Valley, Florida, and the Great Lakes) that conclude local mercury deposition comes from nearby sources.

Regarding these comments, assessing the likely environmental impacts of mercury emissions from the proposed Big Stone II plant by simply extrapolating from the results of either national or regional-scale mercury impact studies or from the results of dissimilar local-scale emission and transport studies would produce inaccurate results, because many factors influence the transport and behavior of mercury in the environment. To estimate how emissions from a single source of atmospheric mercury might affect mercury levels in a local environment, it is necessary to consider a large amount of data regarding the emissions and the environmental conditions in the area surrounding the source. Among the vital data are the forms of mercury in the emissions; local meteorological, geographical, geological, and ecological data; and information on consumption of locally caught fish. Since the proposed plant is not operating, there are no mercury emission data that exists to determine the forms of mercury in the emissions. Western does have access to emission data from tests performed in 2002 on the existing plant that could be used to provide an estimate of deposition in the vicinity of the Big Stone site (Laudal, 2003), but planned emission controls at the existing plant and proposed new plant would change the amount of the various forms of mercury emitted. Specifically, the test results indicate that emissions from the existing plant are comprised of approximately 74 percent oxidized mercury and 26 percent elemental mercury. Emissions of particle-bound mercury were measured, but they were not detectable. All else equal, this data would be useful in analyzing deposition if the mercury controls would not change. However, the Co-owners have committed to additional controls at the existing and proposed Project. The emission controls for the proposed plant would include a selective catalytic reduction (SCR) system for NO_x emission control, a fabric filter for particulate control, and a Wet Flue Gas Desulfurization (WFGD) system. The WFGD system and the fabric filter for the existing Big

Stone plant would be used to reduce emissions from the existing plant through concurrent controls of the fabric filter and WFGD system. Additionally, the Settlement Agreement (Appendix K, Volume III of the Final EIS) obligates the Co-owners to install control equipment for the existing and proposed Big Stone plants that is likely to remove approximately 90 percent of the mercury emitted from the units. Due to the solubility of oxidized mercury in water, the addition of the WFGD system is expected to significantly change the mercury speciation of emissions of the existing plant. The mercury emissions speciation from the proposed Big Stone II unit is expected to be somewhat different than that for the existing plant due to the oxidation of elemental mercury that would take place across the SCR emissions control system, which is used for control of NOx emissions. The SCR would likely allow for a higher percentage of mercury to be in the oxidized form. Therefore, the forms of mercury in the emissions of the existing plant will change.

Despite this lack of data and the concerns with extrapolating from results of other studies, a 1997 USEPA report issued to Congress based on research of local impacts from mercury emissions may provide some guidance on mercury deposition and its impact on the surrounding area. The report makes two recommendations. First, facility-specific information about the forms of mercury in a facility's emissions should be utilized. The second recommendation in the USEPA report states that the assessment must account for the fact that each form of mercury behaves differently in the atmosphere. The report notes that the majority of mercury exiting a stack does not readily deposit, but is vertically diffused to the free atmosphere, by which it is transported outside the local area and into the global cycle. For purposes of air quality and environmental modeling, the local area is considered to extend 50 kilometers (approximately 30 miles) from the source. The report recommends using the following fractions to assess local impacts of mercury emissions:

- A vast majority of the vapor-phase elemental mercury (over 99 percent) does not readily deposit, but becomes part of the global cycle;
- Of the mercury emitted as vapor-phase divalent mercury, about 68 percent is deposited locally and about 32 percent diffuses vertically to the global cycle; and
- 36 percent of the particle-bound mercury is deposited, and the rest diffuses vertically to the global cycle.

Based on the USEPA's conclusions, facilities that emit higher fractions of uncontrolled oxidized mercury, especially vapor-phase mercuric chloride, are more likely to produce elevated levels of local mercury deposition than facilities that emit higher fractions of elemental mercury. As noted below, this is not the case with respect to the proposed plant. If the USEPA study could be used as a guide then of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. Furthermore, even without this study and the mercury emissions data from the proposed and existing project, it is still possible to reasonably assess whether its mercury emission would increase or decrease in the surrounding area.

With the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, and compliance with the conditions of the air permit for the proposed plant, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since a much higher fraction of mercury emissions from the

proposed plant would be expected to be in divalent form, and since the addition of the WFGD would remove a large portion of mercury in this form due to its solubility in water, emissions of divalent mercury from the combined plants would decrease and, as a result, deposition in the vicinity of the Big Stone site would likely also decrease. Additionally, since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it is reasonable to assume the mercury impacts resulting from the Big Stone site in the surrounding area would also decrease. For example, according to information from the MPCA, declines in mercury emission and deposition should result in reduced mercury concentrations in fish (MPCA, 2007). The reduced rate of bioaccumulation, when considering the MPCA information, suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation.

1.2.2 Mercury Emission Reductions or Mitigation

Comment Number	Name	Comment Summary
DEIS Comments		
F-1e	USEPA	The Draft EIS projects the two proposed Big Stone units together would have mercury emissions exceeding the proposed limit of South Dakota's Clean Air Mercury Rule of 144 pounds per year and would not allow interstate emission trading.
F-1h	USEPA	"...nor does it fully explain mercury emissions controls and costs."
F-1l	USEPA	The commenter suggests that the Final EIS should provide information on mercury reduction technologies beyond those already proposed in case additional reductions are required by the State plan.
F-1q	USEPA	It is suggested by the commenter to note in the Final EIS that the projections of potential future emissions assumed no use of the Advanced Hybrid™ system.
S-1c	MPCA	"The MPCA would be very pleased if the proposed project resulted in mercury emissions from the entire expanded Big Stone generating facility being lower than current emission levels from Unit 1. However, the EIS offers little evidence that the project is being designed to affirmatively achieve this mercury emissions rate. The EIS does not reference performance data for fabric filter/flue gas desulfurization where the claim of its use for achieving the goal can be demonstrated."
S-1d	MPCA	"The MPCA believes that the project proposer should include in its analysis of alternatives, the use of activated carbon injection. The technology is demonstrated to achieve mercury removal greater than 90% at subbituminous coal plants and is easily incorporated into new construction."
O-1h	CWA	"The Draft EIS fails to adequately address mercury reduction technologies that are reasonably available. . ."
O-1ai	CWA	"Exactly how much mercury will be emitted by Big Stone I and II?"
O-1aj	CWA	"Which mercury control technologies will be available to the Co-owners?"
O-1ak	CWA	"Which of these technologies will the Co-owners use to control mercury?"
O-1al	CWA	"How will Big Stone respond to changing mercury regulations in a manner that minimizes risks to energy consumers?"

Comment Number	Name	Comment Summary
O-2h	Sierra Club	The commenter does not find the Co-owners' plan to maintain within mercury compliance adequate. Rather than using the cap and trade program, it was felt that to meet CEQ requirements and the state's mercury goal, the Final EIS must analyze the mitigation methods.
O-2i	Sierra Club	The comment explains that the Draft EIS did not assess the additional mercury control technologies that are reasonably available.
O-3y	Joint Commenters	The commenters expressed concern regarding the technology options considered in the Draft EIS. It was requested that Western consider brominated carbon injection technology as part of its review.
O-4h	MnRES	"The Big Stone II Co-Owners, having originally projected initial, 2012 mercury emissions from the combined Big Stone I and Big Stone II units at 399 lbs./ year (p. 4-10), are cited in the DEIS as having the "goal" of reducing that amount – through the use of unspecified technologies and programs that may or may not include purchase of allowances under a cap-and-trade scheme – below the level of the existing facility (189 lbs.) to a level of 144 lbs., meeting the CAMR requirement This is later to be further offset via cap-and-trade – but not actually reduced, since cap-and-trade by its nature leaves existing emissions in place – to a level meeting the ultimate CAMR requirement of 56 lbs. after 2017."
I-2b	Lois Braun	"The DEIS does not adequately explain how it will mitigate mercury emissions. Mercury is a serious human health hazard, which disproportionately affects women, children and native peoples who fish for subsistence."
I-8g	Joe Foss	"The longer term solution is to significantly reduce mercury contamination in the general environment."
I-17i	Jeanne Koster	". . .The DEIS does not give any exposition, either positive or negative, of mercury reduction alternatives that might maximize reduction and save money at the same time. This seems a wrongful omission."
I-17j	Jeanne Koster	"The omission of consideration of a mercury reduction alternative is egregious due to mercury's neurotoxicity. Eating mercury tainted fish is one pathway for mercury damage to health and threatens developing fetuses and children under fifteen with neurological impairment. Where is the credible analysis of mercury control alternatives in this DEIS?"
I-30d	Gregory Stricherz	". . . any coal-burning plant should be required to have the absolute most up-to-date mercury containment equipment."
I-36g	Joe Erjavec, et al	"Genuine attempts should be made to mitigate this pollution."
I-36h	Joe Erjavec, et al	"Again, these alternatives should be reflected in the EIS."
PH1-5c	Public Hearing Big Stone City, SD Jeanne Koster	"Are they going to upgrade their pollution technology, or are they going to rely on cap- -- I forget the name of the term. Are they going to rely on credits that they can purchase from utilities who are making a better effort at compliance? And I hope it will also be explained, if they are planning to rely on purchasing credits from other utilities, whether they are actually purchasing from themselves in another state besides South Dakota."
PH1-5d	Public Hearing Big Stone City, SD Jeanne Koste	". . . .Co-owners in the plant in South Dakota also may have plants in Minnesota, which is going to be operating at a much higher standard. So they will be spending their pollution control money control in Minnesota, and then the plants in Minnesota conceivably could be selling credit to the same company operating, so that they can pollute in South Dakota. If this is going to be the case, we hope it will be reflected in the Final EIS."

Comment Number	Name	Comment Summary
PH3-6a	Public Hearing Granite Falls, MN Julie Jansen	“The Big Stone II’s Co-owners propose releasing up to 399 pounds of mercury into the environment each year. The Clean Air Mercury Rule allows the entire state of South Dakota 144 pounds of mercury pollution per year. The Draft EIS is unclear on the issue of mercury. Will Big Stone I and II emit the projected 399 pounds of mercury, thereby increasing the mercury emissions above Big Stone I’s recent level? Or will Big Stone I and II emissions meet the Co-owners’ goal of 144 pounds per year? If Big Stone I and II do not achieve the goal of 144 pounds per year, can they buy mercury allowances necessary to operate the plant? If the Draft EIS provides no clarity with regard to Big Stone mercury’s pollution, the Co-owners have not made a formal commitment to achieve their mercury emission goals, and they prematurely rely on the Clean Air Mercury Rule, a troublesome and unsettled law.”
PH3-7f	Public Hearing Granite Falls, MN Delores Miller	“Instead of increasing the mercury emission, I believe we need to use some of the renewable energy, and I think it’s the responsibility of the power companies to see – The customers are paying the bill and they’re also paying the consequences if things aren’t met properly.”
PH4-2a	Public Hearing Benson, MN Christopher Childs	“On the issue of mercury, the initial figure that I was told for the output of this unit was something approaching 400 pounds of mercury. On a recent visit to the plant, I was assured that the plant would put out no more than the current output of the existing unit, which is 190 pounds. I note in the DEIS that the target is now down to 144 pounds. While I can applaud the choice of the owners, the proposed owners of the proposed plant to reduce the mercury by that amount, I have to say that from my perspective, it does not sufficiently address the issue.”
PH4-2b	Public Hearing Benson, MN Christopher Childs	The commenter expressed concern with the calculation of mercury output by the existing plant and the proposed plant.
PH4-2c	Public Hearing Benson, MN Christopher Childs	“The fact is that most, virtually all of the lakes in Minnesota are already contaminated with mercury. That is why the bill was recently passed to require these extreme reductions in amount of mercury.”
PH4-5d	Public Hearing Benson, MN Erin Jordahl Redlin	“The EIS, we didn’t see any mention of how they’ll be reducing to 58 pounds then in 2018. Will they be buying credits from another state? If so, the expense of the credits that will be passed on to the rate payers, that should be accounted for in the EIS.”
SDEIS Comments		
SF-2a	USDOJ	USDOJ is concerned with impacts of mercury on wildlife and the Minnesota River. USDOJ indicated up-to date technology should be employed for mercury control and a commitment should be made to adopt improved technologies as they become available.
SI-7f	Michaeleen Kelzenberg	“If an additional coal plant is needed it should be built with the most sophisticated scrubbing technology that is available and a design.”

Response: The commenters requested additional information on mercury reduction options, mercury mitigation efforts, and impacts of mercury emission from the proposed Project. The Co-owners have committed to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant per the Settlement Agreement with the MnDOC. The mercury controls would result in mercury emissions of approximately 81.5 pounds (lb) per year from the combined plants (a decrease of approximately 57 percent). Therefore, with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, and compliance with the conditions of the Title V air permit

(pending approval from the USEPA) for the proposed plant, the rate of mercury deposition would decrease as a result of the proposed plant being constructed.

A few of the comments in this subcategory indicated that the EIS needed to address alternate mercury emission control technologies, including activated carbon injection. Additional information has been provided in the Mercury Response Paper (Response Paper A, Volume II) concerning alternate control technologies, including the Co-owners' participation in research examining alternative control technologies. The Co-owners plan to evaluate various technologies and reagents between now and the time that the Settlement Agreement reductions are required. This evaluation would include (1) an preliminary assessment of the performance of available technologies, (2) a consideration of the unit specific emissions characteristics of mercury from the existing plant and the proposed Big Stone II plant, (3) the chemical differences between the various species of mercury, (4) the operating and capital cost differences for various control technologies and reagents, and (5) the impact to ratepayers. For some of these evaluations, it would be necessary to perform tests to evaluate control technologies available to the Co-owners upon startup of proposed Big Stone II plant. In addition, it is expected that mercury control technologies would continue to evolve over time. Thus, a complete assessment of mercury control technologies and reagents cannot be completed until after the proposed plant has been operating for sometime. However, the Co-owners have agreed to act in good faith to install such equipment as expeditiously as possible, but have four years after the commercial operation date of the proposed Big Stone II plant to achieve compliance with this commitment. A detailed discussion of mercury control technologies is included in the Mercury Response Paper.

Commenters also questioned the mercury-control technology proposed for the proposed Big Stone II plant, including whether or not the mercury emissions could be appropriately offset per the Clean Air Mercury Rule (CAMR). As noted above in Section 1.2.1, the CAMR was vacated by the U.S. Court of Appeals for the District of Columbia Circuit in March 2008 and is no longer applicable to the proposed Project. The Mercury Response Paper (Response Paper A, Volume II) and Section 4.1.2.1 (within the subheading Mercury Emissions from the Existing and Proposed Plants) of the Final EIS provides discussions that explain how mercury emissions from the proposed Big Stone II plant would be controlled in absence of CAMR. The regulation of mercury emissions from coal-fired electric generation units (EGUs) now falls under the requirements of Section 112, Maximum Available Control Technology (MACT) standards. The Big Stone site (i.e., includes both the existing and proposed plant sites) is subject to regulation under MACT. However, since the proposed Big Stone II plant is not a major source of hazardous air pollutant emissions as defined in Section 112, and there are no MACT standards for mercury currently in place, there are no regulatory requirements regarding mercury that need to be addressed. The absence of current standards for mercury does not negate Western's obligation to analyze potential impacts of mercury emissions associated with the proposed Project. As discussed in Section 4.1.2 of the Final EIS, mercury emissions are addressed in the "Settlement Agreement, High Voltage Transmission Lines – Big Stone Unit II, Minnesota Public Utilities Commission docket No. CN-05-619," (Settlement Agreement, Appendix K, Volume III of the Final EIS) effective August 30, 2007, between the Co-owners and the Energy Planning and Advocacy function of the MnDOC. Even though the proposed Big Stone II Project does not fall under the jurisdiction of the Minnesota regulations, the Co-owners have entered into the Settlement Agreement with the MnDOC, where the Co-owners agree to meet Minnesota mercury emission requirements. The terms of the Settlement Agreement were included as a condition to the Certificate of Need, issued March 17, 2009. Thus, the Settlement Agreement is binding and requires the Co-owners to install emission controls likely to result in removal of at least 90 percent of the mercury emitted from the

existing plant and the proposed Big Stone II plant. Additionally, the proposed Project would be required to comply with any new applicable regulations promulgated for mercury.

One commenter stated, "...The EIS does not reference performance data for fabric filter/flue gas desulfurization where the claim of its use for achieving the goal can be demonstrated." While it is difficult to determine the future performance of control technologies at a single plant, the Co-owners have some experience with controls evaluated on a similar plant. The Co-owners have jointly participated in a research and testing project on Texas Genco's W.A. Parish Station Unit 8. This electric generating unit is a similar size, burns similar coal, and is equipped with similar emissions control equipment and configuration to the proposed Big Stone II plant. The preliminary test results at the Parish Station Unit 8 plant indicate that mercury removal in excess of 90 percent is possible (Laumb, Jason, Li Yan, and John Sanislowski, 2006). Some test results showed removal rates of 94 percent at W.A. Parish. While a portion of the mercury was captured by the fabric filter, the results indicate that nearly all of the oxidized mercury was captured in the WFGD. Commercially available mercury control technologies are currently limited, but additional research and development activity is anticipated to produce additional options that will become available during the next few years. As such, there is presently no long-term operating record for any mercury control technology on a comparable size facility. Considering the unit specific emissions characteristics of mercury from coal-fired boilers and the chemical differences between the various species of mercury, it would be necessary to perform tests to evaluate control technologies available to the Co-owners upon startup of proposed Big Stone II plant.

The Advanced Hybrid system (discussed in Section 4.1.2.1 of the Final EIS under the subheading Plant Emissions and Air Quality Impacts Assessment) was removed from the existing unit. The demonstration technology encountered operational problems during its testing phase, which resulted in decreased fabric filter life, decreased particulate removal efficiencies, and limited plant operations. Despite replacing all of the fabric filter bags with a number of alternative bag fabric designs and increasing the filter area by nearly 40 percent at a cost of between \$4.0 and \$4.5 million, the Advanced Hybrid™ technology was unable to maintain desired plant electrical output and sustain acceptable particulate emission levels. Consequently, the Advanced Hybrid™ system was deemed unacceptable for particulate emissions control and was removed from the existing plant in 2007. The Advanced Hybrid™ system for the existing plant was replaced with a conventional pulse-jet fabric filter. The Advanced Hybrid™ system is not currently used in any coal-fired power plant, and it is not considered a viable technology to use for emissions control at the proposed Big Stone II plant.

Regarding comments PH1-5c, PH1-5d, and PH3-6a above, CAMR has been vacated in March 2008, and the proposed Plant is not regulated under any mercury cap-and-trade program. Therefore, the ability to sell credits or use credits to cover emissions is not possible at this time.

1.2.3 Public Health Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-1i	CWA	The commenter believes the EIS did not fully consider the economic consequences of Big Stone's mercury pollution or the environmental consequences. The commenter believes that the conclusion that the mercury pollution will be "insignificant" is debatable and warrants a more careful analysis than was provided.

Comment Number	Name	Comment Summary
O-1ax	CWA	“What will be the widespread impact on human health from Big Stone’s mercury emissions?”
O-4j	MnRES	“Both the issue of global climate change and mercury deposition raised above have profound implications for public health and for the regional economy that are either ignored or insufficiently addressed in the DEIS – as are other externalities.”
O-4n	MnRES	“Concerning the health impacts of mercury pollution, the DEIS is simply dismissive – failing even to cite the well-known negative neurological consequences of mercury (this despite inclusion, among its References, of a government document spelling out those effects – see ‘Agency for Toxic Substances and Disease Registry (ATSDR), 1999a. ToxFAQs for Mercury’ (p. 8-1)). It defends this negligence with the curious comment that mercury’s effects ‘cannot be fully appraised or separated from those of other contaminants’ (p. 4-128.)”
I-2c	Lois Braun	The commenter notes that the health costs of coal burning are astronomical. Every year Minnesota alone spends \$303 million on neurobehavioral disorders and \$30.6 million on asthma in Minnesotan children. “Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses.”
I-8f	Joe Foss	“ . . . Mercury is well-known to cause damage to the development of a child’s brain. That is why there are health warnings to limit your intake of certain fish. Pregnant women or very young children are instructed to restrict their consumption even further.”
I-11b	Merle Green	“Financial cost of using coal is increasing as are health and environmental cost. Mercury and other matter from emissions contribute significantly to nervous system and respiratory problems.”
I-12c	Thomas A. Hillenbrand	“Let’s try to make this an environmental issue rather than an economic one. Health over economic prosperity. The mercury and carbon dioxide emissions for these plants are very serious health issues for local and global residents. I would like to ask the PUC to go slowly and to seriously consider the concerns of the local citizens who live in the immediate area.”
I-17g	Jeanne Koster	“The treatment of mercury emissions on pages 4-8 through 4-10 raises serious but unresolved regulatory and economic issues. Furthermore, it overlooks certain issues with potentially grave public health consequences. It also overlooks an obligation to consider alternatives that can forestall the regulatory problem and may forestall the economic problem.”
I-17j	Jeanne Koster	“The omission of consideration of a mercury reduction alternative is egregious due to mercury’s neurotoxicity. Eating mercury tainted fish is one pathway for mercury damage to health and threatens developing fetuses and children under fifteen with neurological impairment. Where is the credible analysis of mercury control alternatives in this DEIS?”
I-21a	Terry J. Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”

Comment Number	Name	Comment Summary
I-28e	Roy Smith	“...social costs are significant: a recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from this plant will contribute significantly to these illnesses.”
I-30b	Gregory Stricherz	“When coal is burned, it becomes one of the worst dispersers of mercury. When that mercury is released into the atmosphere, it pollutes lakes making the fish from those lakes dangerous to eat. The mercury is also borne for long distances in the air and can cause serious bodily harm when it is inhaled.”
FL-1f	CWA Form Letter	“... The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-8c	Sierra Club Form Letter	The commenter expresses concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant, including neurobehavioral disorders and asthma.
FL-8d	Sierra Club Form Letter	The commenter states that the Draft EIS did not adequately take into account the Environmental Justice implication of the proposed expansion of the coal plant and the impact on human health. Also, it was not felt the Draft EIS considered the disproportionate impact on Native American families that live in proximity to the proposed plant and consume a large amount of contaminated fish.
PH1-2b	Public Hearing Big Stone City, SD Lanny Stricherz	“I have had several locals tell me of the mercury pollution in most of the lakes in the region. I had an interesting conversation with a fisherman from the town of Clear Lake... he catches and releases all except he takes one fish home with him each time he comes up. And he feeds part of that fish to his cat. His cat gets sick off from every fish that he gives him... He’s pretty sure it’s the mercury that causes it. He also took fish home to his mother who cooked it for his sister and his sister’s daughter, and his sister got sick off of it and her doctor told her it was probably from a combination of the medication she was on interacting with the mercury.”
PH1-4a	Public Hearing Big Stone City, SD Delores Miller	“... I didn’t see anything mentioned as the mercury, about the mercury pollution and how it affects the health of the people involved. And I thought to myself, all these other issues were addressed, the birds, the land. Didn’t mention the lakes. Just all kinds of issues, but nothing about how it affects our health and how our children and grandchildren are going to be affected. And it kind of tells me that it’s going to be swept under the rug, because there are issues that need to be addressed.”
PH1-7g	Public Hearing Big Stone City, SD Mary Jo Stueve	“The Draft EIS does not address real and scientifically driven demonstrated effects of mercury on environment and public health.”

Comment Number	Name	Comment Summary
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	The commenter states that her concerns with respect to health include the following: 1) Exposure to mercury pollution is especially harmful to women of child bearing age, fetuses, and children, because it leads to neurological problems. 2) Low birth weight due to mercury exposure and the public costs associated with it; the comment included information on the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.
PH3-7e	Public Hearing Granite Falls, MN Delores Miller	“Like mercury has not been addressed like it should be, as it was stated in this last comment up here. And that is one of my top priorities as far as health of children and the unborn babies and of the elderly, and the carbon dioxide, the asthma problems and all of these other things that come up. We need the coal power, but we also need an alternative”
PH1-9a	Public Hearing Big Stone City, SD Lanny Stricherz letter	“I have had several Native Americans tell me of the mercury pollution in most of the lakes in the region. I had an interesting conversation with a fisherman from the town of Clear Lake. . . he catches and releases all except he takes one fish home with him each time he comes up. And he feeds part of that fish to his cat. His cat gets sick off from every fish that he gives him. . . He’s pretty sure it’s the mercury that causes it. He also took fish home to his mother who cooked it for his sister and his sister’s daughter, and his sister got sick off of it and her doctor told her it was probably from a combination of the medication she was on interacting with the mercury.”
PH4-1e	Public Hearing Benson, MN Cesia Kearns	“And we’re keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that’s kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
SDEIS Comments		
ST-1u	SWO	“How will lower flows in the Minnesota River affect aquatic life and subsequently, human health, considering existing Mercury levels as well as additional Mercury contributions by Big Stone II operations?”
ST-1an	SWO	The commenter discusses the yearly trends of mercury deposition and that regardless of the actual mercury amounts emitted from proposed Big Stone II, mercury will continue to accumulate in the aquatic ecosystems on the Lake Traverse Reservation.
ST-1ap	SWO	The commenter does not feel the Co-owners adequately address the cumulative impacts of methylmercury accumulation.

Comment Number	Name	Comment Summary
SFL-32d	Sierra Club Form Letter SDEIS	“. . .the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”
SFL-45b	Sierra Club Form Letter SDEIS Susan Johnson	“Our children deserve to have a life free from mercury in their systems.”
SFL-54a	Sierra Club Form Letter for SDEIS Bob Peterson	“Mercury can do neurological damage.”

Response: The commenters expressed concern about the human health impacts related to mercury emissions from the proposed Project. Commenters were specifically concerned with such health factors related to mercury as neurological consequences, child development, respiratory consequences, and other health impacts.

In response to these comments, Western expanded sections in Chapter 4 to address accumulation of mercury in fish and public health effects from methylmercury contamination; see Sections 4.4.2.1 (Fisheries subsection), 4.7.2.1 (Public Health and Safety subheading), and 4.10.2.1 (Environmental Justice subheading). In addition, the Mercury Response Paper (Response Paper A, Volume II) includes information on the effects of mercury emissions and (as discussed in Section 1.2.1, above) deposition in the local area surrounding the proposed Big Stone II plant location and beyond. The Response Paper addresses sources of mercury, its deposition in the environment, and resultant biological and health effects. The discussion is based on the latest research conducted by research organizations, including the USEPA.

Without question, mercury is a toxic substance. In particular, if a pregnant woman ingests significant amounts of methylmercury, the developing brain of her offspring can be harmed. At even higher levels of exposure, the nervous systems of children and even adults may also be harmed. As with all substances, however, the exposure level determines the impact on human health. See the Mercury Response Paper for more information on studies that focused on human exposure to mercury.

According to the USEPA, people in the U.S. are mainly exposed to methylmercury, an organic compound, when they eat fish and shellfish that contain methylmercury. For fetuses, infants, and children, the primary health effect of methylmercury is impaired neurological development. Methylmercury exposure in the womb, which can result from a mother’s consumption of fish and shellfish that contain methylmercury, can adversely affect a baby’s growing brain and nervous system. Impacts on cognitive thinking, memory, attention, language, and fine motor and visual spatial skills have been seen in children exposed to methylmercury in the womb. In addition, symptoms of methylmercury poisoning may include impairment of the peripheral vision; disturbances in sensations; lack of coordination of movements; impairment of speech, hearing, and walking; and muscle weakness. To reduce human exposure to mercury, many state agencies have developed fish consumption advisories (SDDENR, 2008a; MnDOH, 2008).

In the mid-1990s, the USEPA reviewed a vast number and wide range of research studies to better understand the sources, transport, fate, and effects of mercury in the environment. In 1997, they issued the comprehensive Mercury Study Report to Congress (USEPA, 1997a). This report provided a framework and an initial set of data for modeling mercury's atmospheric dispersion and deposition, land and water-based transport and transformation, and its bioaccumulation in the aquatic food chain. Much of the framework and many of the findings of this report were later incorporated into a guidance document referred to as the Human Health Risk Assessment Protocol (HHRAP) (USEPA, 2005g) for assessing the potential human health impacts caused by emissions of mercury and many other compounds emitted by combustion facilities. As noted in Section 1.2.1 above, the primary recommendations of the HHRAP for assessing mercury emissions is that the three general forms of atmospheric mercury (elemental, oxidized, and particle-bound) need to be modeled separately, and that source-specific measurements or estimates of the fractionation of the three forms should be used. The HHRAP also recommends the use of as much site-specific data as possible to model the subsequent transport and transformation of mercury in soil, water, and the biota. To estimate how emissions from a single source, such as the existing plant or the proposed Project, of atmospheric mercury might affect mercury levels in an environment and the related health impacts, it is necessary to consider a large amount of data regarding the emissions and the environmental conditions in the area surrounding the source. Among the vital data are the forms of mercury in the emissions; local meteorological, geographical, geological, and ecological data; and information on consumption of locally caught fish. Since the proposed plant is not operating, there are no mercury emission data that exists to determine the forms of mercury in the emissions. Western does have access to emission data from tests performed in 2002 on the existing plant that could be used to provide an estimate of deposition in the vicinity of the Big Stone site (Laudal, 2003), but planned emission controls at the existing plant and proposed new plant would change the amount of the various forms of mercury emitted. Thus, without this emissions data, Western cannot perform an analysis to assess the health impact of mercury emissions from the existing or proposed Project. However, as noted in Section 1.2.1 above, mercury emissions from the existing and proposed plant would be less than total mercury emissions from the existing plant due to the planned implementation of the air pollution controls, so the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it reasonable to assume the mercury impacts on health would also decrease. Some mercury would still be emitted from the existing and the proposed plant, and these mercury emissions would still bioaccumulate in fish and could affect those who eat fish and others who are exposed to mercury emissions from the proposed Project. However, the proposed Project would not cause an increase in the rate of accumulation of methylmercury concentrations in fish, although bioaccumulation of methylmercury would continue at a reduced rate. Further, according to information from the MPCA, declines in mercury emission and deposition should result in reduced mercury concentrations in fish (MPCA, 2007). The reduced rate of bioaccumulation, when considering the MPCA information, suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation.

If the fish consumption advisories currently developed by State agencies (SDDENR, 2008a; MnDOH, 2008) are followed, there would not be a disproportionate impact from consumption of fish on any population (including minority or low income populations) concerned with neurological issues attributed to mercury. Alternatively, if fish are consumed by minority and low income populations in

quantities greater than the State advisories, Western is unable to determine if the proposed Project would have a disproportionate impact to these populations. This is because there is a lack of currently available mercury emissions data (as noted above) that is necessary to assess the levels in nearby and regional lakes.

Regarding the comments quoting an estimated social impact of \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children, Western notes that these costs were provided by the commenter, who did not provide any reference for these costs. Nevertheless, Western acknowledges the commenter’s estimates and has no basis for disputing them. However, as mentioned above, there is no way to assess the social impacts of a specific source such as the proposed Project. The commenter’s estimates will be taken into consideration by Western’s decision of whether or not to interconnect the proposed Project with Western’s transmission system. See Section 1.2.1 above for a more detailed discussion of the concerns in relying on mercury emission studies.

One commenter stated, “When coal is burned, it becomes one of the worst dispersers of mercury. When that mercury is released into the atmosphere, it pollutes lakes making the fish from those lakes dangerous to eat. The mercury is also borne for long distances in the air and can cause serious bodily harm when it is inhaled.” Regarding the inhalation aspect of the comment, a 1998 USEPA report (USEPA, 1998c) that studied hazardous air pollutant (HAP) emissions (including mercury) from electric utility steam generating units stated under a section titled “Inhalation Cancer Risks for Coal-Fired Utilities Based on Local Analysis” (1990). The following result was noted, “The vast majority of coal-fired plants (424 of the 426 plants) are estimated to pose lifetime cancer risks (i.e., increased probability of an exposed person getting cancer during a lifetime) of less than 1×10^{-6} due to inhalation exposure to utility HAP emissions. Only two of the 426 plants are estimated to potentially pose inhalation risks greater than 1×10^{-6} . The increased lifetime cancer Maximum Individual Risk due to inhalation exposure to coal-fired utility HAP emissions, based on the local analysis, is estimated to be no greater than 3×10^{-6} . The cancer incidence in the U.S. due to inhalation exposure to HAPs (including radionuclides) from all 426 coal-fired plants based on the local analysis is estimated to be no greater than approximately 0.2 cancer cases per year (cases/yr), or 1 case every 5 years.” Minnesota has one of the most stringent mercury regulations in the U.S. established for protection of human health and the environment. Minnesota has adopted a rule regulating mercury emissions from coal-fired power plants greater than 500 MW (Mercury Emission Reduction Act of 2006 Minnesota Statutes §§ 216B.68 to 216B.688). The rule requires a 90 percent removal of mercury from units with wet scrubbers by December 31, 2014. Western also notes that the mercury reduction commitments by the Co-owners would result in the proposed Project meeting or exceeding the requirements of the Minnesota rule.

1.2.4 Public Health Impacts from Mercury Contaminated Fish Consumption

Comment Number	Name	Comment Summary
DEIS Comments		
B-3d	Rose Creek Anglers	“I highly believe that the proposed emission reductions will not be enough to negate current threats to our fisheries and our health?”
T-1d	SWO	“The fish in the lakes within the original boundaries of the Lake Traverse Reservation could become contaminated. This contamination could result in fish that will be unsafe to eat.”

Comment Number	Name	Comment Summary
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado ...”
I-30b	Gregory Stricherz	“When coal is burned, it becomes one of the worst dispersers of mercury. When that mercury is released into the atmosphere, it pollutes lakes making the fish from those lakes dangerous to eat.”
FL-1f	CWA Form Letter	“. . . The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-4g	CWA Form Letter Timothy DenHerder-Thomas	“Mercury pollution is a serious problem for anyone who eats fish, in addition to the wildlife (especially birds) that make living in Minnesota attractive and support a strong tourism and outdoor recreation industry, providing over 300,000 jobs in Minnesota alone.”
FL-10b	Sierra Club Form Letter Lee Johnson	“Our greatest treasure in Minnesota (besides our children, and two of our kids have asthma which is aggravated by particulates from powerplant emissions) are our 10,000 beautiful lakes, many of which have recently been downgraded with fish consumption advisories due to mercury from power plant fallout.”
FL-16c	Sierra Club Postcard	“Mercury and Environmental Justice- The DEIS does not adequately take into account the Environmental Justice implications of the expansion of the coal plant and the impact on human health, particularly for women, children, and subsistence fishers. For example, the disproportionate impact on Native American families that live in proximity to the plant, and consume a large amount of fish.”
FL-16d	Sierra Club Postcard	“Mercury from coal plant emissions contaminate fish tissue and cause neurobehavioral disorders. The DEIS ignores recent studies in Massachusetts, Ohio, Florida, and the Great Lakes showing that local sources of mercury impact local water bodies to a greater extent than previously known. Minnesota recently passed one of the strongest mercury reduction laws in the country. Transmission lines for a new dirty coal plant just over our border destroys the progress of bi-partisan leadership in setting new standards for mercury reduction in Minnesota.”
PH3-1c	Public Hearing Granite Falls, MN Dick Unger	“Now we already can’t eat the fish, even here in Montevideo, out of our river, more than once a week. There is mercury in all the lakes. And if this balloons, it would cut Minnesota’s lake country.”

Comment Number	Name	Comment Summary
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	<p>The commenter states that her concerns with respect to health include the following:</p> <p>1) Exposure to mercury pollution is especially harmful to women of child bearing age, fetuses, and children, because it leads to neurological problems.</p> <p>2) Low birth weight due to mercury exposure and the public costs associated with it; the comment included information on the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education.</p> <p>3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.</p>
PH1-9a	Public Hearing Big Stone City, SD Lanny Stricherz letter	<p>“I have had several Native Americans tell me of the mercury pollution in most of the lakes in the region. I had an interesting conversation with a fisherman from the town of Clear Lake. . . he catches and releases all except he takes one fish home with him each time he comes up. And he feeds part of that fish to his cat. His cat gets sick off from every fish that he gives him. . . He’s pretty sure it’s the mercury that causes it. He also took fish home to his mother who cooked it for his sister and his sister’s daughter, and his sister got sick off of it and her doctor told her it was probably from a combination of the medication she was on interacting with the mercury.”</p>
PH4-1e	Public Hearing Benson, MN Cesia Kearns	<p>“And we’re keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that’s kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”</p>
PH4-6f	Public Hearing Benson, MN Andrew Falk	<p>“Many of these people don’t live in this area. They don’t live in the community. They don’t go fishing in these lakes. For those of us that live here, we want to have these questions addressed and answered. We live in this community. We work here; we play here. We want to make sure that we can go fishing, and that we can eat our fish.”</p>
PH4-6g	Public Hearing Benson, MN Andrew Falk	<p>“. . . One of the most interesting statistics I heard was one tablespoon of mercury will pollute 40 acres of lake. It will make it so all the fish in that are deemed unsafe for human consumption. We’re talking about 189 pounds of mercury per year. The next year. The next year. The next year. I’m not sure exactly what the life expectancy of this plant is. I’m assuming it’s close 20 to 40 years. But how much of mercury are we willing to put in this environment, are we willing to subject our children and families to? It just seems that these questions have not been adequately addressed in this EIS.”</p>
PH4-8b	Public Hearing Benson, MN Karen Falk	<p>“But then when we had to talk about how you couldn’t really swim or tube in the Chippewa water, because there are too many organisms that would make you sick if you got it in your mouth. Then we talked about going fishing, and they’re really, they’re ten years old so they shouldn’t be eating the fish at all. And it’s pretty hard to look at a classroom of ten and eleven years old and tell them, ‘You can’t do that anymore.’ And I do that every year. And they say, ‘Well, why?’ And I say, ‘Well, it’s harmful.’ ”</p>
SDEIS Comments		
No comments received.		

Response: The commenters requested additional consideration of the human health impacts related to mercury-contaminated fish consumption. Commenters were specifically concerned with mercury emissions from the proposed Project and how these emissions may impact the fish in local lakes and the health of people who consume them.

In response to these comments, Sections 4.7.2.1 (see the Public Health and Safety subheading), and 4.10.2.1 (see the Environmental Justice subheading) of the Final EIS were expanded to address public health effects from eating mercury contaminated fish. In addition, the Mercury Response Paper (Response Paper A, Volume II) includes information on the effects of mercury emissions and deposition in the local area surrounding the proposed Big Stone II plant location and beyond, including a discussion on the available pathways for mercury to bioaccumulate in fish tissues, and addresses sources of mercury, its deposition in the environment, and resultant biological and health effects. See Section 1.2.3 above for Western's Response to Comments about public health concerns for any population, including minority or low income populations, that eat mercury contaminated fish.

Methylmercury contamination in waterbodies may cause physiological effects to aquatic and semi-aquatic plants and physiological and neurological effects to animals, as well as alter the physical properties of the waterbody's substrate. Methylmercury can be found in fish, which may be consumed by the general population and minority and low income populations. The combined emissions of mercury from the existing and proposed Big Stone II plants would decrease from current emission rates for the existing plant. As discussed in Section 4.4.2.1 (see the Fisheries subsection), the proposed Project would not cause an increase in the rate of accumulation of methylmercury concentrations in fish, although bioaccumulation of methylmercury would continue at a reduced rate. According to information from the MPCA, declines in mercury emission and deposition should result in reduced mercury concentrations in fish (MPCA, 2007). The reduced rate of bioaccumulation, when considering the MPCA information, suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation.

The South Dakota Department of Environment and Natural Resources (SDDENR) tests for mercury in fish in South Dakota lakes and rivers in cooperation with the South Dakota Department of Game, Fish & Parks. As a result of this testing, fish consumption advisories were put in effect (SDDENR, 2008a) for six lakes for healthy adults, children over seven, children under seven, and high risk groups (women who plan to become pregnant, are pregnant, or are breast-feeding) South Dakota does not list Big Stone Lake or the Whetstone River. The closest listed lake to the existing plant is Bitter Lake, approximately 39 miles west of the proposed plant. For the state of Minnesota, the Department of Natural Resources (MnDNR), the Minnesota Pollution Control Agency (MPCA), and the Minnesota Department of Health (MnDOH) collaborate in producing the fish consumption advisory for Minnesota lakes and rivers. Fish from over 1,000 Minnesota lakes and streams have been tested for contaminants (MnDOH, 2008). Table 4.4-2 in the Final EIS compares concentrations of mercury in several fish species within Big Stone Lake to averages in fish species in Minnesota lakes. The comparison shows that except for sunfish, the tissue mercury levels in fish in Big Stone Lake (the closest lake to the proposed plant) are less than the tissue levels within similar fish species on the average in lakes throughout Minnesota.

Regarding Comment FL-16d, please see Section 1.2.1 above for a discussion of studies that conclude local mercury deposition comes from nearby sources.

1.2.5 Cost of Public Health Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-1i	CWA	The commenter believes the EIS did not fully consider the economic consequences of Big Stone's mercury pollution or the environmental consequences. The conclusion that the mercury pollution will be "insignificant" they believe is debatable and warrants a more careful analysis than was provided.
O-3am	Joint Commenters	The commenters discuss the projected annual environmental damage cost associated with proposed Big Stone II's mercury emissions.
I-2c	Lois Braun	The commenter notes that the health costs of coal burning are astronomical. Every year Minnesota alone spends \$303 million on neurobehavioral disorders and \$30.6 million on asthma in Minnesotan children. "Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses."
I-9c	Sergio Gaitan	"My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado ..."
I-11b	Merle Greene	"The financial cost of using coal is increasing as are its health and environmental costs – Mercury and other matter from coal plant emissions contribute to respiratory problems."
I-28e	Roy Smith	". . .social costs are significant: a recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from this plant will contribute significantly to these illnesses."
FL-8c	Sierra Club Form Letter	The commenter expresses concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.
PH1-7g	Public Hearing Big Stone City, SD Mary Jo Stueve	"The Draft EIS does not address the real and scientifically-driven demonstrated effects of mercury on the environment and public health."
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	The commenter states that her concerns with respect to health include the following: <ol style="list-style-type: none"> 1) Exposure to mercury pollution is especially harmful to women of child bearing age, fetuses, and children, because it leads to neurological problems. 2) Low birth weight due to mercury exposure and the public costs associated with it; the comment included information on the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.
SDEIS Comments		
No comments received.		

Response: The commenters expressed concerns about the need for additional consideration of the cost of human health related to mercury emissions. Commenters were specifically concerned with mercury emissions from the proposed Project and how these emissions may impact the cost of healthcare.

Based on these comments, Western has provided additional discussion in Section 4.1.2.1 (under the subheading Mercury Emissions from the Existing and Proposed Plants) of the Final EIS and in Section 4.10.2.1 (under the subheading Economic Impact of Mercury Emissions). An additional health discussion is also provided in the Mercury Response Paper (Response Paper A, Volume II). In addition, Public Health issues are addressed in Section 7 of this Responses to Comments document. Also, in preparation for regulation of mercury emissions from utility boilers under the MACT requirements of Section 112 of the Clean Air Act Amendments of 1990, as well as under the now overturned CAMR, USEPA conducted various studies related to the health effects of mercury and their associated costs. Out of these studies came other studies that have estimated the public health and economic costs of environmental mercury, and in particular, the costs due to mercury emitted by coal-fired power plants. The most prominent of these studies (EHP, 2005a) was published in 2005 by researchers at medical schools and hospitals in Boston and New York, and estimates the public health and economic costs nationwide (Trasande, 2005). A problem with this study is that it ignores all of the environmental transport and transformation stages in the overall pathway from atmospheric deposition to human consumption. Specifically, the 2005 study uses the USEPA's Report to Congress' nationwide estimate of the fraction of mercury deposition due to anthropogenic emissions, apportions the fraction of this deposition due to coal combustion based on nationwide total mercury emissions data, and applies the resulting fraction to estimate coal combustion's contribution to mercury levels in newborns. The 2005 study did not address the critical complexity of the connection between mercury emissions and deposition (this complexity and the overestimates of USEPA's deposition model relative to measured data are discussed above), as well as the complexity of the connections between deposited mercury and mercury in surface waters, fish tissue, and eventually mercury consumed by humans. The 2005 study's overall cost estimates are therefore far more uncertain than described in the paper; and, because of the overestimation of coal-related deposition in the U.S., the costs are also likely to be overestimated. Issues related to this 2005 study's estimates of health effects caused by mercury exposure are addressed in a separate section below. Unfortunately, these same cost estimates were used to estimate the cost of mercury emissions in Minnesota from coal-fired power plants, so not only are they over estimated, but they are also inaccurate because the 2005 study uses nationwide mercury emissions to make regional predictions.

Based on the proposed mercury emission control technology and the Settlement Agreement with the State of Minnesota to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant, Western has concluded that the proposed Big Stone II would contribute to a reduction in mercury emissions, and possibly a reduction in the rate of mercury deposition in the surrounding area. This reduction is supported by the paper presented by Minnesota Pollution Control Agency (MPCA, 2007) that discusses efforts to reduce mercury emissions in Minnesota as it relates to efforts by generation owners to install mercury controls. The paper specifically states, "Declines in mercury emission and deposition should result in reduced mercury concentrations in fish." See the discussion of this paper in Section 1.2.1 for a more detailed discussion of this paper.

1.2.6 Economic Impacts due to Airborne Mercury Emissions from Proposed Plant

Comment PH1-7e from Mary Jo Stueve: “When it’s released into the air, it settles downwind of the power plants where it contaminates lakes, rivers, and the fish we eat. Exposure to mercury pollution is especially harmful to women of child-bearing age, fetuses, and children, because it interferes with the development of the nervous system and leads to neurological problems. Mercury exposure costs billions of dollars each year due to reductions in IQ, poverty, low-weight birth, welfare recipients, lost education and opportunity, and special education costs. A recent Mount Sinai Medical School study quantified the annual economic impacts of mercury exposure at an estimated \$1.3 billion. And this cost is attributable to U.S. power plants alone.”

Response: Western acknowledges the Mount Sinai study, as well as other studies attempting to assess the impact of mercury emissions. This comment will be taken into consideration by Western’s decision of whether or not to interconnect the proposed Project with Western’s transmission system. As Western stated in the Final EIS, the authors of most studies acknowledge that estimations of impacts of mercury emissions from a single source contain a large amount of uncertainty. They also note that each study area is unique and thus results cannot be transferred to other parts of the country. A more detailed discussion of these studies has been provided in the Mercury Response Paper (Response Paper A, Volume II) . Further, regarding the Mount Sinai study (Trasande, 2005), several comments were made about this study in USEPA’s response to significant comments related to CAMR. Direct quotes from this document stated, “EPA believes that many of the assumptions made in the Trasande Article lead to an extreme overstatement of the benefits of Hg [mercury] reduction (or cost of Hg exposure). Most importantly, the article as originally published contained an error in the estimate of the linear dose-response curve that that overstated the estimates of that model by a factor of 10. After correcting for this error and correcting a few other points, the authors will publish a range of estimates from this analysis that is substantially lower. In fact, EPA’s estimates fall within the range of the corrected estimates, even accepting the author’s other assumptions. However, EPA believes that there are other assumptions embedded in the Trasande, et al., analysis that overstate the possible benefits from Hg reductions.” Additional comments stated, “Finally, it should be noted that the results from Trasande, et al., overstate the economic benefits. First, Trasande, et al., is evaluating the immediate elimination of all anthropogenic Hg (i.e., not just that from U.S. coal-fired EGUs). It does not include CAIR in its baseline, yet the correct measure of benefits from further regulating Utility Units must take into consideration existing requirements. Second, Trasande’s environmentally-attributable fraction model is a relatively simple approach compared to the EPA’s spatially explicit model of Hg deposition used for CAMR. Finally, unlike EPA’s benefits analysis (see Reconsideration TSD, Section 8), the approach used by Trasande, et. al., does not account for the either the response time in implementing Hg reductions or the response time of the environment to these reductions. The environmental response time alone has been estimated to be on the order of decades before the benefits of Hg reductions are fully realized.”

1.2.7 Impacts of Mercury Emissions on Minority Populations (Environmental Justice)

Comment Number	Name	Comment Summary
DEIS Comments		
T-1d	SWO	“The fish in the lakes within the original boundaries of the Lake Traverse Reservation could become contaminated. This contamination could result in fish that will be unsafe to eat.”
O-1ab	CWA	The correlation between poor and minority communities with mercury pollution is discussed by the commenter. CWA believes that the EIS needs to examine the documented environmental justice issues related to mercury.
O-1az	CWA	“How will Big Stone II’s mercury emissions contribute to environmental injustice?”
I-11c	Merle Greene	“Native American families, in particular, would be affected because of their proximity to the plant.”
I-19b	Richard Kroger	“It fails to address the massive impact mercury will have on minorities who eat a disproportionate amount of fish from our mercury polluted waters caused mostly by adjacent coal-fired power plants.”
I-28f	Roy Smith	“Mercury and Environmental Justice – the Environmental Justice implications of the expansion are real. The DEIS does not consider the disproportionate impact on Native American families that live in proximity to the plant and consume a large amount of fish that are mercury contaminated.”
FL-1f	CWA Form Letter	“. . . The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-8d	Sierra Club Form Letter	The commenter states that the Draft EIS did not adequately take into account the Environmental Justice implication of the proposed expansion of the coal plant and the impact on human health. The commenter states that the Draft EIS failed to consider the disproportionate impact on Native American families that live in proximity to the proposed plant and consume a large amount of contaminated fish . . .
PH4-1b	Public Hearing Benson, MN Cesia Kerns	“The Native American communities where we know they have a higher rate of fish consumption than other groups of people, that they therefore have a higher level of mercury poisoning their bodies compared to people who consume less fish.”
PH4-1c	Public Hearing Benson, MN Cesia Kerns	“. . .regardless of what kinds of controls may be used in the plant, it will still be emitting mercury and the deposition. Recent studies are showing it tends to be greater closer to plants, and it concerns me that these populations are going to be more negatively impacted than others because of the amount of mercury that will be emitted from Big Stone. And I feel like there is not adequate attention given to that. And it’s just a pretty serious matter, because it’s wrong basically.”

Comment Number	Name	Comment Summary
FL-16c	Sierra Club Postcard	“Mercury and Environmental Justice- The DEIS does not adequately take into account the Environmental Justice implications of the expansion of the coal plant and the impact on human health, particularly for women, children, and subsistence fishers. For example, the disproportionate impact on Native American families that live in proximity to the plant, and consume a large amount of fish.”
SDEIS Comments		
ST-1an	SWO	The commenter discusses the yearly trends of mercury deposition and that regardless of the actual mercury amounts emitted from proposed Big Stone II, mercury will continue to accumulate in the aquatic ecosystems on the Lake Traverse Reservation.

Response: The commenters expressed concern about the impact of mercury emissions on minority populations. Commenters were specifically concerned with the consequences of mercury emissions from the proposed Project and the impact on the local Native American population. The consumption of mercury-contaminated fish was a specific concern.

Based on the comments in this subcategory, Western has updated Section 4.10.2.1 (under the Environmental Justice subheading) of the Final EIS to discuss the impact of the proposed Big Stone II plant on the general population (including Native American population) and minority and low-income populations from higher fish consumption. Section 1.2.3 above provides a summary of this discussion. Additional information used to support Western’s conclusions is captured in the Mercury Response Paper (Response Paper A, Volume II). Further, it is difficult to estimate the impact of mercury emissions from a single source like the proposed Project. See Section 1.2.1 above for a more detailed discussion of the uncertainty related to estimating the impacts of mercury emissions from a single source.

1.2.8 Impacts to the Surrounding Environment due to Mercury Emissions (General)

Comment Number	Name	Comment Summary
DEIS Comments		
F-2u	USFWS	The commenter expressed concern that the statement, “... CAIR would significantly reduce the majority of coal-fired power plant mercury emissions that deposit in the US” did not reflect the local impact emissions on natural resources as prevailing winds are most likely to bring the bulk of the plant emissions into the Big Stone Natural Wildlife Refuge.
F-2w	USFWS	“The EIS should include a more in depth discussion of the landscape effects of the increase of mercury emissions on the locally affected landscape as this discussion is the most pertinent to actual on-the-ground impacts to natural resources.”
I-8h	Joe Foss	“Burning coal is a major source of mercury emissions, only a small amount can do a lot of damage.”

Comment Number	Name	Comment Summary
I-31a	Brynan Thornton	“The expansion of the Big Stone II is a hazard to environment. Not only will it be expanding over the border from South Dakota to Minnesota, it will be polluting lots more the Co-owners of Big Stone II propose to adversely affect air quality by adding up to 16,448 tons of nitrogen oxides, up to 13,278 tons of sulfur dioxide, and at least 250 tons of particle matter into the air each year. Mercury pollution could approach 399 pounds according to the DEIS.”
PH2-1c	Public Hearing Morris, MN Mary Jo Stueve	“The application does not address in a calculated, cumulative manner what the impact would be on human, plant, and environment surrounding the area. Neither does the Draft EIS.”
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	The commenter states that health concerns include : 1) Harm to women of child bearing age, fetuses, and children due to mercury pollution; leads to neurological problems. 2) Low birth weight due to mercury exposure; included in the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.
PH4-1c	Public Hearing Benson, MN Cesia Kearns	“ . . .regardless of what kinds of controls may be used in the plant, it will still be emitting mercury and the deposition. Recent studies are showing it tends to be greater closer to plants, and it concerns me that these populations are going to be more negatively impacted than others because of the amount of mercury that will be emitted from Big Stone. And I feel like there is not adequate attention given to that. And it’s just a pretty serious matter, because it’s wrong basically.”
SDEIS Comments		
No comments received		

Response: The commenters expressed general concern about the impact of mercury deposition from the proposed Project to the surrounding area. Commenters were specifically concerned with surrounding area impacts from mercury disposition on the landscape, health, poverty, natural resources, welfare, and education related to mercury emissions from the proposed Project.

Regarding these comments, there are a number of studies (including studies done in Massachusetts, the Ohio River Valley, Florida, and the Great Lakes) that conclude local mercury deposition comes from nearby sources. See Section 1.2.1 above, for more detailed discussion on the ability to extrapolate from the results of either national or regional-scale mercury impact studies. This same section also presents results from a USEPA study that can be used as a guide to assess the mercury deposition from the proposed Project on the surrounding area, including the impact on the landscape, health, poverty, natural resources, welfare, and education. If the USEPA study could be used as a guide then of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. While Western has not conducted any further analysis using this study or any other study, it is still possible to reasonably assess the mercury impact on the landscape, health, poverty, natural resources, welfare, and education based on whether the mercury emission from the existing and proposed Project would increase or decrease in the surrounding area. With the

implementation of the air pollution controls, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it reasonable to assume the mercury impacts in the surrounding area would also decrease, including the impacts on the landscape, health, poverty, natural resources, welfare, and education.

A more complete discussion of the impact of mercury emissions on public health can be found above in Section 1.2.3 and Section 1.2.4. A complete discussion of mercury emissions, controls, costs, and impacts to natural resources and the environment is included in Section 4.1.2.1 (under the subheading Mercury Emissions from the Existing and Proposed Plants) and Section 4.4.2.1 (under the subheadings Vegetation and Wildlife) of the Final EIS and in the Mercury Response Paper (Response Paper A, Volume II). See Section 1.2.1 above for a more detailed discussion of the uncertainty related to estimating the impacts of mercury emissions from a single source.

Regarding the comment that stated, “The application does not address in a calculated, cumulative manner what the impact would be on human, plant, and environment surrounding the area. Neither does the Draft EIS.” See Section 4.11.4 (under the Mercury subheading) for a response to this comment.

1.2.9 Analysis of Local Water Quality Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
F-1m	USEPA	EPA stated the Draft EIS did not include an analysis to support the statement made on page 4-15, “[a]irborne plant emissions could cause local and regional surface water quality impacts such as acidification or increases in mercury concentration.” They note that the impact of utility mercury emissions on deposition patterns and fish tissue concentrations was analyzed in the national modeling they conducted in support of the Section 112(n) Revisions Rule and the CAMR. “This analysis supported our conclusion that utility mercury emissions after CAMR are not reasonably anticipated to present a hazard to public health. See 70 Fed. Reg. 16004. That said, the FEIS should discuss the potential impacts of these emissions identified in the Draft EIS as part of its site-specific analysis of the proposed project.”
O-2f	Sierra Club	The commenter does not feel the Draft EIS provided a basis for the conclusion that the mercury emissions from proposed Big Stone II would not be significant to water resources and therefore must submit a more thorough analysis in the Final EIS.
O-4g	MnRES	The commenter expressed concern about mercury. It was noted that emissions from the proposed plant would fall primarily on Minnesota because of prevailing winds, and that Minnesota regulations on mercury, if applied to the proposed plant, would reduce mercury emissions. The commenter also noted that Minnesota’s waterways, as noted in the DEIS, are already seriously degraded by mercury deposition; additional loading is unacceptable.

Comment Number	Name	Comment Summary
FL-1e	CWA Form Letter	“The draft Environmental Impact Statement assumes that the federal Clean Air Mercury Rule will not be changed or delayed due to legal challenges. It also assumes that mercury pollution does not significantly impact local water bodies. However, recent studies in Massachusetts, Florida, Ohio, and the Great Lakes show that local sources of mercury negatively impact local water bodies to a greater extent than previously thought.”
FL-16d	Sierra Club Postcard	“Mercury from coal plant emissions contaminate fish tissue and cause neurobehavioral disorders. The DEIS ignores recent studies in Massachusetts, Ohio, Florida, and the Great Lakes showing that local sources of mercury impact local water bodies to a greater extent than previously known. Minnesota recently passed one of the strongest mercury reduction laws in the country. Transmission lines for a new dirty coal plant just over our border destroys the progress of bi-partisan leadership in setting new standards for mercury reduction in Minnesota.”
PH1-7b	Public Hearing Big Stone City, SD Mary Jo Stueve	“The request was made at that time to address total maximum daily load, TMDL, for the mercury levels in Big Stone Lake in a 50-mile radius, because the application by the Co-owners did not address this, did not calculate or analyze or measure. And neither, in my brief review, does the EIS address this, the total maximum daily load.”
PH1-7e	Public Hearing Big Stone City, SD Mary Jo Stueve	“When it’s released into the air, it settles downwind of the power plants where it contaminates lakes, rivers, and the fish we eat. Exposure to mercury pollution is especially harmful to women of child-bearing age, fetuses, and children, because it interferes with the development of the nervous system and leads to neurological problems. Mercury exposure costs billions of dollars each year due to reductions in IQ, poverty, low-weight birth, welfare recipients, lost education and opportunity, and special education costs. A recent Mount Sinai Medical School study quantified the annual economic impacts of mercury exposure at an estimated \$1.3 billion. And this cost is attributable to U.S. power plants alone.”
PH1-7h	Public Hearing Big Stone City, SD Mary Jo Stueve	“The U.S. Army Corps of Engineers jointly with another body did a study in the North and South Dakota waters that bordered the border there. One of the results of that study shows the propensity for mercury to transform into the toxic methylmercury is more likely to occur in wetland areas than in deep water. Any and all of you that are from this area know, we are a wetland area.”
PH3-1c	Public Hearing Granite Falls, MN Dick Unger	“Now we already can’t eat the fish, even here in Montevideo, out of our river, more than once a week. There is mercury in all the lakes. And if this balloons, it would cut Minnesota’s lake country.”
PH4-6g	Public Hearing Benson, MN Andrew Falk	“. . . One of the most interesting statistics I heard was one tablespoon of mercury will pollute 40 acres of lake. It will make it so all the fish in that are deemed unsafe for human consumption. We’re talking about 189 pounds of mercury per year. The next year. The next year. The next year. I’m not sure exactly what the life expectancy of this plant is. I’m assuming it’s close 20 to 40 years. But how much of mercury are we willing to put in this environment, are we willing to subject our children and families to? It just seems that these questions have not been adequately addressed in this EIS.”

Comment Number	Name	Comment Summary
SDEIS Comments		
SF-1u	USEPA	“The DEIS states that ‘[a]irborne plant emissions could cause local and regional surface water quality impacts such as acidification or increases in mercury concentration (DEIS at 4-15) but provides no analysis in support of this statement.’ The commenter indicates that the Final EIS needs to discuss the potential impacts of these emissions.
ST-1u	SWO	“How will lower flows in the Minnesota River affect aquatic life and subsequently, human health, considering existing Mercury levels as well as additional Mercury contributions by Big Stone II operations?”
ST-1an	SWO	The commenter discusses the yearly trends of mercury deposition and that regardless of the actual mercury amounts emitted from proposed Big Stone II, mercury will continue to accumulate in the aquatic ecosystems on the Lake Traverse Reservation.
ST-1ar	SWO	“What are the background levels of mercury, especially methylmercury, in regional waterbodies?”
ST-1au	SWO	Mercury deposition appears to increase during precipitation events. The majority of precipitation comes during April to October. “This combination suggests that deposition of mercury from stack emissions could be significant for Lake Traverse Reservation. Regardless of the actual mercury amounts emitted from the Big Stone II plant, mercury will continue to accumulate year after year in aquatic ecosystems, therefore impacting the biological resources on and around the Lake Traverse Reservation.”
SS-1n	MnDNR	“...Big Stone Lake is listed as an ‘impaired water’ based on mercury concentrations. The potential for increased mercury release from sediments as a result of lower water levels and anoxic conditions needs to be investigated.”
SFL-32d	Sierra Club Form Letter SDEIS	“...the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”

Response: The commenters expressed concern about local water quality impacts of mercury deposition from the proposed plant. Specifically, the comments in this subcategory address the analysis of mercury emission deposition in local surface waters and the resultant effects on aquatic ecosystems, fish, and human health.

Based on these comments, the analysis in Section 4.2.2.1 of the Final EIS (under the Airborne Contaminant Concerns subheading) has been expanded to address mercury deposition on surface waters. Additional information on the deposition of mercury and conversion of mercury elements to methylmercury and its effects on aquatic ecosystems, fish, and human health is provided in the Mercury Response Paper (Response Paper A, Volume II). See Section 1.2.1 above, for more detailed discussion on the results from a USEPA study that can be used as a guide to assess the mercury deposition from the proposed Project on the surrounding area, including the impact on the local water quality impact. The results indicate that of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent

mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. Western has not conducted any further analysis to study the impact on local water quality, but it is still possible to make a reasonable assessment based on whether the mercury emission from the existing and proposed Project would increase or decrease in the surrounding area. With the implementation of the air pollution controls, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it is reasonable to assume the mercury impacts in the surrounding area would also decrease, including the impacts on the local water quality.

As mentioned in responses above, Western acknowledges the paper from the Minnesota Pollution Control Agency titled “Minnesota Statewide Mercury Total Maximum Daily Load” (MPCA, 2007). Under section 303 of the Federal Clean Water Act, States have a duty to create water quality standards for and assess the water quality of the waterbodies within that state. For waters that do not meet water quality standards (impaired waters), the State must set total maximum daily loads (TMDL) for the pollutants that create the impairment. A TMDL represents the maximum allowable amount of a pollutant a waterbody can receive from point sources and nonpoint sources alike and still achieve the water quality standard. Since nearly all of the mercury polluting lakes and rivers in Minnesota comes from uniform statewide atmospheric deposition, the MPCA prepared one TMDL instead of many TMDLs for specific water bodies or watersheds. In preparing Minnesota’s Statewide Mercury TMDL, MPCA established targets for reducing mercury pollution in Minnesota. The TMDL sets an annual air emission target of 789 lb and an annual water discharge limit of 24 lb for Minnesota sources by 2025. The air emission goal represents a 76 percent reduction from today’s levels. The water limit is above current discharge levels by about 9 lb, allowing for some growth. The TMDL paper indicates that power plants are the main source of mercury emissions, but efforts to reduce emissions through the installation of control technologies and conversions of some plants has resulted in lower mercury concentration levels. Some coal plants have also switched to low mercury content coals to help reduce emissions. See the discussion above in this response that addresses the mercury controls that the Co-owners have committed to for the existing and proposed plants. The paper states, “Declines in mercury emission and deposition should result in reduced mercury concentrations in fish.” It also states, “Because of long-range transport of mercury in the atmosphere, reductions in mercury air emissions outside of Minnesota will eventually lead to reduced mercury deposition in Minnesota and reduced contamination of Minnesota fish.”

Several comments above refer to mercury emission studies that conclude local mercury deposition comes from nearby sources. Western acknowledges these studies and will take them into consideration in deciding whether or not to interconnect the proposed Project with Western’s transmission system. See Section 1.2.1 above, for more detailed discussion on the ability to extrapolate from the results of either national or regional-scale mercury impact studies. A more detailed discussion of these studies has been provided in the Mercury Response Paper (Response Paper A, Volume II).

1.2.10 Water and Wetland Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
F-1m	USEPA	EPA stated the Draft EIS did not include an analysis to support the statement made on page 4-15, “[a]irborne plant emissions could cause local and regional surface water quality impacts such as acidification or increases in mercury concentration.” They note that the impact of utility mercury emissions on deposition patterns and fish tissue concentrations was analyzed in the national modeling they conducted in support of the Section 112(n) Revisions Rule and the CAMR. “This analysis supported our conclusion that utility mercury emissions after CAMR are not reasonably anticipated to present a hazard to public health. See 70 Fed. Reg. 16004. That said, the FEIS should discuss the potential impacts of these emissions identified in the Draft EIS as part of its site-specific analysis of the proposed project.”
O-2e	Sierra Club	In the context of water impacts due to mercury emissions, the commenter indicated that the 399 pounds which could be emitted annually by BSII is within regulatory standards is not an argument against the significance of those emissions. “The purpose of an EIS is not solely to determine whether a project meets regulatory standards, but to provide, among other things, a “detailed statement...on any adverse environmental effects which cannot be avoided should the proposal be implemented.” 42 U.S.C. §4332(C).” The commenter does not believe the Draft EIS recognized the significance of mercury emissions from proposed Big Stone II. The comparison between the proposed Big Stone II emissions versus the overall mercury output deemed it insignificant; the commenter did not feel this to be an adequate argument. The commenter further notes that any awareness of scientific studies of the environmental effects of mercury emissions and their deposition and conversion to methyl mercury would make it reasonable to anticipate a cumulatively significant impact on the environment from large-scale emissions of mercury.
O-4g	MnRES	The commenter expressed concern about mercury. It was noted that emissions from the proposed plant would fall primarily on Minnesota because of prevailing winds, and that Minnesota regulations on mercury, if applied to the proposed plant, would reduce mercury emissions. The commenter also noted that Minnesota’s waterways, as noted in the DEIS, are already seriously degraded by mercury deposition; additional loading is unacceptable.
O-4o	MnRES	“The fact that as much as 70 percent of the plant’s mercury output – given the results of the Ohio study noted in item 2 above – might fall on a state whose lakes are a virtual gauntlet of fish consumption advisories does not even bear mention.”
I-6d	Jim Falk	“We have just started to test our precious water in Minnesota and we find that mercury is literally showing up everywhere. We simply can not continue to add more toxins into our water when other options exist.”
I-10a	Susan Granger	Commenter expresses concern about the project’s potential effect on Minnesota water quality. Most of the mercury that is accumulating in Minnesota rivers and lakes is from air-borne emissions, and most of that is from coal-burning power plants. Most of the lakes and rivers are ‘mercury impaired’ posing risks to people, aquatic life and recreation.

Comment Number	Name	Comment Summary
I-15a	Kelly Scott	“I am deeply concerned about levels of mercury and other pollutants in Minnesota lakes and streams. The Pomme de Terre River, which passes through Morris, as well as the rest of the Minnesota River basin are vulnerable to coal burning power plant emissions.”
I-36e	Erjavec, et al	“WAPA’s plan to purchase credits to comply with mercury emissions standards in the coming decades fails to address the true impact of mercury on lakes, rivers and streams. In Minnesota, we have a well-recognized, scientifically documented problem with mercury pollution due to coal combustion. “Again, these alternatives should be reflected in the EIS.”
FL-16d	Sierra Club Postcard	“Mercury from coal plant emissions contaminate fish tissue and cause neurobehavioral disorders. The DEIS ignores recent studies in Massachusetts, Ohio, Florida, and the Great Lakes showing that local sources of mercury impact local water bodies to a greater extent than previously known. Minnesota recently passed one of the strongest mercury reduction laws in the country. Transmission lines for a new dirty coal plant just over our border destroys the progress of bi-partisan leadership in setting new standards for mercury reduction in Minnesota.”
PH1-7b	Public Hearing Big Stone City, SD Mary Jo Stueve	“The request was made at that time to address total maximum daily load, TMDL, for the mercury levels in Big Stone Lake in a 50-mile radius, because the application by the Co-owners did not address this, did not calculate or analyze or measure. And neither, in my brief review, does the EIS address this, the total maximum daily load.”
PH1-7e	Public Hearing Big Stone City, SD Mary Jo Stueve	“When it’s released into the air, it settles downwind of the power plants where it contaminates lakes, rivers, and the fish we eat. Exposure to mercury pollution is especially harmful to women of child-bearing age, fetuses, and children, because it interferes with the development of the nervous system and leads to neurological problems. Mercury exposure costs billions of dollars each year due to reductions in IQ, poverty, low-weight birth, welfare recipients, lost education and opportunity, and special education costs. A recent Mount Sinai Medical School study quantified the annual economic impacts of mercury exposure at an estimated \$1.3 billion. And this cost is attributable to U.S. power plants alone.”
PH1-7f	Public Hearing Big Stone City, SD Mary Jo Stueve	“Airborne mercury from Big Stone II would affect regional and worldwide water bodies. And our lake is known for fishing, recreation, and camping. Big Stone Lake and the upper Minnesota River, including numerous tributaries, are already under fish consumption advisories for mercury; and, therefore, any amount added to these impaired waters is biologically significant, and I might add, under Clean Water Act Rule.”
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	The commenter states that her concerns with respect to health include the following: 1) Exposure to mercury pollution is especially harmful to women of child bearing age, fetuses, and children, because it leads to neurological problems. 2) Low birth weight due to mercury exposure and the public costs associated with it; the comment included information on the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.

Comment Number	Name	Comment Summary
PH4-2c	Public Hearing Benson, MN Christopher Childs	“The fact is that most, virtually all of the lakes in Minnesota are already contaminated with mercury. That is why the bill was recently passed to require these extreme reductions in amount of mercury.”
PH4-6g	Public Hearing Benson, MN Andrew Falk	“... One of the most interesting statistics I heard was one tablespoon of mercury will pollute 40 acres of lake. It will make it so all the fish in that are deemed unsafe for human consumption. We’re talking about 189 pounds of mercury per year. The next year. The next year. The next year. I’m not sure exactly what the life expectancy of this plant is. I’m assuming it’s close 20 to 40 years. But how much of mercury are we willing to put in this environment, are we willing to subject our children and families to? It just seems that these questions have not been adequately addressed in this EIS.”
SDEIS Comments		
SF-2a	USDOJ	USDOJ is concerned with impacts of mercury on wildlife and the Minnesota River. Up-to date technology should be employed for mercury control and a commitment should be made to adopt improved technologies as they become available.
ST-1u	SWO	“How will lower flows in the Minnesota River affect aquatic life and subsequently, human health, considering existing Mercury levels as well as additional Mercury contributions by Big Stone II operations?”
ST-1ar	SWO	“What are the background levels of mercury, especially methylmercury, in regional waterbodies?”
SS-1n	MnDNR	“...Big Stone Lake is listed as an ‘impaired water’ based on mercury concentrations. The potential for increased mercury release from sediments as a result of lower water levels and anoxic conditions needs to be investigated.”
SFL-32d	Sierra Club Form Letter SDEIS	“...the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”

Response: The commenters provided comments on the need for additional consideration of the impact of mercury on rivers, lakes, streams and other wetlands. Commenters were specifically concerned with mercury emissions from the proposed Project and how these emissions may impact local and Minnesota surface waters. Based on these comments additional information has been included in the Final EIS (see Section 4.2.2.1 under subheading Airborne Contaminant Concerns), as well as in the Mercury Response Paper (Response Paper A, Volume II). Minnesota has one of the most stringent mercury regulations in the U.S. Minnesota has adopted a rule regulating mercury emissions from coal-fired power plants greater than 500 MW (Mercury Emission Reduction Act of 2006 Minnesota Statutes §§ 216B.68 to 216B.688). The rule requires a 90 percent removal of mercury from units with wet scrubbers by December 31, 2014. Western also notes that the Co-owners have committed to expeditiously install emission controls technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. Western recognizes that mercury would be emitted from the existing and the proposed plant, but it believes that the near-term installation of fabric filters and WFGD and later installation of additional control technologies (if necessary) that are most likely to result in removal of

at least 90 percent of mercury would allow for all emission standards to be met and would also result in lower mercury emissions than total mercury emissions from the existing plant alone. However, since the proposed plant is not operating, there are no mercury emission data that exists, therefore, Western has not performed any analyses to directly assess the impact of mercury emissions from the proposed Project on rivers, lakes, streams, and wetlands, but it is still possible to make a reasonable assessment based on whether the mercury emission from the existing plant and proposed plant would increase or decrease in the surrounding area. With the implementation of the air pollution controls, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it reasonable to assume the mercury impacts in the surrounding area would also decrease, including the impacts on rivers, lakes, streams, and wetlands.

Regarding the comment that stated, “The request was made at that time to address total maximum daily load, TMDL, for the mercury levels in Big Stone Lake in a 50-mile radius, because the application by the Co-owners did not address this, did not calculate or analyze or measure. And neither, in my brief review, does the EIS address this, the total maximum daily load.” The SDDENR already tests for mercury in fish in South Dakota lakes and rivers in cooperation with the South Dakota Department of Game, Fish & Parks. As a result of this testing, fish consumption advisories were put in effect (SDDENR, 2008a) for six lakes for healthy adults, children over seven, children under seven, and high risk groups (women who plan to become pregnant, are pregnant, or are breast-feeding). South Dakota does not list Big Stone Lake or the Whetstone River in the fish advisories. The closest listed lake to the existing plant is Bitter Lake, approximately 39 miles west of the proposed plant. For the state of Minnesota, the MnDNR, the MPCA, and the MnDOH collaborate in producing the fish consumption advisory for Minnesota lakes and rivers. Fish from over 1,000 Minnesota lakes and streams have been tested for contaminants (MnDOH, 2008). Table 4.4-2 in the Final EIS compares concentrations of mercury in several fish species within Big Stone Lake to averages in fish species in Minnesota lakes. The comparison shows that the tissue mercury levels in fish, except for sunfish, in Big Stone Lake (the closest lake to the proposed plant) are less than the tissue levels within similar fish species on the average in lakes throughout Minnesota. Further, Western acknowledges the paper from the MPCA titled “Minnesota Statewide Mercury Total Maximum Daily Load,” (MPCA, 2007). Under section 303 of the Federal Clean Water Act, States have a duty to create water quality standards for, and assess the water quality of, the waterbodies within that State. For waters that do not meet water quality standards (impaired waters), the State must set TMDLs for the pollutants that create the impairment. A TMDL represents the maximum allowable amount of a pollutant a waterbody can receive from point sources and non-point sources alike and still achieve the water quality standard. Since nearly all of the mercury polluting lakes and rivers in Minnesota comes from uniform statewide atmospheric deposition, the MPCA prepared one TMDL instead of many TMDLs for specific water bodies or watersheds. In preparing Minnesota’s Statewide Mercury TMDL, MPCA established targets for reducing mercury pollution in Minnesota. The TMDL sets an annual air emission target of 789 lb and an annual water discharge limit of 24 lb for Minnesota sources by 2025. The air emission goal represents a 76 percent reduction from today’s levels. The water limit is above current discharge levels by about 9 lb, allowing for some growth. The TMDL paper indicates that power plants are the main source of mercury emissions, but efforts to reduce emissions through the installation of control technologies and conversions of some plants has resulted in lower mercury concentration levels. Some coal plants have also switched to low mercury content coals to help reduce emissions. See the discussion above in this response that addresses the mercury controls that the Co-owners have committed to for the existing and proposed plants. The paper states, “Declines in mercury emission

and deposition should result in reduced mercury concentrations in fish.” It also states, “Because of long-range transport of mercury in the atmosphere, reductions in mercury air emissions outside of Minnesota will eventually lead to reduced mercury deposition in Minnesota and reduced contamination of Minnesota fish.”

One comment stated, “The fact that as much as 70 percent of the plant’s mercury output – given the results of the Ohio study noted in item 2 above – might fall on a state whose lakes are a virtual gauntlet of fish consumption advisories does not even bear mention.” Western acknowledges this study and others that find most mercury deposition comes from nearby sources. Western will take the Ohio study into consideration in deciding whether or not to interconnect the proposed Project with Western’s transmission system. See Section 1.2.1 above and the Mercury Response Paper (Response Paper A, Volume II) for a more detailed discussion on the various studies.

1.2.11 Vegetation and Wildlife Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
T-1g	SWO	“There are many roots, berries, medicinal plants & herbs that could become contaminated due to the increased source of air pollution; as well as water, which is considered the source of all Life, considered most Sacred to the traditional lifeways of our people.”
O-1aw	CWA	“How will Big Stone II’s contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?”
O-1y	CWA	The commenter states that the Draft EIS denied that any “constituents would be introduced into any water body that would cause an adverse effect on wildlife” yet recent studies show all aquatic and bird species exposed to mercury are affected.
I-21b	Terry J. Makepeace	“Also, do you have any knowledge of the harm that these chemicals will have both short and long term on the plant, animal, aquatic, and human life in the area?”
PH2-1c	Public Hearing Morris, MN Mary Jo Stueve	“The application does not address in a calculated, cumulative manner what the impact would be on human, plant, and environment surrounding the area. Neither does the Draft EIS.”
PH3-8e	Public Hearing Granite Falls, MN Patrick Moore	“The Wisconsin Department of Natural Resources has discovered that exposure to mercury contributes to low fertility rates in the common loon. Based on current research, all aquatic or bird species exposed to mercury are likely to be affected by the contamination. What impact will Big Stone II’s mercury really have on wildlife? Contrary to the Draft EIS, reducing local sources of mercury pollution can have a large impact on mercury levels in local water bodies.”
SDEIS Comments		
No comments received.		

Response: The commenters addressed the need for additional consideration of the impact of mercury on vegetation and wildlife. Some commenters were specifically concerned with the impact on bird species, roots, berries, medicinal plant and herbs, while others were concerned with the impact of mercury wildlife and vegetation in general. Based on these comments, Section 4.4.2.1 (under the subheadings Air Emission Impacts to Vegetation, Air Emission Impacts to Wildlife, and Air Emissions Impacts to Fisheries) of the Final EIS has been updated to address mercury deposition effects to

vegetation, wildlife, and fisheries. The Mercury Response Paper (Response Paper A, Volume II) includes additional information on the deposition of mercury in the environment. In addition, Section 4.10.2.1 (under the Environmental Justice subheading) of the Final EIS has been updated to address effects to traditional lifestyles of Native Americans. With the operation of the proposed Big Stone II Project, mercury emissions from the site would be reduced by approximately 57 percent. This reduction would serve to lessen the impact of mercury on natural resources, aquatic species, and wildlife in the area as compared to existing conditions. Effects outside of the local area would be reduced as well.

If the proposed Big Stone II plant is constructed (and after implementation of emissions controls), mercury emissions from the combined plants would be less than the emissions from the existing plant alone. Although the combined plants would continue to emit mercury, the decrease in mercury emissions (and a corresponding decrease in methylmercury) would result in reduced impacts to the wildlife of the area, including birds. Western’s Biological Assessment (BA) included a Bald Eagle Mercury Exposure Assessment that assessed the potential impact of mercury exposure on eagles (see Appendix L). Based on the BA, Western determined that the proposed Project may affect, but is not likely to adversely affect, the bald eagle. The USFWS concurred with this determination on October 9, 2007. See Section 1.2.1 above for a more detailed discussion related to estimating the impacts of mercury emissions from a single source.

1.2.12 Fish and Aquatic Ecosystem Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
B-3d	Rose Creek Anglers	“I highly believe that the proposed emission reductions will not be enough to negate current threats to our fisheries and our health?”
O-1j	CWA	The commenter feels airborne mercury from proposed Big Stone II would affect regional as well as worldwide water bodies and therefore the EIS must provide a thorough analysis of the impact it would have on aquatic ecosystems.
O-1y	CWA	The commenter states that the Draft EIS denied any “constituents would be introduced into any water body that would cause an adverse effect on wildlife,” yet recent studies show all aquatic and bird species exposed to mercury are affected.
O-1ao	CWA	“What will be the economic and environmental consequences of mercury pollution on local and non-local aquatic ecosystems?”
O-2e	Sierra Club	The commenter does not believe the Draft EIS recognized the significance of mercury emissions from proposed Big Stone II. The comparison between the proposed Big Stone II emissions versus the overall mercury output deemed it insignificant; the commenter did not believe this to be an adequate argument. The commenter further notes that any awareness of scientific studies of the environmental effects of mercury emissions and their deposition and conversion to methyl mercury would make it reasonable to anticipate a cumulatively significant impact on the environment from large-scale emissions of mercury.
O-4p	MnRES	“Instead, the DEIS insults both the intelligence of the reader, and established science, by suggesting that ‘public perception that mercury emissions may have contaminated fisheries’ may be ‘founded or unfounded.’ (p. 4-128)”

Comment Number	Name	Comment Summary
I-8f	Joe Foss	“ . . . Mercury is well-known to cause damage to the development of a child’s brain. That is why there are health warnings to limit your intake of certain fish. Pregnant women or very young children are instructed to restrict their consumption of even further.”
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado . . .”
I-30b	Gregory Stricherz	“When coal is burned, it becomes one of the worst dispersers of mercury. When that mercury is released into the atmosphere, it pollutes lakes making the fish from those lakes dangerous to eat. The mercury is also borne for long distances in the air and can cause serious bodily harm when it is inhaled.”
FL-4g	CWA Form Letter Timothy DenHerder-Thomas	“Mercury pollution is a serious problem for anyone who eats fish, in addition to the wildlife (especially birds) that make living in Minnesota attractive and support a strong tourism and outdoor recreation industry, providing over 300,000 jobs in Minnesota alone.”
PH3-2g	Public Hearing Granite Falls, MN Andrew Falk	“We have to deal with the mercury in our fish and waters.”
PH1-7e	Public Hearing Big Stone City, SD Mary Jo Stueve	“When it’s released into the air, it settles downwind of the power plants where it contaminates lakes, rivers, and the fish we eat. Exposure to mercury pollution is especially harmful to women of child-bearing age, fetuses, and children, because it interferes with the development of the nervous system and leads to neurological problems. Mercury exposure costs billions of dollars each year due to reductions in IQ, poverty, low-weight birth, welfare recipients, lost education and opportunity, and special education costs. A recent Mount Sinai Medical School study quantified the annual economic impacts of mercury exposure at an estimated \$1.3 billion. And this cost is attributable to U.S. power plants alone.”
PH3-5d	Public Hearing Granite Falls, MN Duane Ninneman	“CURE has also seen the DNR fish studies, which show a steady increase in mercury found in fish from the Minnesota River, and we are very concerned about [the] fact that this EIS for Big Stone II does little to address this environmental issue.”
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	Commenter states that health concerns include : <ol style="list-style-type: none"> 1) Harm to women of child bearing age, fetuses, and children due to mercury pollution; leads to neurological problems. 2) Low birth weight due to mercury exposure; included in the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.
PH3-10d	Public Hearing Granite Falls, MN Duane Ninneman	“CURE has seen the DNR fish studies which show a steady increase in mercury found in fish from the Minnesota River and we are very concerned about the fact that this EIS for Big Stone II does little to address this environmental issue.”

Comment Number	Name	Comment Summary
PH4-6f	Public Hearing Benson, MN Andrew Falk	“Many of these people don’t live in this area. They don’t live in the community. They don’t go fishing in these lakes. For those of us that live here, we want to have these questions addressed and answered. We live in this community. We work here; we play here. We want to make sure that we can go fishing, and that we can eat our fish.”
PH4-6g	Public Hearing Benson, MN Andrew Falk	“. . . One of the most interesting statistics I heard was one tablespoon of mercury will pollute 40 acres of lake. It will make it so all the fish in that are deemed unsafe for human consumption. We’re talking about 189 pounds of mercury per year. The next year. The next year. The next year. I’m not sure exactly what the life expectancy of this plant is. I’m assuming it’s close 20 to 40 years. But how much of mercury are we willing to put in this environment, are we willing to subject our children and families to? It just seems that these questions have not been adequately addressed in this EIS.”
SDEIS Comments		
SF-2a	USDOJ	USDOJ is concerned with impacts of mercury on wildlife and the Minnesota River. Up-to date technology should be employed for mercury control to minimize adverse impacts and a commitment should be made to adopt improved technologies as they become available.
ST-1u	SWO	“How will lower flows in the Minnesota River affect aquatic life and subsequently, human health, considering existing Mercury levels as well as additional Mercury contributions by Big Stone II operations?”
ST-1an	SWO	The commenter discusses the yearly trends of mercury deposition and that regardless of the actual mercury amounts emitted from proposed Big Stone II, mercury will continue to accumulate in the aquatic ecosystems on the Lake Traverse Reservation.
ST-1ap	SWO	The commenter does not feel the Co-owners adequately address the cumulative impacts of methylmercury accumulation.
ST-1aq	SWO	“Additionally, The Co-owners do not adequately address ambient mercury or methylmercury in nearby surface water bodies and is especially silent on South Dakota waterbodies. There is a paucity of data on mercury deposition and methylmercury occurrence in surface waters in the region but there is no doubt that methylmercury has been accumulating in regional waterbodies since the Big Stone I plant commenced operations in July 1975.”
ST-1as	SWO	“What are the trends in mercury contamination of aquatic ecosystems?”
ST-1au	SWO	Mercury deposition appears to increase during precipitation events. The majority of precipitation comes during April to October. “This combination suggests that deposition of mercury from stack emissions could be significant for Lake Traverse Reservation. Regardless of the actual mercury amounts emitted from the Big Stone II plant, mercury will continue to accumulate year after year in aquatic ecosystems, therefore impacting the biological resources on and around the Lake Traverse Reservation.”
SFL-3a	CWA Form Letter for SDEIS Scott Anderson	“This is the land of 10,000 lakes and we can’t even eat the fish anymore because of coal!”

Comment Number	Name	Comment Summary
SFL-32d	Sierra Club Form Letter for SDEIS	“. . .the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”
SFL-45a	Susan Johnson	“Minnesota needs to become a leader in wind and solar energy, not more polluting plants. People want to be able to eat the fish they catch. Tourism is a big industry in MN, let us work harder to clean up our lakes not pollute them. There is more than enough wind in our great state to provide much needed energy.”

Response: The commenters noted concern about the impact of mercury contamination on fish and the aquatic ecosystem. Commenters were specifically concerned with how mercury emissions from the proposed Project would impact such factors as the trends in mercury contamination of the aquatic ecosystem, surface waters in Minnesota, and fishing. Comments in this section are similar to the comments in sections 1.2.9 and 1.2.10 above. See Section 1.2.1 above for a more detailed discussion of the uncertainty related to estimating the impacts of mercury emissions from a single source.

Based on these comments, Western has provided additional information on the effects of mercury on aquatic ecosystems and fish in the Mercury Response Paper (Response Paper A, Volume II). As noted in the Mercury Response Paper, there is a strong correlation between mercury deposition in surface waters and uptake in fish and aquatic ecosystems. Based on this information, the analysis in Section 4.2.1 (under the subheading Air Emissions Impacts to Fisheries under Fisheries) of the Final EIS has been updated to reflect this information.

Another comment addressing economic impacts stated, “. . . the DEIS insults both the intelligence of the reader, and established science, by suggesting that ‘public perception that mercury emissions may have contaminated fisheries’ may be ‘founded or unfounded.’” Western has updated the Economic Impacts of Mercury Emissions subsection in Section 4.10.2.1 of the Final EIS to address the concerns of the commenter.

The Co-owners have committed to expeditiously install emission controls technologies (See Section 4.1.2.1 of the Final EIS for more details) that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. Western recognizes that some mercury would still be emitted from the existing and the proposed plant and that these mercury emissions would still bioaccumulate in fish and could affect those who eat fish and others who are exposed to mercury emissions from the proposed Project. However, the proposed Project would not cause an increase in the rate of accumulation of methylmercury concentrations in fish, although bioaccumulation of methylmercury would continue at a reduced rate. Further, according to information from the MPCA, declines in mercury emission and deposition should result in reduced mercury concentrations in fish (MPCA, 2007). The reduced rate of bioaccumulation, when considering the MPCA information, suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation.

One comment stated, “CURE has also seen the DNR fish studies, which show a steady increase in mercury found in fish from the Minnesota River, and we are very concerned about [the] fact that this EIS for Big Stone II does little to address this environmental issue.” Western acknowledges this study and its findings. See Section 1.2.1 above, for more detailed discussion on the ability to extrapolate from the results of either national or regional-scale mercury impact studies. In this same section, there is a discussion on the results from a USEPA study that can be used as a guide to assess the mercury deposition from the proposed Project on the surrounding area, including the impact on fish and the aquatic ecosystem. The results indicate that of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. Western has not conducted any further analysis to study the impact on fish and the aquatic ecosystem, but it is still possible to make a reasonable assessment based on whether the mercury emission from the existing and proposed Project would increase or decrease in the surrounding area. With the implementation of the air pollution controls, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since the combined mercury emissions from the existing and proposed plant would be lower than mercury emissions from the existing plant alone, it is reasonable to assume the mercury impacts in the surrounding area would also decrease, including the impacts on fish and the aquatic ecosystem.

1.2.13 Economic Impacts due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-1an	CWA	“What will be the economic impact of Big Stone II’s air pollution from increased healthcare needs, environmental decline from acid rain, mercury contamination, and the loss of rare species and habitats?”
O-1at	CWA	“From a geographically broad perspective, what are the economic and environmental consequences of the air pollution that Big Stone II will export to other regions?”
O-4j	MnRES	“Both the issue of global climate change and mercury deposition raised above have profound implications for public health and for the regional economy that are either ignored or insufficiently addressed in the DEIS – as are other externalities.”
I-27d	Elizabeth Smith	“I do not believe that we can assume, as the EIS does, that coal fired plants are financially and environmentally sustainable in the long term. Given the recent evidence available in the field of environmental science, we can expect costs of operating old fashioned coal fired plants to increase in the future as they are forced to control carbon dioxide emissions, mercury pollution and greenhouse gases. These problems will result in unknown and uncontrollable future costs that will ultimately passed on to rate payers.”
FL-4f	CWA Form Letter Timothy DenHerder-Thomas	“The draft Environmental Impact Statement assumes that the federal Clean Air Mercury Rule will not be changed or delayed due to legal challenges, which could significantly increase the costs of Big Stone through higher pollution standards, even without the considerations of the hidden health and environmental impacts of the mercury itself.”

Comment Number	Name	Comment Summary
PH3-1b	Public Hearing Granite Falls, MN Dick Unger	“It doesn’t talk about the economic value to Minnesota’s lake country.”
PH3-1d	Public Hearing Granite Falls, MN Dick Unger	“It would cut the property values up around Brainerd Lake. Imagine the thing even 10 percent. The Environmental Impact Statement looks at this matter at all as to the mercury.”
PH3-4b	Public Hearing Granite Falls, MN Katie Laughlin	“The Draft EIS should have thoroughly analyzed the cost of Big Stone II associated with increased healthcare from air pollution and environmental decline from acid rain, mercury contamination, and the loss of rare habitats and species.”
SDEIS Comments		
SFL-45a	Sierra Club Form Letter for SDEIS Susan Johnson	“Minnesota needs to become a leader in wind and solar energy, not more polluting plants. People want to be able to eat the fish they catch. Tourism is a big industry in MN, let us work harder to clean up our lakes not pollute them. There is more than enough wind in our great state to provide much needed energy.”

Response: The commenters expressed concern about the economic impacts on healthcare, tourism, and property values related to mercury emissions from the proposed Project. The comments in this section also question the economic viability of using coal for the proposed power plant. Regarding these comments, the Co-owners have committed to install emission control technologies expeditiously (See Section 4.1.2.1 of the Final EIS for more details) that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. Western recognizes that some mercury would still be emitted from the existing and the proposed plant, and that these mercury emissions may impact healthcare, tourism, and property values. See Section 1.2.1 above, for more detailed discussion on the results from a USEPA study that can be used as a guide to assess the mercury deposition from the proposed Project on the surrounding area, including the economic impact of mercury on healthcare, tourism, and property values. The results indicate that of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. Western has not conducted any further analysis to study the impact on healthcare, tourism, and property values, but it is still possible to make a reasonable assessment based on whether the mercury emission from the existing and proposed Project would increase or decrease in the surrounding area. With the implementation of the air pollution controls, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since total mercury emissions from the existing and proposed plant would be less than mercury emissions from the existing plant alone, it is reasonable to assume that the reduced level of mercury emissions would decrease any negative effects on healthcare, tourism, and property values.

A discussion of indirect economic impacts that may be attributed to plant operations could include reduced tourism can be found in Section 10.1.6. Further, based on the comments in this section, Western added a discussion addressing the indirect effects of mercury emissions on the economy to the Final EIS. See Section 4.10.2.1 of the Final EIS under the subheading Economic Impacts of Mercury Emissions. The economic viability of using coal is addressed in Section 2.5.1 of the Final EIS at Table 2.5-2. Also see Section 1.2.1 above for a more detailed discussion related to estimating the impacts of mercury emissions from a single source.

1.2.14 Costs for Regulating Mercury

Comment O-3an from Joint Commenters: Commenters note that “While the Project proponents have agreed to a voluntary emissions cap after the first three years of operation, it is uncertain how or if they will be able to meet this cap. According to Dr. Denney, ‘Co-Owners do not know specifically how the commitment will be met, but rather gamble that by 2014 some mercury-control technology will become commercially available.’ Even if mercury-control technology is available, Project co-owners do not know if they will be able to afford it. Given these uncertainties, it is possible that the Project will have to cut plant output in order to meet the voluntary emissions cap.”

Response: The proposed Big Stone II plant is not subject to any emission trading regulations or any other mercury regulations at the present time due to the CAMR being vacated by the U.S. Court of Appeals for the District of Columbia Circuit in March 2008. Regardless of the lack of mercury regulation, the Co-owners have committed to install control equipment that would most likely result in removal of at least 90 percent of the mercury emitted from both the existing plant and the proposed Big Stone II plant. The commitments made with respect to the Settlement Agreement were made on the expectation that Otter Tail Power Company (OTP) and Montana-Dakota Utilities, Co. (MDU) would obtain cost recovery from the state commissions having jurisdiction of all reasonable and prudent costs and expenditures through a rate case, tariff, rate rider, or other applicable cost or rate recovery mechanism. The capital costs and operating costs of the control equipment as well as any future emission trading costs associated with future mercury regulations are unknown at this time due to a number of factors including unidentified control technologies, undefined operating costs, and undefined future mercury regulations. Commercially available mercury control technologies are currently limited, but additional research and development activity is anticipated to produce additional options that will become available during the next few years. When they do become available, the capital costs and operating costs could be estimated. In addition, considering the unit specific emissions characteristics of mercury from coal-fired boilers and the significant chemical differences between the various species of mercury, it would be necessary to perform tests to evaluate control technologies available to the Big Stone units upon startup of proposed Big Stone II plant. Further, future Federal or State mercury regulations will likely be defined within the next few years. Until that point, it would not be possible to estimate the additional costs (if any) associated with these regulations.

Nevertheless, as discussed in Section 1.2.2 above, the Co-owners have jointly participated in a research and testing project on Texas Genco’s W.A. Parish Station Unit 8. This electric generating unit is a similar size, burns similar coal, and is equipped with similar emissions control equipment and configuration to the proposed Big Stone II plant. The preliminary test results at the Parish Station Unit 8 plant indicate that mercury removal in excess of 90 percent is possible (Laumb, Jason, Li Yan, and John Sanislowski, 2006). Some test results showed removal rates of 94 percent at W.A. Parish. While a portion of the mercury was captured by the fabric filter, the results indicate that nearly all of the oxidized mercury was captured in the WFGD. Therefore, if the proposed plant were to achieve similar removal rates as the Parish plant (i.e., the 90 percent removal rate discussed in the Settlement Agreement), the Co-owners would not likely incur any significant additional capital cost for mercury removal. See Mercury Response Paper (Response Paper A, Volume II) and Section 4.1.2.1 of the Final EIS under the subheading Mercury Emissions from the Existing and Proposed Plants for more information.

1.2.15 Federal and Minnesota Mercury Regulations

Comment Number	Name	Comment Summary
DEIS Comments		
O-4g	MnRES	The commenter expressed concern about mercury. It was noted that emissions from the proposed plant would fall primarily on Minnesota because of prevailing winds, and that Minnesota regulations on mercury, if applied to the proposed plant, would reduce mercury emissions. The commenter also noted that Minnesota's waterways, as noted in the DEIS, are already seriously degraded by mercury deposition; additional loading is unacceptable.
B-3f	Rose Creek Anglers	"The EPA has begun to respond to this growing threat to our health and has mandated that coal fired power plants reduce their mercury emissions by 70% by the year 2017."
B-3g	Rose Creek Anglers	"Many leadings scientists feel while this is a meaningful first step, it will not be nearly enough to resolve the magnitude of the problem."
B-3h	Rose Creek Anglers	". . . Big Stone's plan will not meet the EPA's target nor will it help to resolve this problem. Many states have taken initiatives to cut mercury emissions ahead of the lenient federal standard. South Dakota is not one of them. Minnesota recently passed one of the most restrictive mercury emission laws in the country, which will reduce mercury emissions by 90% on its three largest emitting plants by the year 2012. This law, however, unfortunately will not affect the Big Stone plant."
I-4b	Keith Davison	"Just because the plant is barely into South Dakota doesn't mean that Otter Tail should ignore Minnesota's requirements."
I-10b	Susan Granger	Commenter requests Federal pollution control agency intervention to help meet mercury reduction goal.
I-17h	Jeanne Koster	". . . as I understand, even the 144 lbs is 'fictional.' If I understand correctly, actual emissions will be 210 lbs, with the difference to be made up by purchase of allowances from utilities elsewhere who are exceeding the federal standard for mercury emissions. The EIS says the utility intends to pare actual emissions to 144 lbs eventually but forecasts having to resort to allowance purchasing if their efforts to achieve 144 lbs don't pan out. However, by 2018, the federal government will have cut South Dakota's mercury emissions allowance to 58 lbs. In their draft EIS, Big Stone people are showing no plan for making the jump from actual 210-144 lbs to whatever part of 58 lbs they are entitled to use. South Dakota rule will not allow them to hog the whole 58."
FL-3b	CWA Form Letter Patience Caso	"We just passed legislation in Minnesota to reduce mercury. Why are you proposing to increase mercury pollution again. This is unacceptable, especially in an area of the state that has potential for wind power."
FL-16d	Sierra Club Postcard	"Mercury from coal plant emissions contaminate fish tissue and cause neurobehavioral disorders. The DEIS ignores recent studies in Massachusetts, Ohio, Florida, and the Great Lakes showing that local sources of mercury impact local water bodies to a greater extent than previously known. Minnesota recently passed one of the strongest mercury reduction laws in the country. Transmission lines for a new dirty coal plant just over our border destroys the progress of bi-partisan leadership in setting new standards for mercury reduction in Minnesota."

Comment Number	Name	Comment Summary
PH1-5b	Public Hearing Big Stone City, SD Jeanne Koster	“We also note that the 189 pounds a year, although it is in a good direction, is far from the amount that the state of South Dakota will be budgeted under the final implementation of the Clean Air Mercury Rule. That figure, we understand, is now at 58 pounds a year. How will the Co-owners, how are the Co-owners planning to make the leap between 189 pounds a year, and the final budget of 58 pounds a year? We hope that that will be explained, exposed in the DEIS.”
PH1-5f	Public Hearing Big Stone City, SD Jeanne Koster	“I hope the Final EIS will do some calculation to show what would be the cost of complying with the STAPPA/ALAPCO Mercury Model, the model rule, compared to what the Co-owners are planning to do now to bring it down to 189 pounds a year.”
PH3-5e	Public Hearing Granite Falls, MN Duane Ninneman	“The Federal Clean Air Mercury Rule imposes New Source Performance Standards beginning in 2010. By 2018, South Dakota’s entire mercury budget will be only 58 pounds per year, and Big Stone II is expected to far exceed that number.”
PH3-5f	Public Hearing Granite Falls, MN Duane Ninneman	“This year Minnesota enacted the most stringent mercury reduction legislation in the country, which passed by a unanimous vote in both houses and was signed by Governor Pawlenty. Minnesota regulation will not curtail mercury from the Big Stone plant, even though much of the plant’s mercury falls in western Minnesota on the prevailing winds.”
PH3-10e	Public Hearing Granite Falls, MN Duane Ninneman	The commenter expressed concern that the stringent mercury reduction legislation passed by Minnesota would not curtail the proposed plant’s mercury emissions that fall in western Minnesota.
PH4-2a	Public Hearing Benson, MN Christopher Childs	“On the issue of mercury, the initial figure that I was told for the output of this unit was something approaching 400 pounds of mercury. On a recent visit to the plant, I was assured that the plant would put out no more than the current output of the existing unit, which is 190 pounds. I note in the DEIS that the target is now down to 144 pounds. While I can applaud the choice of the owners, the proposed owners of the proposed plant to reduce the mercury by that amount, I have to say that from my perspective, it does not sufficiently address the issue.”
PH4-5b	Public Hearing Benson, MN Erin Jordahl Redlin	“I know the letter that was sent said that the units would be reducing to 189 pounds per year, and that’s what the current unit is emitting. But under the federal Clean Air Mercury Rule, and in the Draft Environmental Impact Statement, it states that the goal is 144 pounds of mercury per year. So Clean Water is just confused about which is – What’s a goal mean versus this voluntary agreement?”
PH4-5c	Public Hearing Benson, MN Erin Jordahl Redlin	“We’re also concerned about the fact that . . . their voluntary agreement is actually below what they would be allowed to emit, but starting in 2010, the federal rule would require them to reduce to 144 pounds and then in 2018, they would be required to reduce to 58 pounds. So by the time the unit is operational. . . they should be already actually reducing to 144. So 189 is still above what the federal rule would require. So we’re just concerned that the three years that they’re asking to test after they’re commercially operational, they want to test the mercury control equipment for three years, and then at the end of the three years, so in 2015, I guess, they would be reducing to 189, except that five years earlier, they should have been reducing to 144.”
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments expressing general concern for the need for additional consideration of mercury regulations as they relate to the proposed Project. The comments in this subcategory specifically questioned how the proposed Big Stone II plant would meet Federal regulatory requirements and/or why the proposed plant would not be subject to Minnesota requirements. Based on these comments, the status of Federal mercury regulations is presented in Section 4.1.1, Introduction of the Final EIS and in the Mercury Response Paper (Response Paper A, Volume II). In March 2008, the CAMR was vacated by the U.S. Court of Appeals for the District of Columbia Circuit. Therefore, the proposed Big Stone II plant is not subject to any Federal mercury regulations at the present time.

One comment stated, “The EPA has begun to respond to this growing threat to our health and has mandated that coal fired power plants reduce their mercury emissions by 70% by the year 2017.” It appears that this comment is referring to the USEPA CAMR rule. A mandate was issued by the U.S. Court of Appeals for the District of Columbia Circuit on March 14, 2008, formally overturning the CAMR. Thus, the CAMR no longer exists and will not be addressed. However, even though CAMR has been vacated the Co-owners have committed to install a new WFGD system to aid in the control mercury emissions from the existing and proposed Plant. In addition, the Co-owners have committed, under the MnDOC Settlement Agreement, to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This commitment would result in mercury emission reductions that exceed those mandated by the former CAMR rule.

Minnesota has one of the most stringent mercury regulations in the United States. Minnesota has adopted a rule regulating mercury emissions from coal-fired power plants greater than 500 MW. The rule requires a 90 percent removal of mercury from units with wet scrubbers by December 31, 2014. Even though the proposed Big Stone II Project does not fall under the jurisdiction of the Minnesota regulations, the Co-owners have entered into the Settlement Agreement with the MnDOC, where the Co-owners agree to meet Minnesota mercury emission requirements. The terms of the Settlement Agreement were included as a condition to the Certificate of Need, issued March 17, 2009. Thus, the Settlement Agreement is binding and requires the Co-owners to install emission controls likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. Thus, the existing plant and the proposed Project would achieve an emissions removal efficiency for mercury equivalent to that required by Minnesota regulations.

1.2.16 Sources of Mercury

Comment Number	Name	Comment Summary
DEIS Comments		
I-19c	Richard Kroger	“You also fail to address facts that recent studies show that much of the Hg comes from local sources like Bigstone [Big Stone] I Power Plant.”
I-29b	Gerald L Steele	“Of concern to me is the increase in mercury levels which will be added to the lakes and rivers in this part of Minnesota. During the winter, especially, the prevailing winds will bring the pollutants from this power plant down on these waterways and their waterfowl. These winds, as you know, carry the pollutants for great distances landing on farms and waters. This area exists on both sides of the Minnesota River as it winds through farms and cities in Western Minnesota.”

Comment Number	Name	Comment Summary
I-32a	Richard Unger	“The EIS does not fairly address the increased mercury pollution that will result if the Bigstone [Big Stone] II Power Plant is built a mile or 2 west of the Minnesota border with South Dakota. The EIS does contain a wind Compass Rose which indicates the prevailing wind from the site of the existing and proposed coal plant which shows the wind passing over Minnesota’s lake country which is already polluted with mercury. Even the Minnesota River has fish consumption restrictions. Imagine the effect on lakes which have no outlet to flush pollutants.”
I-34c	Nancy Wilson	“Coal-burning power plants put too much mercury into the ecosystem – both nearby (likely) and generally “down-wind” into the environment.”
I-36f	Joe Erjavec, et al	“As currently proposed, Big Stone II will work to undermine these efforts since most of its mercury emissions will end up in Minnesota’s water.”
FL-1e	CWA Form Letter	“The draft Environmental Impact Statement assumes that the federal Clean Air Mercury Rule will not be changed or delayed due to legal challenges. It also assumes that mercury pollution does not significantly impact local water bodies. However, recent studies in Massachusetts, Florida, Ohio, and the Great Lakes show that local sources of mercury negatively impact local water bodies to a greater extent than previously thought.”
PH1-7f	Public Hearing Big Stone City, SD Mary Jo Stueve	“Airborne mercury from Big Stone II would affect regional and worldwide water bodies. And our lake is known for fishing, recreation, and camping. Big Stone Lake and the upper Minnesota River, including numerous tributaries, are already under fish consumption advisories for mercury; and, therefore, any amount added to these impaired waters is biologically significant, and I might add, under Clean Water Act Rule.”
PH3-1a	Public Hearing Granite Falls, MN Dick Unger	“Our big Environmental Impact Statement spends only a page and a half on the mercury. It doesn’t indicate the prevailing winds, which are going to bring virtually all the mercury to Minnesota.”
PH3-5c	Public Hearing Granite Falls, MN Duane Ninneman	“A similar study in Alberta, Canada, documents significant increases in mercury deposition in the local area immediately downwind from coal-burning plants. The research shows that mercury is falling in the water and accumulating in lake sediment within a 30 to 65 miles of coal-fired power plants.”
PH3-10c	Public Hearing Granite Falls, MN Duane Ninneman letter	“A similar study in Alberta, Canada, documents significant increases in mercury deposition in the local area immediately downwind from coal-burning plants. The research shows that mercury is falling in the water and accumulating in lake sediment within a 30 to 65 miles of coal-fired power plants.”
SDEIS Comments		
No comments received.		

Response: The commenters requested additional information about local sources of mercury emissions. Commenters specifically identified the need to address recent studies on mercury emissions from local sources and how sources impact water bodies and regional areas. Based on these comments, the Mercury Response Paper (Response Paper A, Volume II) provides information on the sources of mercury and the relationship of the sources to the proposed Big Stone II power plant. The USEPA has conducted and reviewed a vast number and wide range of research studies in order to better understand the sources, transport, and fate of atmospheric mercury. Based on these research activities, the USEPA issued its Mercury Study Report to Congress in 1997 (USEPA, 1997a). Many of the findings of this report and of subsequent research efforts have been incorporated into a recently

finalized document that provides official guidance for assessing the potential human health impacts caused by emissions of mercury and many other compounds from electric generating facilities. The Mercury Response Paper summarizes these recent findings. Based on this research, Western has concluded that the reduced rate of mercury emissions from the combined emissions rate from the existing plant and the proposed Big Stone II (compared to current emissions rate from the existing plant) would contribute to a lower rate of accumulation.

Other studies indicate that more mercury emissions from local sources are deposited locally than in the USEPA study mentioned above. One commenter stated, “A similar study in Alberta, Canada, documents significant increases in mercury deposition in the local area immediately downwind from coal-burning plants. The research shows that mercury is falling in the water and accumulating in lake sediment within a 30 to 65 miles of coal-fired power plants.” Western acknowledges this study and others assessing impacts from local mercury deposition. As many of the authors of such studies will acknowledge, studies of local impacts from mercury have very unique characteristics (types of emission sources vary, and weather patterns are unique to the study location) that cannot be translated to other areas. Therefore, while Western has not conducted any further analysis using this study, additional information can be obtained from the USEPA study mentioned above. The results of this study could be used as a guide to assess the mercury deposition from the proposed Project on the surrounding area. The results indicate that of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. Even without this study or other studies, it is still possible to reasonably assess the local mercury impact based on whether the mercury emission from the existing and proposed Project would increase or decrease in the surrounding area. With the implementation of the air pollution controls, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it reasonable to assume the mercury impacts in the surrounding area would also decrease. Also, as discussed in Section 1.2.1 above, since a much higher fraction of mercury would be in divalent form, and since the addition of the WFGD would allow removal of a large portion of mercury in this form due to its solubility in water, emissions of divalent mercury from the combined plants would decrease and, as a result, deposition in the vicinity of the Big Stone site would likely also decrease. A more detailed discussion of these studies has been provided in the Mercury Response Paper (Response Paper A, Volume II. See Section 1.2.1 above for a more detailed discussion related to estimating the impacts of mercury emissions from a single source.

1.2.17 Commitment to Reducing Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-1g	CWA	The commenter does not feel the mercury emission limitations and policies were made clear. It was also stated the public needs a commitment from the Big Stone II’s Co-owners to minimize the economic risks associated with mercury and its more stringent future regulation.

Comment Number	Name	Comment Summary
PH1-5a	Public Hearing Big Stone City, SD Jeanne Koster	“We are told that the Co-owners are making a commitment to reduce the mercury emissions to about 189 pounds a year, which is in the right direction. It isn't enough, but it's in a good direction. So we hope that this commitment will be reflected in the Final EIS. We hope it will also specify how this commitment is enforceable or how we can be assured that it will be honored and whether the Co-owners are willing to have this as a condition of permits under which they operate, so that enforcement action could be taken in case they fall short.”
PH2-1d	Public Hearing Morris, MN Mary Jo Stueve	“The Draft EIS shows and records an estimated 399 pounds of mercury released. And though, as Nancy mentioned, now we hear a recent document and Co-owner commitment to have no more than 189 pounds, the current 2004 levels. What is it? And what does it mean? Is it a firm commitment? Our members are concerned. Is it voluntary? Who will enforce it? And the analysis has not been done.”
PH2-2g	Public Hearing Morris, MN Allen Wold	“I do have a comment, too, on 189 pounds of mercury. Was that a recent concession? And how firm is the commitment?”
PH4-5e	Public Hearing Benson, MN Erin Jordahl Redlin	“We would like to know what happens after the Co-owners test the technology for three years, if they decide, ‘Well, this isn't feasible. We're not going to do this.’ It's a voluntary agreement so there is no requirement under what they're proposing that they would actually have to reduce. Luckily, we do have this federal rule, and I'm sure that citizens would push for the enforcement of that federal rule so they would have to reduce to 144, but these are some of the questions that we still don't feel have been answered in the letter about the voluntary agreement.”
SDEIS Comments		
SF-1s	USEPA	“We strongly encourage Western to reference the relevant provisions of the settlement agreement reached between the State of Minnesota PUC and the Co-owners in the FEIS and ROD.”
SF-1t	USEPA	The commenter suggests the Final EIS and ROD clearly reference tracking mechanisms, technology control requirements, and mitigation goals agreed upon in the settlement agreement with State of Minnesota PUC.
SF-2a	USDOJ	USDOJ is concerned with the impacts of mercury on wildlife and the Minnesota River. Up-to date technology should be employed for mercury control to minimize adverse impacts and a commitment should be made to adopt improved technologies as they become available.

Response: The commenters expressed general concern over the commitment to reduce mercury emissions. Commenters specifically had questions on details of the commitment, how firm it is, and whether the commitment was enough. Commenters also requested that any commitments to reduce mercury emissions be tracked and enforced. Based on these comments, Western provided additional discussion in Section 4.1.2.1 (under subheading Mercury Emissions from the Existing and Proposed Plants). That section discusses the Co-owners commitment to install control technology that reduces emissions by 90 percent. This would result in annual emissions of approximately 81.5 lb of mercury from the Big Stone site, significantly less than the estimated 189.6 lb of mercury emissions reported from the existing plant in 2004. Also, as part of the Settlement Agreement, the Co-owners agreed to act in good faith to install control equipment as expeditiously as possible. However, given the construction schedule and commercial operation date of the proposed Big Stone II plant, and also considering that emission controls specifically for mercury are not sufficiently demonstrated to be

commercially available at this time, the parties to the Settlement Agreement recognize that the Co-owners would have four years from the proposed Big Stone plant’s commercial operation date to achieve compliance with the control requirements and emission limits. Even though the proposed Big Stone II Project does not fall under the jurisdiction of the Minnesota regulations, the Co-owners have entered into the Settlement Agreement with the MnDOC, where the Co-owners agree to meet Minnesota mercury emission requirements. The terms of the Settlement Agreement were included as a condition to the Certificate of Need, issued March 17, 2009. Thus, the Settlement Agreement is binding and requires the Co-owners to install emission controls likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. The Final EIS has been updated to reflect the execution of the Settlement Agreement.

1.2.18 Concerns and Opposition to Proposed Project due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-3aj	Joint Commenters	“The SDPUC, however, accepted the Co-owners entire proposal without concern for the three years of toxic pollutants such as mercury that comes with it. In fact, the SDPUC did not even seriously consider mercury emissions because those emissions would likely not affect South Dakota residents, but rather Minnesota residents and others downwind of Big Stone II.”
O-3ak	Joint Commenters	“Because of this situation, and because NEPA requires meaningful consideration of environmental impacts, it is up to WAPA to meaningfully consider mercury fallout in an EIS.”
I-5a	Beverly Falk	“I want you aware that I oppose the Big Stone II Transmission Lines that are being proposed to be located through Minnesota. I am very concerned about avoiding mercury release into our environment. My special concern is avoiding polluting our lakes, one of which I live on.”
I-7a	Wendell Falk	“I am very concerned about a release of mercury into our environment and therefore oppose the transmission lines coming into Minnesota.”
I-7b	Wendell Falk	“I am concerned about the Minnesota water system.”
I-8b	Joe Foss	“Burning more coal will add to our current problems with air pollution, mercury contamination, and global warming-induced climate change.”
I-8i	Joe Foss	“I am a teacher who works with children. I don’t want to see their learning stunted because of our poor decision to burn more coal.”
I-10a	Susan Granger	The commenter expresses concern about the project’s potential effect on Minnesota water quality. Most of the mercury that is accumulating in Minnesota rivers and lakes is from air-borne emissions, and most of that is from coal-burning power plants. Many of the lakes and rivers are ‘mercury impaired’ posing risks to people, aquatic life and recreation.
I-10c	Susan Granger	“I strongly feel that adding to the coal-burning capacity of the Big Stone Power Plant would move us in exactly the wrong direction: we need to collectively reduce the amount of mercury-containing emissions in the air, not increase or even maintain current levels.
I-15a	Scott Kelly	“I am deeply concerned about levels of mercury and other pollutants in Minnesota lakes and streams. The Pomme de Terre River, which passes through Morris, as well as the rest of the Minnesota River basin are vulnerable to coal burning power plant emissions.”
I-18d	Daniel and Ruth Krause	“Mercury emissions. I commend you for lowering the amount of mercury that will be emitted. However, it is still too much.”

Comment Number	Name	Comment Summary
I-19j	Richard Kroger	“Why do we have to accept increased global warming, Hg pollution, poisoning of our minorities, and increasing suffering by asmatics [asthmatics] just to satisfy Big Stone’s pursuit of the almighty dollar.”
I-21a	Terry Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”
I-22d	Ellen Mamer	“Mercury affects our water and the animals that live in it, and us when we eat fish.”
I-28a	Roy Smith	“At age 73, I've seen the transformation of our atmosphere into a sewer for short-term economic gain. We just can't continue "more of the same." It's not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO ₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates.”
FL-14a	Sierra Club Form Letter William Steele	“We Minnesotans will be suffering for years and years from increased mercury and other pollutants downwind of this expanded plant. And the increased burning of coal will significantly increase global warming. I am glad to see that last week temperatures in the Dakotas were well into the triple digits on the F scale. I hope that temperatures this summer have been sufficient to warm your brains into the thinking mode.”
PH1-2a	Public Hearing Big Stone City, SD Lanny Stricherz	Read the editorial from the Sioux Falls Argus Leader, "Proposed plant offers opportunity to discuss future of power." Editorial Board, Argus Leader, June 13, 2006.
PH3-1e	Public Hearing Granite Falls, MN Dick Unger	“I would also indicate the second slide that they showed us here, although it indicated renewable energies, such as wind and things, it also indicated on the list that this was never even studied. The only thing they essentially studied was fossil fuel. And I would be real concerned about the mercury.”
PH1-8a	Public Hearing Big Stone City, SD Carol Eastman Standing Elk	“. . . I love fish. Now I'm afraid to eat fish because it will probably kill me, you know? . . . for a lot of people, they always thought us Indian people were like backward, . . . but we learn to live with what we had and what was around us. For people to bring this kind of energy that is toxic and kills you . . . that somehow doesn't make sense to me.”
PH3-8d	Public Hearing Granite Falls, MN Patrick Moore	“I'm also the Vice-President of the Minnesota Trails Association, and we are envisioning a day when people will be able to ride a bike from Ortonville to Mankato along the Minnesota River. And one of the things they're going to want to come and see are the birds. And according to a lot of research, especially a multi-agency study of mercury levels in the Everglades released in 2003 found that when incinerators in South Florida reduced their mercury emission by more than 90 percent in a few years, there was a significant drop in mercury levels found in some Everglades and fish and birds.”

Comment Number	Name	Comment Summary
PH4-1e	Public Hearing Benson, MN Cesia Kerns	“And we're keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that's kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
PH4-2d	Public Hearing Benson, MN Christopher Childs	“We also know that studies increasingly. . . show that a very significant amount of mercury falls out relatively close to power plants, coal-fired power plants. It was thought for a long time that our mercury problem in Minnesota was only about 10 percent home grown. That is subject to serious question as a result of studies in places like Ohio and Lake Michigan basin and a couple of other others states, as far as Massachusetts. So there is a real issue with this plant being allowed to be and tied in to the grid with the mercury emissions coming over Minnesota, a state which is trying very hard to clean up its own act.”
PH4-4a	Public Hearing Benson, MN Eva Falk	“I'm concerned about the additional mercury emissions from this plant.”
PH4-5a	Public Hearing Benson, MN Erin Jordahl Redlin	“ . . .my concerns are very much similar to what has already been brought up, mainly: mercury.”
PH4-7c	Public Hearing Benson, MN Jim Falk	“ . . .I'm concerned about the mercury pollution that the plant will generate. I'm concerned about the fact that I don't know that the transmission system that is being proposed is going to fairly and adequately come forward to address the needs of the residents in Minnesota for renewable energy.”
SDEIS Comments		
S-1b	MPCA	“The MPCA supports cap and trade programs to achieve economic efficiencies in meeting important environmental goals. However, the MPCA believes the cap for mercury emissions from power plants in EPA's CAMR were set too high. Minnesota has recognized the significant contribution that power plants make to the inventory of mercury releases in the United States, and recently adopted state law mandating that mercury be reduced by 90% at existing, large power plants. In order to help eliminate fish consumption advisories for mercury from Minnesota's lakes, we need substantial mercury reductions from sources outside of Minnesota's borders - including the Big Stone power plant - reductions even greater than CAMR would secure.”
SI-8a	Joe Makepeace	“We do not need to put more mercury, carbon dioxide, and other harmful chemicals into our environment.”
SI-8b	Joe Makepeace	“This includes our air that we breath, water that we drink and use for recreation, and soil that produces our food.” [Western believes comment refers to concern about chemicals, carbon dioxide, and mercury in the environment.]
SI-8d	Joe Makepeace	“At some point, people must realize the harmful impact of burning coal to produce energy.”
SI-8f	Joe Makepeace	“How much mercury and carbon dioxide may be SAFELY put into our environment?”
SI-13e	Tom Neiman	“I am requesting that Western deny Big Stone II Co-owners an interconnection to Western’s transmission system.”

Comment Number	Name	Comment Summary
SFL-13a	CWA Form Letter for SDEIS Judith Graziano	“I do not want another coal fired power plant sending mercury and CO ₂ into the atmosphere. There should be a moritorium [moratorium] on such power plants until a comprehensive energy plan is drawn up by Congress, and takes into account carbon trading and caps.”

Response: The commenters provided a variety of comments, expressing general opposition to the proposed Project due to related mercury emissions. Commenters were largely against any additional mercury emissions and focused on impacts on human health, environment, fish, birds, and water. Based on these comments, Western updated Chapter 4 of the Final EIS and prepared the Mercury Response Paper (Response Paper A, Volume II). Further, the comments categorized above have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project. As noted in Section 4.1.2.1 of the Final EIS, the commitment of the Co-owners of the proposed Big Stone II Project is to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (a decrease of approximately 57 percent), less than the estimated 189.6 lb of mercury emissions reported from the existing plant in 2004. See Section 1.2.1 above for a more detailed discussion related to estimating the impacts of mercury emissions from a single source.

Another commenter stated, “How much mercury and carbon dioxide may be SAFELY put into our environment?” Regarding this comment, refer to Section 4.1.2.1 of the Final EIS regarding mercury emissions and Section 7 of this Responses to Comments document for a discussion on Public Health. Western is not aware of any reliable estimate of the planet’s carrying capacity for mercury.

1.2.19 Cumulative Impacts of Mercury

Comment Number	Name	Comment Summary
DEIS Comments		
O-2e	Sierra Club	The commenter states that the Draft EIS failed to recognize the significance of mercury emissions from the proposed Project and failed to comply with CEQ regulations by not addressing environmental impacts resulting from mercury emissions from Big Stone II. The comparison between the proposed Big Stone II emissions versus the overall mercury output deemed it insignificant; the commenter did not feel this to be an adequate argument. The commenter further notes that any awareness of scientific studies of the environmental effects of mercury emissions and their deposition and conversion to methyl mercury would make it reasonable to anticipate a cumulatively significant impact on the environment from large-scale emissions of mercury.

Comment Number	Name	Comment Summary
SDEIS Comments		
ST-1ap	Sisseton-Wahpeton Oyate	The commenter does not feel the Co-owners adequately address the cumulative impacts of methylmercury accumulation.
ST-1aq	Sisseton-Wahpeton Oyate	The commenter does not think that the Co-owners adequately address ambient mercury or methylmercury in nearby surface water bodies, especially South Dakota water bodies. There is a paucity of data on mercury deposition and methylmercury occurrence in surface waters in the region however methylmercury has been accumulating in regional water bodies since the Big Stone I plant commenced operations in July 1975.

Response: The commenters do not believe that the Draft EIS adequately addressed the cumulative impact of mercury emissions. Commenters specifically stated such concerns as the need to address scientific studies of the environmental effects of mercury emissions from large sources and the cumulatively significant impact on the environment. Another was concerned with accumulating mercury emissions in regional water bodies coming from the existing Big Stone plant. Based on these comments, an update to the cumulative effects analysis was incorporated in Section 4.11.4, Cumulative Impacts. Mercury effects on the environment from all sources are expected to remain a long-term impact issue. However, the fact that the existing Big Stone plant and the proposed plant would continue to emit mercury shows that the decrease in mercury emissions from these combined plants, compared to the emissions of the existing Big Stone plant⁶, would result in reduced impacts to the environment.

Using data from the Emissions and Generation Resource Integrated Database ("eGRID") of the USEPA, 2004 mercury emissions from fossil-fired power plants in Minnesota, North Dakota, and South Dakota region were reported to be approximately 4,047 lb (USEPA, 2008d). Based on new power generation currently permitted and proposed in the referenced region, the 2015 projected regional mercury emissions from fossil-fired power generation, including the proposed Big Stone II plant, would be approximately 4,871 lb (R. W. Beck, 2008c). The projected 47 lb of mercury that would be emitted from the proposed plant (approximately 58 percent of the estimated 81.5 lb site emissions, based on a ratio of the unit capacities of the existing plant and the proposed plant) would make up 0.96 percent (R. W. Beck, 2008c) of projected regional mercury emissions from fossil-fired power generation in 2015. When considering that a very large percentage (70 percent and greater in most of Minnesota and 80 to 100 percent in most of South Dakota) of mercury deposition in the area originates from sources outside of the region (EPRI, 2008a), mercury emissions from the proposed plant would contribute to an even smaller percentage of regional deposition. Even though the total mercury emissions from the existing and proposed Project would be lower, the emissions would still bioaccumulate in fish and could affect those who eat fish and others who are exposed to mercury emissions from the proposed Project. However, the proposed Project would not cause an increase in the rate of accumulation of methylmercury concentrations in fish, although bioaccumulation of methylmercury would continue at a reduced rate. Further, according to information from the MPCA, declines in mercury emission and deposition should result in reduced mercury concentrations in fish (MPCA, 2007). The reduced rate of bioaccumulation, when considering the MPCA information,

⁶ With the combination of the WFGD system and addition of supplemental pollution controls (to be determined according to the Settlement Agreement between the Co-owners and the Energy Planning and Advocacy function of the MnDOC, attached in Appendix K), the combined rate of emissions of mercury from the existing and proposed Big Stone II plants would decrease from current emission rates for the existing plant.

suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation. However, without the transport, deposition, and transformation information, Western has concluded that it is not possible to reasonably identify the cumulative impacts related to mercury emissions from the proposed plant, when added to past, present, or reasonably foreseeable future projects.

1.3 Other Air Issues

1.3.1 Air Modeling (Air Impact Analysis)

Comment Number	Name	Comment Summary
DEIS Comments		
F-1r	USEPA	When discussing reasonable foreseeable future emissions, the commenter recommends the Final EIS include either cumulative air dispersion modeling analysis for CO and PM ₁₀ or justification explaining why a cumulative effects air dispersion modeling analysis is not necessary.
F-1s	USEPA	For Table 4.1-2, the commenter suggests the following additions: More detail and calculations for 2012 projected emissions of NO _x , SO ₂ , and PM ₁₀ ; calculations of control efficiencies associated with bag house and WFGD; Explain goals and how they may be obtained; a column showing 2012 projected annual emissions.
F-1t	USEPA	For Table 4.1-3, the commenter recommends an example to show how the “Change in Emission” column is calculated.
F-1u	USEPA	The commenter requests a support document or appendix with the Final EIS for the dispersion and visibility modeling from section 4.1.2
PH2-1b	Public Hearing Morris, MN Mary Jo Stueve	“... our members are deeply concerned about the inconsistency and the lack of analysis on mercury and other toxic emissions.”
SDEIS Comments		
SF-1d	USEPA	The Supplemental DEIS did not address air quality impacts. Therefore, most of our comments on air quality are still relevant.
SF-1x	USEPA	When discussing reasonable foreseeable future emissions, the commenter recommends the Final EIS include either cumulative air dispersion modeling analysis for CO and PM ₁₀ or justification explaining why a cumulative effects air dispersion modeling analysis is not necessary. Same as Comment F-1r
SF-1y	USEPA	For Table 4.1-2, the commenter suggests the following additions: More detail and calculations for 2012 projected emissions of NO _x , SO ₂ , and PM ₁₀ ; calculations of control efficiencies associated with bag house and WFGD; Explain goals and how they may be obtained; a column showing 2012 projected annual emissions. Same as Comment F-1s.
SF-1z	USEPA	For Table 4.1-3, the commenter recommends an example to show how the “Change in Emission” column is calculated. Same as Comment F-1t.
SF-1aa	USEPA	The commenter requests a support document or appendix with the Final EIS for the dispersion and visibility modeling from section 4.1.2. Same as Comment F-1u.

Response: The commenters indicated that the reasoning behind the need for the cumulative air dispersion modeling analysis for carbon monoxide (CO) and particulate matter with aerodynamic diameter less than 10 micrometers (PM₁₀) be more thoroughly explained and suggested that a more clear explanation of projected emissions be included in the Final EIS. In addition, the commenters indicated concerns over the methodology for performing analyses for mercury and other toxic emissions as well as requesting support documentation for dispersion and visibility monitoring. Based on these comments, Western updated Section 4.1.2.1 (under the subheading Plant Emissions and Air Quality Impact Assessment) of the Final EIS to include information about air dispersion modeling, visibility modeling, acid deposition, and project emissions. Further information can be found in the Co-owners' "Big Stone II Prevention of Significant Deterioration Construction Permit Application" dated July 20, 2005, (major update on June 20, 2006) and in numerous other updates as noted in the SDDENR "Revised Statement of Basis, Prevention of Significant Deterioration Permit, Otter Tail Power Company – Big Stone II." (SDDENR, 2008b, 2008c). The analyses performed in support of the proposed Project clearly demonstrate that a significant impact to air quality, as defined by the significance criteria in Section 4.1.1 of the Final EIS would not occur as a result of operation of the proposed Big Stone II Project. Further information can be found in the Co-owners' "Big Stone II Prevention of Significant Deterioration Construction Permit Application" dated July 20, 2005 (major update on June 20, 2006) and in numerous other updates as noted in the SDDENR "Revised Statement of Basis, Prevention of Significant Deterioration Permit, Otter Tail Power Company – Big Stone II." The South Dakota Board of Minerals and Environment (SDBME) issued the Prevention of Significant Deterioration Air Quality Preconstruction Permit on November 20, 2008. The SDBME also issued the Big Stone site Title V permit on November 20, 2008, for the USEPA's 45-day review period. The USEPA issued objections to the Big Stone Title V permit during their 45-day review period. The SDDENR has revised the Title V permit to satisfy the objections raised by the USEPA, and the permit revisions underwent a 30-day public notice period which began on February 11, 2009, and ended on March 13, 2009. The SDBME held hearings on April 20 and 21, 2009, to consider the revised Title V permit and whether any revisions were needed for the PSD permit issued on November 20, 2008. On April 21, 2009, the SDBME issued a signed final approval document after the SDBME the day before unanimously approved the revised Title V permit that addressed the objections raised by the USEPA and reaffirmed the PSD permit that was issued on November 20, 2008. The SDBME approved the hearing Findings of Fact and Conclusions of Law during their April 21, 2009 meeting. On April 22, 2009, the revised Title V permit was submitted to the USEPA for a 45-day review. The decisions of the SDBME constitute the State's Final Permit Decision on the Title V Permit, but may be appealed to the State Circuit Court and the State Supreme Court, and with the USEPA, as provided by law.

The procedures established by the USEPA for modeling emissions associated with a proposed emissions source were followed in the air permitting process. When modeling for a particular pollutant results in impacts above an established "significance level" (note that this is not the same as a "significant impact"), cumulative modeling is then performed to include other existing sources that have a modeled impact within the "area of significance" for the proposed source. Because the area around the existing plant is designated as either "attainment" or "unclassifiable" for all criteria pollutants and the change in SO₂ and NO_x emissions are each less than the PSD significance threshold, a modeling analysis for these pollutants was not required or conducted. Modeling was performed for CO, PM₁₀, and particulate matter with aerodynamic diameter less than 2.5 micrometers (PM_{2.5}) because changes in PSD emissions would occur. The results of the screening modeling indicate that the impacts of CO from the proposed Big Stone II plant would not result in a significant impact at any location. No further modeling is required for a PSD pollutant if the modeled impacts are below the significance levels. Air dispersion modeling for PM₁₀ and PM_{2.5} was performed using AERMOD,

Version 07026. Dispersion modeling shows there would be no exceedances of the PSD Increment or the National Ambient Air Quality Standards (“NAAQS”) for PM₁₀ and PM_{2.5} for the proposed Big Stone II plant. Operation of the proposed plant would not cause or contribute to a significant degradation of ambient air quality.

Since dispersion modeling is dependent upon source emission rates, stack parameters, and location, it is not possible to model sources that might exist in the future and obtain any meaningful results. This is the reason the modeling procedures established by the USEPA require a proposed source to consider other sources existing at the time of the permit application. Any source proposed after Big Stone II begins operation would have to follow the same procedures.

Table 4.1-2 in the Final EIS has been revised to clarify the emission levels which the Co-owners are likely to achieve in the future based on the performance of the emissions control equipment and actual annual boiler operating levels. The table addresses changes in terminology discussed as “goals” in the Draft EIS.

1.3.2 Air Quality Downwind and other Geographic Regions

Comment Number	Name	Comment Summary
DEIS Comments		
F-2y	USFWS	The commenter feels that the document should recognize the contiguous series of federal and state lands directly downstream on the Minnesota River and immediately southeast of the proposed Project with equally valuable resources, including air quality.
O-1q	CWA	The commenter expresses concern for the downwind effects of the stack emissions, particularly on aquatic ecosystems. The commenter felt since the air pollutants travel far from their source, the Draft EIS should have analyzed the health and environmental costs of air pollution from a geographically broad perspective.
O-1s	CWA	“CWA is concerned that by dismissing widespread effects of air pollution from Big Stone II, the draft EIS does not attempt to ‘preven[t] a decline in the quality of mankind's world environment’ as required by NEPA, § 102(f).”
O-1at	CWA	“From a geographically broad perspective, what are the economic and environmental consequences of the air pollution that Big Stone II will export to other regions?”
I-31a	Brynan Thornton	“The expansion of the Big Stone II is a hazard to the environment. Not only will it be expanding over the border from South Dakota to Minnesota, it will be polluting lots more. The Co-owners of Big Stone II propose to adversely affect air quality by adding up to 16,448 tons of nitrogen oxides, up to 13,278 tons of sulfur dioxide, and at least 250 tons of particle matter into the air each year. Mercury pollution could approach 399 pounds according to the DEIS.”
I-32e	Richard Unger	“This decision may be the single most important decision in Minnesota this year. If the way is opened for these kind of power plants to be built just upwind on the excuse that Minnesota lacks jurisdiction over the part of the project that is physically located in South Dakota, we could allow our wonderful lake country to be destroyed by pollution.”

Comment Number	Name	Comment Summary
PH2-2h	Public Hearing Morris, MN Allen Wold	“How many square miles will this affect with pollutants? Most of it's going to go west -- or I mean east, because of the prevailing westerly winds. And how far downstream will the winds carry it?”
SDEIS Comments		
No comments received.		

Response: The commenters expressed concerns that the proposed Project would cause adverse environmental impacts on downwind geographic areas and would export economic and environmental consequences to other regions as a result of air emissions. The region of relevant influence for the air parameters are defined in Section 4.11.2 of the Final EIS (see Table 4.11-1). Western updated Section 4.1.2.1 (under the subheading Plant Emissions and Air Quality Impact Assessment) of the Final EIS with information about air dispersion modeling, visibility modeling, and acid deposition. All areas of the U.S. not designated as Class I areas are designated as Class II areas. Impacts to Class II areas were assessed as required in the air permit process. Modeling indicates that impacts to these areas are not above Clean Air Act significance levels and, therefore, the proposed Project would not have a significant impact. Further information can be found in the Co-owners’ “Big Stone II Prevention of Significant Deterioration Construction Permit Application” dated July 20, 2005 (major update on June 20, 2006) and in numerous other updates as noted in the SDDENR “Revised Statement of Basis, Prevention of Significant Deterioration Permit, Otter Tail Power Company – Big Stone II.” (SDDENR, 2008b, 2008c). The dispersion modeling, performed as part of the air quality permitting process, contains predicted pollutant concentrations at various distances downwind of the proposed Project. In summary, the Title V permit issued by SDBME contain specific annual emission limits for SO₂ and NO_x for the proposed Big Stone II unit and for the existing plant. Potential emissions presented in Table 4.1-2 of the Final EIS represent the permitted emission levels for the pollutants at the maximum possible annual boiler operating levels for the existing plant and proposed Project. Projected actual emissions presented in Table 4.1-2 of the Final EIS represent the existing plant and proposed Project emission levels which the Co-owners are likely to achieve in the future based on the performance of the emissions control equipment and actual annual boiler operating levels. The 2,000 ton/year SO₂ emissions (from Table 4.1-2) is the level of annual actual emissions expected from the Big Stone site once the WFGD system is operational on both the existing and proposed Big Stone plants, which is significantly less than the 14,296 tons of actual SO₂ emissions from the existing plant in 2004. In accordance with the PSD application, the Co-owners have committed to not increase NO_x emissions resulting from the operation of the proposed plant as compared to the annual average of 2003 and 2004 NO_x emissions from the existing plant. PM emissions would increase. However, Best Available Control Technology would be used, and air quality modeling demonstrates compliance with NAAQS.

In their comments, the U.S. Fish and Wildlife Service (USFWS) noted that the Class II areas near the proposed Project were “much closer to the influence of project-related mercury levels than is Pipestone National Monument.” As noted in Section 4.1.2.1, actual emissions of mercury from the existing plant in 2004 were 189.6 lb. The Co-owners have committed to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (a rate decrease of approximately 57 percent). Refer to Section 4.1.2.1 (under the subheading Mercury Emissions from the Existing and Proposed Plants) and to the Mercury Response Paper (Response Paper A, Volume II) for additional information.

1.3.3 Air Quality Impacts on Health and Safety

Comment Number	Name	Comment Summary
DEIS Comments		
T-1c	SWO	“Air Quality will be impacted and will most likely be detrimental to the health & safety of tribal members.”
T-1g	SWO	“There are many roots, berries, medicinal plants & herbs that could become contaminated due to the increased source of air pollution; as well as water, which is considered the source of all Life, considered most Sacred to the traditional lifeways of our people.”
O-1n	CWA	The commenter states that the proposed Big Stone II will emit thousands of tons of nitrogen oxides, sulfur dioxide, and particulate matter into the air each year which will negatively impact health and lead to increased healthcare costs.
I-2c	Lois Braun	The commenter notes that the health costs of coal burning are astronomical. Every year Minnesota alone spends \$303 million on neurobehavioral disorders and \$30.6 million on asthma in Minnesotan children. “Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses.”
I-8e	Joe Foss	“I’m quite concerned about the increased levels of nitrogen oxide, sulfur dioxide, and particulate matter from a new coal plant. . . I had difficulty breathing . . .when I’d exercise outside. I have read stories of children having the same difficulty when they live fairly close to a factory or power plant. I don’t believe this new power plant addresses these concerns.”
I-21a	Terry J. Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”
I-24a	Becca Orrick	The commenter expresses being extremely disturbed by the recent news of a new coal plant being built near Minnesota. “I want my kids to breathe fresh air when they grow up, not air that is polluted by hydrocarbons, sulfur dioxide and other poisonous chemicals and compounds.”
I-28a	Roy Smith	“At age 73, I’ve seen the transformation of our atmosphere into a sewer for short-term economic gain. We just can’t continue “more of the same.” It’s not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO ₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates.”
FL-10b	Sierra Club Form Letter Lee Johnson	“Our greatest treasure in Minnesota (besides our children, and two of our kids have asthma which is aggravated by particulates from powerplant emissions) are our 10,000 beautiful lakes, many of which have recently been downgraded with fish consumption advisories due to mercury from power plant fallout.”

Comment Number	Name	Comment Summary
PH4-1e	Public Hearing Benson, MN Cesia Kearns	“And we’re keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that’s kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
SDEIS Comments		
SFL-32a	Sierra Club Form Letter for SDEIS	“Please accept my comments on the supplemental draft environmental impact statement for the Big Stone II coal-fired power plant and transmission expansion. I value clean air, clean water, and the interests of public health and our natural legacy over the profits of a utility company.”
SFL-32d	Sierra Club Form Letter for SDEIS	“...the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”
SFL-39a	Sierra Club Form Letter for SDEIS Ian Harding	“Think of HOW MANY MORE CASES OF THE MISERY OF ASTHMA AND POOR HEALTH this proposed coal plant will cause?”

Response: The comments in this subcategory primarily expressed concern with releasing atmospheric pollutants into the environment and an associated concern for human health. Based on these comments, information on pollutant emissions controls as well as air dispersion modeling, visibility modeling, and acid deposition was updated in Section 4.1.2.1 (under the subheading Plant Emissions and Air Quality Impact Assessment) of the Final EIS. Public health and safety issues are discussed in Section 4.7 of the Final EIS. Also, please refer to the Responses to Comments in Section 7.1.1, below, for a general analysis of public health impacts associated with emissions of atmospheric pollutants from the proposed plant. In summary, through the use of various types of emission controls for the proposed plant, there would be no increase in NO_x or SO₂ emissions, and mercury emissions would be reduced. Air dispersion modeling shows there would be no exceedances of the PSD increment or the NAAQS for PM₁₀ and PM_{2.5}. The Co-owners would be required to comply with the limits and conditions of the air permit and SDDENR would monitor emissions for the proposed plant and take regulatory action if conditions are not met. Even with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, compliance with the conditions of the air permit for the proposed plant, and compliance with NAAQS, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment.

1.3.4 Public Health Impacts/Cost of Public Health Impacts due to Other Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-1n	CWA	The commenter states that the proposed Big Stone II will emit thousands of tons of nitrogen oxides, sulfur dioxide, and particulate matter into the air each year which will negatively impact health and lead to increased healthcare costs.
O-2e	Sierra Club	The commenter does not believe the Draft EIS recognized the significance of mercury emissions from the proposed Big Stone II. The comparison between the proposed Big Stone II emissions versus the overall mercury output deemed it insignificant; the commenter did not feel this to be an adequate argument. The commenter further notes that any awareness of scientific studies of the environmental effects of mercury emissions and their deposition and conversion to methyl mercury would make it reasonable to anticipate a cumulatively significant impact on the environment from large-scale emissions of mercury.
I-2c	Lois Braun	The commenter notes that the health costs of coal burning are astronomical. Every year Minnesota alone spends \$303 million on neurobehavioral disorders and \$30.6 million on asthma in Minnesotan children. “Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses.”
I-8e	Joe Foss	“I’m quite concerned about the increased levels of nitrogen oxide, sulfur dioxide, and particulate matter from a new coal plant . . .I had difficulty breathing . . .when I’d exercise outside. I have read stories of children having the same difficulty when they live fairly close to a factory or power plant. I don’t believe this new power plant addresses these concerns.”
I-9a	Sergio Gaitan	“It is with dismay that I read about the plans to expand the Big Stone II coal-fired power plant by a huge 600 MW. It is disconcerting that after so much evidence of the polluting and health effects of coal-fired electrical generation that releases soot, NOx and SOx into the air, that your institution is even considering this coal expansion.”
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado . . .”
I-11b	Merle Greene	“The financial cost of using coal is increasing as are its health and environmental costs – Mercury and other matter from coal plant emissions contribute to respiratory problems.”
I-21a	Terry J. Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”

Comment Number	Name	Comment Summary
I-28e	Roy Smith	“...social costs are significant: a recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from this plant will contribute significantly to these illnesses.”
FL-8c	Sierra Club Form Letter	The commenter expresses concern that the Draft EIS did not consider the full range of costs related to future operation and expansion of a coal plant including contributions to neurobehavioral disorders and asthma in Minnesota children.
PH4-1e	Public Hearing Benson, MN Cesia Kearns	“And we’re keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that’s kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
SDEIS Comments		
No comments received.		

Response: The commenters expressed concerns that the pollutants discharged from the proposed Big Stone II would negatively impact public health and lead to increased healthcare costs. Mercury emissions, CO₂ emissions, and conventional pollutants were referenced in the comments. Issues and impacts related to human health are discussed in Sections 4.7.2.1 (under the Infrastructure, Public Health and Safety, and Waste Management subheading) of the Final EIS including air emissions; the risks associated with use of hazardous materials; and the generation, management, and disposal of solid and hazardous waste. Section 4.1.2.1 (under the subheading Plant Emissions and Air Quality Impact Assessment) of the Final EIS presents information on pollutant emissions and their impacts. As noted in Section 1.3.3 above, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment. Please refer to Section 7.1.1 of the Responses to Comments for a discussion of health impacts, which is also applicable to this subcategory.

1.3.5 Reducing Air Emissions through Other Technologies

Comment Number	Name	Comment Summary
DEIS Comments		
O-1o	CWA	“According to the draft EIS, one scrubber will control the emissions from Big Stone I and II collectively because it is less costly than two scrubbers. How much additional emissions reduction would result if there were an additional scrubber?”
O-1as	CWA	“What would be the economic and environmental benefits of Big Stone reducing pollution by using one scrubber per plant rather than using one scrubber for both plants?”
I-29f	Gerald L. Steele	“Certainly wind power will not produce nitrogen oxides, sulfur dioxides, carbon monoxide, particulate matter, hydrochloric acid and most of all the mercury emissions that worry me most of all.”

Comment Number	Name	Comment Summary
PH1-4c	Public Hearing Big Stone City, SD Delores Miller	"I do think they do need to be upgraded to control the emissions."
SDEIS Comments		
SI-7f	Michaeleen Kelzenberg	"If an additional coal plant is needed it should be built with the most sophisticated scrubbing technology that is available and a design."

Response: The WFGD system proposed for installation to control sulfur dioxide (SO₂) emissions from both the existing and proposed units is considered "Best Available Control Technology" for a coal-fired power generation facility. There are economies of scale that allow the construction of one scrubber to be less costly than the construction of two smaller scrubbers. Either option would be sized appropriately for the flue gas flow directed to it and allow for the same removal efficiency of SO₂. There is no advantage to constructing a dedicated scrubber for each unit.

1.3.6 Air Quality Costs to Health and the Environment

Comment Number	Name	Comment Summary
DEIS Comments		
O-1p	CWA	"Are the health and environmental benefits associated with reduced emissions really outweighed by the immediate economic cost of another scrubber?"
O-1q	CWA	The commenter expressed concern for the downwind effects of the stack emissions, particularly on aquatic ecosystems. The commenter felt since the air pollutants travel far from their source, the Draft EIS should have analyzed the health and environmental costs of air pollution from a geographically broad perspective.
O-1an	CWA	"What will be the economic impact of Big Stone II's air pollution from increased healthcare needs, environmental decline from acid rain, mercury contamination, and the loss of rare species and habitats?"
O-1as	CWA	"What would be the economic and environmental benefits of Big Stone reducing pollution by using one scrubber per plant rather than using one scrubber for both plants?"
O-1at	CWA	"From a geographically broad perspective, what are the economic and environmental consequences of the air pollution that Big Stone II will export to other regions?"
I-28a	Roy Smith	"At age 73, I've seen the transformation of our atmosphere into a sewer for short-term economic gain. We just can't continue "more of the same." It's not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO ₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates."
FL-8c	Sierra Club Form Letter	The commenter expressed concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.

Comment Number	Name	Comment Summary
PH3-4b	Public Hearing Granite Falls, MN Katie Laughlin	“The Draft EIS should have thoroughly analyzed the cost of Big Stone II associated with increased healthcare from air pollution and environmental decline from acid rain, mercury contamination, and the loss of rare habitats and species.”
SDEIS Comments		
No comments received.		

Response: Commenters expressed concerns over the downwind environmental and health-related effects of the proposed Big Stone II. The commenters inquired as to the economic impact of such potential effects they have noted. Public health is addressed in Sections 4.7.2.1 (under the Public Health and Safety subheading) of the Final EIS and in Section 7 of this Responses to Comments document. Additionally, Section 4.1.2.1 (under the subheading Plant Emissions and Air Quality Impact Assessment) of the Final EIS presents information on pollutant emissions and their impacts.

As discussed in Section 4.1.1 of the Final EIS, two types of national air quality standards are established by the Federal Clean Air Act and its amendments. Primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Results of the air quality analysis for the proposed Project show that constructing and operating the proposed Big Stone II plant, transmission lines, and substation modifications would not cause or contribute to an exceedance of NAAQS or PSD increment thresholds. As noted in Section 1.3.3 above, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment. Further, certain emissions (e.g., SO₂) would be less if the power plant is constructed, since additional or improved emissions controls would also be installed at the existing plant. Although the costs of health care to any specific individuals cannot be predicted with any reliability, the USEPA has considered impacts to public health and cost issues in their promulgation of air regulations. For this EIS, the standards and methods of analysis required by the PSD permitting process were used to evaluate the proposed Project’s potential impacts on air quality. To that end, the Final EIS uses the geographical range prescribed by the PSD permitting process.

1.3.7 Water Quality Impacts due to Air Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
T-1g	SWO	“There are many roots, berries, medicinal plants & herbs that could become contaminated due to the increased source of air pollution; as well as water, which is considered the source of all Life, considered most Sacred to the traditional lifeways of our people.”
O-1q	CWA	The commenter expresses concern for the downwind effects of the stack emissions, particularly on aquatic ecosystems. The commenter feels that since the air pollutants travel far from their source, the Draft EIS should have analyzed the health and environmental costs of air pollution from a geographically broad perspective.

Comment Number	Name	Comment Summary
FL-5a	CWA Form Letter Helmbrecht Gaylord	“I’m from original Milbank and have seen the air pollution and the quality of the lake water and fishing deteriorated [deteriorated] since the opening of the first power plant.”
SDEIS Comments		
SFL-32d	Sierra Club Form Letter for SDEIS	“...the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”

Response: The primary air emission issues affecting water quality would be acid rain and mercury. Refer to Section 4.1.2.1 of the Final EIS for a discussion of acid deposition. As noted in the Final EIS, there would be no increase in nitrogen oxides (NOx) or sulfur dioxide (SO₂) emissions as a result of the proposed Project. Therefore, there would be no increase in acid deposition to area water bodies. Analysis of mercury emissions also have been provided in a Mercury Response Paper (Response Paper A, Volume II). As noted in Section 4.1.2.1, actual emissions of mercury from the existing plant in 2004 were 189.6 lb. The commitment of the Co-owners of the proposed Big Stone II Project is to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (a decrease of approximately 57 percent). Therefore, with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, and compliance with the conditions of the air permit for the proposed plant, the rate of mercury deposition would decrease as a result of the proposed plant being constructed. This would result in a smaller incremental impact to water quality due to air emissions, if the proposed plant were constructed.

1.3.8 Coal Plants Cause Pollution

Comment Number	Name	Comment Summary
DEIS Comments		
I-12a	Thomas Hillenbrand	“As a resident of the area where the new power plant is proposed I am very concerned about the environmental impact this plant will have in the area. We already have a large coal-burning plant as you know, as well as a large Ethanol Plant. And all of us know that coal-burning power plants are the dirtiest plants for producing energy. South Dakota rightly brags that it has some of the cleanest air in the U.S. I hope we can keep it that way.”
I-19e	Richard Kroger	“Coal fired power plants spewing their dirty emissions of CO ₂ , Hg, NOxides [NOx] cannot continue.”

Comment Number	Name	Comment Summary
SDEIS Comments		
SFL-32d	Sierra Club Form Letter forSDEIS	“...the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”

Response: Please refer to the discussion of emissions and impacts in Section 4.1.2.1 of the Final EIS. The proposed Big Stone II plant is required to complete the permitting process according to the requirements of applicable regulations. There would be a decrease in SO₂ emissions, no net increase in NO_x, and the rate of mercury deposition would decrease as a result of the air pollution controls included with construction of the proposed plant. Although particulate matter would increase, the air dispersion modeling shows there would be no exceedances of the PSD increment or the NAAQS for PM₁₀ and PM_{2.5} with operation of the proposed Big Stone II plant. As noted in Section 1.3.3 above, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment.

1.3.9 Acid Deposition

Comment Number	Name	Comment Summary
DEIS Comments		
F-1p	USEPA	“The significance criteria listed visibility but omitted criteria for acid neutralizing capacity in sensitive lakes and deposition of sulfur and nitrogen compounds in Class I areas. Please include the significance criteria for sensitive lakes in the FEIS.”
B-3j	Rose Creek Anglers	“As a manufacturer of angling products, and a concerned citizen, I am very worried about sulfur dioxide emissions because of the threat of acid rain. Besides being the single largest contributor to our nation’s mercury contamination, coal burning power plants are also the largest contributor to acid rain.”
SDEIS Comments		
SF-1w	USEPA	“The significance criteria listed visibility but omitted criteria for acid neutralizing capacity in sensitive lakes and deposition of sulfur and nitrogen compounds in Class I areas. Please include the significance criteria for sensitive lakes in the FEIS.” Same as Comment F-1p.

Response: Significance criteria related to acid deposition have been added to Section 4.1.1 of the Final EIS, and acid deposition is now discussed in Section 4.1.2.1 of the Final EIS under the Air Quality Related Values subheading. Since there would be no increase in emissions of NO_x or SO₂ from the Big Stone site, a Prevention of Significant Deterioration (PSD) review was not required for these pollutants. As such, acid deposition is not expected to increase from current levels and was not addressed specifically in the permitting process. The Federal Land Managers' Air Quality Related Values Work Group (FLAG) guidance recommends completion of visibility and regional haze

analyses for any Class I areas within 186 miles (300 kilometers) of the proposed Project. There are no Class I areas within 186 miles of the proposed plant. Therefore, no Class I visibility analysis was required or conducted.

1.3.10 Other Air Quality Comments

Comment F-1f from USEPA: “The Draft EIS states that ‘[a]irborne plant emissions could cause local and regional surface water quality impacts such as acidification or increase in mercury concentration.’ (DEIS at 4-15). The DEIS provides, however, no analysis in support of this statement.”

Response: This portion of USEPA’s comment was not a statement of conclusion made by the Draft EIS, but rather was identified as an issue. Nevertheless, the Final EIS includes a discussion on the difficulty of identifying source-specific impacts on water within local and regional areas. Refer to Responses to Comments in Section 1.2.1, above.

Comment F-1q from USEPA: The Commenter indicates that project emissions, especially those of PM and Hg, would likely be lower if the proposed action were to include this technology (referring to the Advanced Hybrid system).

Response: Please refer to Section 4.1.2.1 of the Final EIS under the Plant Emissions and Air Quality Impacts Assessment subheading. The Advanced Hybrid system was a demonstration technology that did not perform properly and was removed from the existing Big Stone unit. It was replaced with a fabric filter, which is a technology considered to be “Best Available Control Technology” for particulate matter emissions. It would also contribute to the removal of mercury. Refer to the Mercury Response Paper (Response Paper A, Volume II).

Comment S-3a from SDDENR: “. . .the South Dakota Department of Environment and Natural Resources’ Air Quality Program reviewed the Draft Environmental Impact Statement and agrees that the Big Stone II power plant must comply with the federal Clean Air Act.”

Response: The South Dakota Board of Minerals and Environment (SDBME) issued the PSD permit to the proposed Big Stone II plant on November 20, 2008. The SDBME also issued the Big Stone site Title V permit on November 20, 2008, for the USEPA’s 45-day review period. The USEPA issued objections to the Big Stone Title V permit during their 45-day review period. The SDDENR has revised the Title V permit to satisfy the objections raised by the USEPA, and the permit revisions underwent a 30-day public notice period which began on February 11, 2009, and ended on March 13, 2009. The SDBME held hearings on April 20 and 21, 2009, to consider the revised Title V permit and whether any revisions were needed for the PSD permit issued on November 20, 2008. On April 21, 2009, the SDBME issued a signed final approval document after the SDBME the day before unanimously approved the revised Title V permit that addressed the objections raised by the USEPA and reaffirmed the PSD permit that was issued on November 20, 2008. The SDBME approved the hearing Findings of Fact and Conclusions of Law during their April 21, 2009 meeting. On April 22, 2009, the revised Title V permit was submitted to the USEPA for a 45-day review. The decisions of the SDBME constitute the State’s Final Permit Decision on the Title V Permit, but may be appealed to the State Circuit Court and the State Supreme Court, and with the USEPA, as provided by law.

Comment S-3b from SDDENR: “Otter Tail Power Company submitted an air quality permit application for the Big Stone II power plant in compliance with the state's Administrative Rules of South Dakota Article 74:36 - Air Pollution Control Program. We are reviewing the air quality

application and drafting an air quality permit for the Big Stone II power plant that ensures the power plant will meet both state and federal air quality requirements; including the protection of the National Ambient Air Quality Standards and Prevention of Significant Deterioration increments.”

Response: No response required.

Comment S-3c from SDDENR: “The air quality permit will ensure that the Big Stone II power plant complies with the Clean Air Mercury Rules. In addition to the proposed air pollution control devices, Otter Tail Power Company voluntarily agreed to limit its mercury emissions from Big Stone I and Big Stone II to the mercury levels emitted in 2004 of 189 pounds per year. As proposed, the addition of Big Stone II will not increase mercury, sulfur dioxide, or nitrogen oxide emissions.”

Response: No response required.

Comment B-3e from Rose Creek Anglers: Comment refers to an effort in Minnesota to convert two coal-fired power plants to natural gas.

Response: This effort does not apply to the proposed Big Stone II Project. No further response required.

Comment I-8b from Joe Foss: Commenter indicates a concern that burning more coal will add to air pollution.

Response: Please refer to Section 4.1.2.1 of the Final EIS for a discussion of project emissions.

Comment I-21a from Terry J. Makepeace: Commenter believes that construction of the proposed Project will cause project emissions to double.

Response: Please refer to Table 4.1-2 in Section 4.1.2.1 of the Final EIS for a review of projected actual emissions from the proposed plant. There would be an increase in PM₁₀, VOCs, lead, and sulfuric acid emissions. There would be no increase in emissions of NO_x, SO₂, CO, and fluorides from the Big Stone site, and there would be a decrease in the rate of mercury emissions of approximately 57 percent. Total emissions of hazardous air pollutants would be reduced 49 percent (see Table 4.1-5 in Section 4.1.2.1 of the Final EIS).

Comment I-28a from Roy Smith: Commenter believes that “It’s not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates.”

Response: Please refer to Section 4.1.2.1 of the Final EIS for a discussion of project emissions.

Comment FL-9a from Margaret Boettcher: Commenter believes that “we . . . have a sacred duty to protect and preserve the gift of Creation – Clean Water, Clean Air.”

Response: Please refer to Section 4.1.2.1 of the Final EIS for a discussion of project emissions.

Comment PH1-7d from Mary Jo Stueve: Commenter states, “just because we have a zero discharge facility does not mean that we do not have air deposition.”

Response: Please refer to Section 4.1.2.1 of the Final EIS for a discussion of project air emissions. The proposed facility is a “zero discharge facility” with respect to wastewater, which does not apply to air emissions. Additionally, during the permit review process, the SDDENR determined what emissions would be regulated from the proposed plant and specific control technologies and other conditions for proposed plant operations. The Co-owners would be required to comply with the limits and operating conditions of their air permit, and SDDENR would monitor emissions for the proposed plant and take regulatory action if conditions are not met.

Comment SS-2c from SDDENR: “DENR also concurs with the Draft EIS which states that use of a wet cooling system would provide the most efficient process for generating electricity along with the least amount of emissions.”

Response: No response required.

1.3.11 Other Comments Noted Related to Air

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SI-8a	Joe Makepeace	“We do not need to put more mercury, carbon dioxide, and other harmful chemicals into our environment.”
SI-13e	Tom Neiman	“...we're filling the air with mercury, SO ₂ , ash, and CO ₂ .”
SI-17a	Dave Staub	“It does take time to collect thoughts on paper of what is the concern of many residents like myself in the vicinity [vicinity] of Big Stone II. There is a lot of concern about giving up wind rights to outside corporations and financial markets as well as air quality and water rights to the heavy hand of the coal industry, especially in a time of awakening to the alarming rate of rise of CO ₂ and global warming.”
SI-18b	Lanny Stricherz	“Our Lt Governor addressed the wind conference held here in Sioux Falls on Nov 29 and 30. He said that we are already a net energy exporter. We are attempting to get wind power off the ground here and have a lot of things going on to facilitate doing that. There is no reason for us to pollute our water and air to provide energy for folks to the East of us, when we have so much wind power just waiting to be harnessed.”
SFL-43a	Sierra Club Form Letter for SDEIS Kurt Indermaur	“Coal, with its attendant air pollution and mercury emissions, is not the best option for expanding power generation in our region. With cleaner alternatives increasingly available (wind, biomass), and the potential for us to lead the nation in renewable energy generation, expanding coal burning just does not make sense.”
SPH-1b	Public Hearing Milbank, SD Myrna Thompson	“...I would like to say that the tribe is very concerned and still does oppose the project, because we have no information on long-term environmental impacts over time, as well as the health impacts to our -- not only our people, the human factor, as well as the vegetation and the water, the air quality.”

Response: Your comments have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project.

2.0 Water Resources

2.1 Water Use by Proposed Plant

2.1.1 Concerns and Objections to Water Use by Proposed Plant

Comment Number	Name	Comment Summary
DEIS Comments		
O-3ap	Joint Commenters	The commenters stated the need for Western to incorporate the analysis of the MDNR regarding the proposed Project's impact on water supply and quality into the EIS. Specifically, the commenter noted that the proposed Project appropriation represents approximately 20 – 35% of the total lake volume based on historic water levels. Consequently the withdrawal of this volume of water has the potential to significantly affect the ecology and recreational suitability of Big Stone Lake. Commenter also states that Big Stone Lake would be lowered 6-12 inches several times per decade. Further, it reduces access to open water in shallow areas of the lake and increases the potential for navigational hazards caused by near surface rocks.
SDEIS Comments		
SS-1p	MnDNR	"Overall, the proposed project poses some serious and complex water resource concerns. The alternative plan eliminates the additional water storage that would have been provided by the new 450-acre pond and replaces it by using groundwater – a principal supply for domestic and irrigation uses, which has not been shown to be sustainable."
SO-1d	CWA	With respect to the groundwater withdrawal permit, the Applicants "did not consider additional affected interests, i.e., Minnesota DNR, local ethanol industry, downstream municipalities and water providers, public interest and alternative generation sources – comprehensively or transparently."
SO-1k	CWA (attachment)	CWA opposes the groundwater appropriation permit, citing waste or unreasonable water use, noting that there is great stress on limited water resources, unwelcome environmental consequences and dire future predictions, especially in the arid west. Discharge surpasses recharge in the Dakotas, Montana and Wyoming, with grave implications for Big Stone Lake.
SO-1s	CWA (attachment)	CWA research found USGS water use charts by county. OTP share of total water use would rise dramatically from 46% in Grant County in 2000, up to 81% with Big Stone II in operation.
SO-1aa	CWA (attachment)	CWA cites that the Altamont and Dakota Sandstone would have lower impacts on wells and surface water impacts, and are being rejected solely on economic grounds. The public's interest could be better served by the use of water sources which did not impact their surface waters and their wells. The Big Stone II partners are concerned only with their bottom line.
SO-1ab	CWA (attachment)	Big Stone II partners plan to store water and use it in anticipation of need. There is no reason to appropriate the legal right to withdraw water prior to a demonstrated need.

Comment Number	Name	Comment Summary
SO-1ag	CWA (attachment)	Expressing concern for recreational uses and property values at Big Stone Lake, the comment notes that withdrawal of groundwater has the potential to impact Big Stone Lake, particularly during drought, and inhibit the lake's ability to recharge. The commenter believes that there will be impacts to Big Stone Lake from groundwater use. The planned water withdrawal makes no sense.
SI-2b	Margaret Bitz	"My main objection to this project is that it uses too much water; more water than can be sustained over the long haul."
SI-4c	Dave Dempsey	"Damaging a public water body and reducing groundwater supply to burn more coal makes even less sense."
SI-4d	Dave Dempsey	"Please protect our water, not a \$1.8 billion dollar boondoggle. It is not possible to 'mitigate' or lessen the environmental impact of what Big Stone II will do to Big Stone Lake."
SI-6a	Susan Granger	"I am writing to convey to the Western Area Power Administration (WAPA) my opposition to the Big Stone II power plant and its proposed use of public water resources in western Minnesota."
SI-6b	Susan Granger	"I am very concerned about Big Stone II's ability to draw down water from Big Stone Lake and from the Veblen aquifer."
SI-6g	Susan Granger	"And it is foolish to build a power plant that will have such a significant effect on the water supply in an area of the state that is already on the dry side."
SI-7b	Michaelleen Kelzenberg	"I have to oppose both this coal plant and various ethanol endeavors [endeavors] that adversely [adversely] impact public waters and groundwater supplies."
SI-10b	Christine Marran	"We do not have the water to support another dirty burning coal plant. Please protect our water, not a 1.8 billion dollar (and rising) business plan."
SI-12a	Adam Miller	"...we are tapping a precious resource without good reason."
SI-14d	Traci Rasmusen-Myers	"Be responsible; there are other alternatives that would not have this level of impact on our resources."
SI-14f	Traci Rasmussen-Myers	"We do not have the water to support another dirty burning coal plant."
SI-15b	Leslie Reindl	"This is a very bad idea for reasons of insecure water supply (Minnesota, and especially western Minnesota, is still in the midst of a long drought); the use of clean fresh water for a dirty, and unnecessary, industry"
SI-15d	Leslie Reindl	"Taking water from a public water body and groundwater supply to burn more coal is an infringement on the rights of people to an adequate public water supply and to a stable climate."
SI-18c	Lenny Stricherz	"Further we do not have the water to spare here in SD, in times of drought. If the Veblen Aquifer is used as a backup, it will drain the wetlands and that puts our migratory waterfowl migration at risk."
SI-19c	Gene Tokheim	"We do not have the water to support another dirty burning coal plant. Future generations have a right to an adequate public water supply, not to mention opportunities for recreation that we all took for granted when we were young."
SI-19f	Gene Tokheim	"The South Dakota Water Management Board is not acting as responsible stewards of our common water supply."

Comment Number	Name	Comment Summary
SI-19g	Gene Tokheim	“Please protect our water, not a 1.8 billion dollar (and rising) business plan.”
SI-20a	Erica Zweifel	“I am opposed to this change as I am opposed to building the Big Stone Power Plant II.”
SI-20b	Erica Zweifel	“Freshwater is a scarce and precious commodity. Freshwater represents about 3 percent of the water on Earth and most of that, 68 percent is locked up in the form of ice making usable freshwater scarce and limited (USGS water cycle webpage). We need to be extremely careful when planning how to use this resource.”
SI-20f	Erica Zweifel	“I do not think that it is a good use of our precious water to support another coal plant. I believe that our shared natural resources should benefit people in the form of clean drinking water, water for sustainable agriculture, clean water for wildlife and to just enjoy in the beauty of the landscape. Our shared resources should not be given or sold to corporate America for their profit.”
SFL-1a	CWA Form Letter for SDEIS	“We do not have the water to support another dirty burning coal plant. Draining a public water body and groundwater supply to burn coal places industry wishes over the right of people to enjoy fishing and recreation, and the right of future generations to an adequate public water supply.”
SFL-1e	CWA Form Letter for SDEIS	“Please protect our water, not a 1.8 billion dollar (and rising) business plan. It is not possible to ‘mitigate’ or lessen the environmental impact of what Big Stone II will do to Big Stone Lake.”
SFL-5c	CWA Form Letter for SDEIS Bill Blonigan	“Spend our money on Wind and other Renewable sources. If the Big Stone II owners can create their own water they should be able to use that water for a plant. Just lay off the public water entrusted to us for us future generations of humanity.”
SFL-15a	CWA Form Letter for SDEIS Carmen LaChappelle	“Do not take the loss of this water lightly. It is a significant amount of water and changes that will likely happen have a domino impact on our environment.”
SFL-20a	CWA Form Letter for SDEIS Shirley Mueller	“Water is sacred and not to be used as a public commodity. It needs to be respected and left where it is and cleaned up instead of further loss and pollution.”
SFL-28a	CWA Form Letter for SDEIS Dustin Simpson	“That water belongs to no one! And if it DID belong to someone, it would be the people of the state and especially that county. That water should not turn into a profit for energy industry.”
SFL-32b	Sierra Club Form Letter for SDEIS	“The vast quantities of water that would be required from groundwater and Big Stone Lake for operating Big Stone II are unacceptable. Tapping this water resource would affect the agricultural community, tourism and recreation, wildlife, and the very water people in the area drink.”
SFL-65a	Gary Nuechterlein	“Clean air and water are critical not just to our wildlife and agriculture, but also to our own health.”
SFL-65b	Gary Nuechterlein	“The Big Stone II coal-fired power plant and transmission expansion will require large quantities of water that will deplete both the local groundwater as well as Big Stone Lake . . .”
SFL-69a	Don Weirens	“It is a waste of your valuable water resource...”

Response: The commenters provided a variety of comments expressing general concern about impacts to water resources, such as using water from a public lake for a coal plant, protecting a public resource, using too much water, and impacting water use for other purposes such as drinking water, agriculture, recreation, and wildlife. The discussion about water use by the existing and proposed

plants presented in the SDEIS was modified in the Final EIS to provide a clearer understanding of water supply and water appropriation permits from the SDDENR. The proposed use of water by the existing and proposed plants is addressed in Section 2.2.1.4 (under the subheading Water Supply and Use) and Section 4.2.2.1 of the Final EIS (see Proposed Water Uses discussion in the Groundwater section and Plant Water Use in the Surface Water section). Figure 2.2-6 was also added to illustrate the relative volumes of surface water and groundwater that the existing and proposed Big Stone plants would need over the 70-year period modeled.

The SDDENR is responsible for managing South Dakota's water resources for public and private use through its Water Rights Program. A water appropriation permit has been issued to the Co-owners by the South Dakota Water Management Board in the interest of public policy, and thus water appropriations by the proposed Project are in conformance with South Dakota laws. The Co-owners' water use plan is designed to minimize water use to the extent practicable, only using the water required for operations. The Water Management Board, in issuing the permits for water withdrawal, have determined that the proposed water use would not be damaging for the intended purpose. The proposed water use from Big Stone Lake would not be damaging to this public water body and is a beneficial use for its intended purpose according to South Dakota laws.

Three water appropriation permits were issued by the SDDENR to the existing or proposed Big Stone II plants. Two of the permits authorize a combined withdrawal of up to 18,000 acre-feet (af) per year (afy) from Big Stone Lake and one authorizes a withdrawal up to 10,000 afy of groundwater from the Veblen Aquifer. However, the combined water appropriation of 28,000 afy under the three permits does not mean that the combined plants would use 28,000 afy. It is an incorrect interpretation of the permits to assume that the existing and proposed plants would use 28,000 afy. The proposed plant operations cannot use that amount of water, and there would be no place to store the extra water at the plant site. A maximum of 3,500 af of surface water or ground water would be stored in the cooling ponds. Figure 2.2-6 of the Final EIS shows the modeled maximum annual combined surface water and groundwater appropriation would be approximately 16,200 af.

The proposed use of water by the existing and proposed plants is addressed in Section 4.2.2.1 of the Final EIS. In summary, approximately 13,000 afy of water (from Big Stone Lake or groundwater, combined) would be used by the existing and proposed plants under the proposed Project. The 13,000 afy total includes 4,200 afy used by the existing plant and the Poet Biorefining Plant (formerly the Northern Lights Ethanol Plant), and a predicted 8,800 afy by the proposed plant. Modeling has predicted that this water would come from Big Stone Lake (averaging approximately 9,300 afy) and by groundwater from the Veblen Aquifer (averaging about 3,700 afy). Operations at the existing Big Stone plant were permitted by the SDDENR to withdraw up to 110 cubic feet per second (cfs) and up to 8,000 afy from Big Stone Lake. If the proposed Big Stone II plant were to be constructed, the 8,000 afy limit would need to be increased by 10,000 afy to an annual limit of 18,000 afy. The additional withdrawal of 10,000 afy has been authorized by Water Permit No. 6678-3, issued by the SDDENR on November 1, 2006. The operating restrictions of the previous permit and the diversion rate of 110 cfs were not changed.

Slightly lower lake levels at Big Stone Lake are expected on rare occasions as a result of increased power plant withdrawals (Barr, 2007b). Study results indicate that if plant water withdrawals were increased to 13,000 afy with the existing cooling pond system storage volume of about 3,500 af, the worst effect would be that the lake would be 0.83 foot lower in two non-consecutive weeks out of a 70-year model period (as compared to a one-foot reduction under the Project that was proposed in the

May 2006 Draft EIS). On average, over 70 years, the lake elevation would only decrease by 0.15 feet (Barr, 2007b). These fluctuations in lake levels would not significantly affect recreation opportunities on Big Stone Lake. Essentially no change in the relative frequency of attaining the target recreational season pool elevation (968 feet project datum) is expected. In addition, permit limits have been designed to prevent impacts that would affect the recreational value of Big Stone Lake. Water use by the proposed plant would not impair the recreational use of Big Stone Lake.

Sections 2.2.1.4 and 4.2.2.1 of the Final EIS describe water use during drought conditions and the impact of drought on the proposed Project. Water Permit 6846-3 restricts maximum annual groundwater withdrawal such that the total volume of water that may be pumped cannot exceed 4,700 afy (averaged on a rolling 20-year period). The proposed pumping from the Veblen Aquifer would not impact Big Stone Lake because the predicted area of drawdown does not intersect the lake as illustrated in Figure 4.2-2 of the Final EIS.

A groundwater flow model of the Veblen Aquifer was used to estimate the regional effects of future pumping, to estimate the approximate yields from proposed wells, and to aid in identifying adverse effects, if any, from the pumping of wells as a back-up supply of water for the existing and proposed Big Stone II plants. The model also considered recharge to the Veblen Aquifer. Recharge from infiltrating rainfall and snowmelt are the primary mechanisms for adding water to the Veblen Aquifer. Since there are no site-specific data available for recharge rates in the modeled area, the model used a conservative estimate of one inch per year, which would be well below the likely average recharge rate. The SDDENR prepared a report on the Co-owners' Water Appropriation Permit Application (SDDENR, 2007b). In their report, the SDDENR calculated the amount of recharge rate necessary to equal the average annual withdrawals of the appropriation applied for by the Co-owners (approximately 3,720 afy) plus withdrawals by the existing Grant County users (approximately 1,000 afy). According to the report, an average annual recharge rate of 0.34 inches per year would balance withdrawals for the proposed plants, assuming average annual withdrawals of 4,700 afy (SDDENR, 2007b). Therefore, the consumptive use of groundwater for proposed plant uses would not deplete groundwater supplies or interfere with groundwater recharge in the affected area in a way that would adversely affect existing or proposed uses of groundwater resources.

Permit restrictions for surface water (limited withdrawals when lake elevations below 967 feet) and groundwater (cannot exceed 4,700 afy averaged over a 20-year period) were developed to ensure that water use by the proposed Project would not have a significant effect on water supply. The proposed water use would not deplete the Veblen Aquifer or Big Stone Lake. Please see Section 2.2.10, below regarding Comment SO-1aa the Altamont Aquifer.

2.1.2 Clarification of SDDENR Water Appropriation Permit Withdrawals and Restrictions

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-11	USEPA	The commenter recommends the Final EIS discuss any permit restriction associated with the Co-owners' water appropriation permit that are intended to limit the annual withdrawals.

Comment Number	Name	Comment Summary
SF-2g	USDOJ	The EIS should clarify the total water consumption of the plants and reconcile a discrepancy by explaining the additional 3,000 acre-feet of water that would be taken from the on-site cooling pond.
SO-1e	CWA	With respect to the groundwater withdrawal permit, the Applicants “applied for and received water permits more than double of that needed, a clear contradiction with SD water mining prohibitions. For example, total water permitted (‘Existing Permits’ plus 6846-3 equaling 28,000-acre feet) would exceed required amount (13,000-acre feet) to operate Big Stone Plant Unit 1, Big Stone II and POET by 15,000-acre feet (Evidentiary Hearing, July 11, 2007 Milbank, SD).”
SO-1g	CWA (CURE Attachment)	“If they intend to use 1/3 of the water they have been permitted to use, why did they ask for a permit for 2/3rds more water and why was it given so cheaply?”
SO-1ai	CWA (CURE Attachment)	“Applicants did not present any witness, or other credible evidence to indicate that emergency appropriation would not be possible, or that it would pose undue delay or hardship in the future. SDCL clearly and rightly provides process and oversight in these matters. Furthermore, ‘Existing Permits’ give cushion of 5,000-acre feet more than what applicants say operations require, i.e., 13,000-acre feet (Evidentiary Hearing July 11, 2007 Milbank, SD).”
SFL-1c	CWA Form Letter for SDEIS	“The South Dakota Water Management Board gave 3.2 billion gallons of water from Big Stone Lake plus 3.2 billion gallons of groundwater per year to Otter Tail Power, even though they knew that the total came to more than double the amount required to operate Big Stone I, Big Stone II, and the ethanol plant.”
SPH-3c	Public Hearing Milbank, SD Mary Jo Stueve	“Clean Water Action also has concerns that Otter Tail currently with all the water permits it has, which total approximately 28,000-acre-feet per 25 year, according to their own estimate, is actually 15,000-acre feet more than what they say they need in the project design. Nancy mentioned earlier that the Supplemental Draft EIS, and this is the time to take into account different populations or impacts that might come about with the changes, and since Otter Tail has received the permits, and just this last summer, we also realize it could be, this groundwater permit, groundwater draw could be detrimental to a whole other economic opportunity and development in the region, because of the ethanol plant and the expansion use, which also takes water. And can Big Stone Lake, this groundwater draw, sustain coal plant number one, and coal plant number two, co-ed ethanol plant, and we know Otter Tail has in its own interest, and wisely, perhaps, to its business credit, secured rights to cut off water use to the ethanol plant in times of drought.”

Response: The comments in this category expressed confusion over the water permits issued to the existing plant and the proposed Project. Concerns were also expressed that the proposed plant would be using up to 28,000 afy. Based on these comments Western has clarified the proposed plant’s water use and the three water appropriation permits issued by the SDDENR in Section 2.2.1.4 of the Final EIS (under the subheading Water Supply and Use). Although the combined water appropriation permits total to 28,000 afy, proposed plant operations cannot use that much water, and there would be no place to store the extra water at the plant site. The modeled maximum annual combined surface water and groundwater appropriation would be approximately 16,200 af. The volume of water

available through each permit is necessary to satisfy the existing and proposed plant needs through the most extreme water availability conditions.

2.1.3 Inability to Operate Big Stone I/Big Stone II during Drought

Comment Number	Name	Comment Summary
DEIS Comments		
I-18a	Daniel and Ruth Krause	“Water usage. 7500 acre feet does not sound like a lot except in a drought year when the lake is already low and another foot would be disastrous. Some contingency plans should be made for drought years. Maybe well water could be used in those extreme years.”
SDEIS Comments		
ST-1b	SWO	The commenter expressed concern regarding the additional impact the proposed Big Stone II would have during times of drought. The hydrologic modeling was felt to be inadequate and it was recommended the Co-owners perform a simulation capable of simulating complex hydrological systems.
ST-1ab	SWO	“Given the fact that groundwater alone could not supply enough water to operate the plant at full output, at what point (after what period of time) of groundwater diversion would this shortage occur?”
SS-1q	MnDNR	The ability for Big Stone I and proposed Big Stone II to operate during short periods of drought of 12-24 months has been shown but not for a longer-term drought of 48-120 months, such as the drought in the 1930s.
SO-1l	CWA (Attachment)	“Drought conditions intensify water use conflicts, competing interests, and have shut down power plants previously, raising issue of reliability.”
SO-1p	CWA (Attachment)	“Reliability problems could result from extreme or prolonged drought conditions, putting at risk current baseload service provided by Big Stone Plant Unit 1 should Big Stone II begin to operate.”
SO-1ao	CWA (MnDNR July 3, 2007 letter attachment)	The commenter expressed concern for the accuracy of the predicted recharge rate of the Veblen aquifer and unknown aquifer conditions. The groundwater model did not successfully demonstrate groundwater would be available during the 1930s drought period. Does not provide the degree of accuracy an aquifer test would prove. If SDDENR over-predicted recharge, Big Stone I and II may not have adequate supplemental water supplies when surface water restrictions are also imposed.

Response: Commenters expressed concern about the groundwater impacts during drought conditions. Sections 2.2.1.4 and 4.2.2.1 of the Final EIS describe water use during drought conditions and the impact of drought on the proposed Project. If water from Big Stone Lake is not available during times of drought, water would be used from the cooling pond and groundwater. During extended drought periods, groundwater appropriation restrictions would limit the full output operation of the proposed plant under the proposed Project (wet cooling) but not under Alternative 3 (wet/dry cooling).

2.1.4 Economic Impact of Water Use by Proposed Plant

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SO-1o	CWA (Attachment)	“Future options for other economic opportunities remain unfulfilled when water resources over-committed for power generation, in this case surface as well as ground water draw.”
SPH-3d	Public Hearing Milbank, SD Mary Jo Stueve	“So our concern would be what would this mean for the local economy and the local impacts, also. And Clean Water Action sees this water use important and needing more study and analysis, what's for the public good, not only now, but in the future for those who live here.”

Response: Water supply requirements for the existing and proposed plants would not deplete Big Stone Lake or the Veblen Aquifer. The surface water and groundwater appropriations include restrictions to minimize impacts to Big Stone Lake and the Minnesota River and to prevent withdrawal of groundwater in excess of its rate of recharge. The Settlement Agreement (see Section 1.5.2 of the Final EIS and Appendix K, Volume III) required the Co-owners by June 27, 2007, and on an ongoing basis, to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR. The SDDENR will continue to be responsible for managing South Dakota’s water resource for public and private use through its Water Rights Program. Therefore, future options for other economic opportunities are not compromised.

2.1.5 Support for Change in Water Supply

Comment Number	Name	Comment Summary
DEIS Comments		
I-18a	Daniel and Ruth Krause	“Water usage. 7500 acre feet does not sound like a lot except in a drought year when the lake is already low and another foot would be disastrous. Some contingency plans should be made for drought years. Maybe well water could be used in those extreme years.”
SDEIS Comments		
SS-2a	SDDENR	“Use of ground water as a backup will reduce the likelihood of needing an emergency water allocation from Big Stone Lake under drought conditions. With the construction of a second power generating facility at Big Stone, use of Big Stone Lake as the sole water source for cooling faces increased drawdown below what is presently experienced without a groundwater back up supply. This protects the lake level from being drawn down even further during drought conditions. Temporary allocations have occurred in the past and may become more likely in the future without the ground water alternative.”

Comment Number	Name	Comment Summary
SS-2b	SDDENR	“Another benefit of using ground water is a substantial reduction in the ‘footprint’ of the proposed expansion. The 450 surface acre water pond and a 25 acre cooling tower blowdown pond are being eliminated. These two benefits outweigh any impacts to flows in the Whetstone River which are expected to be minimal in response to the ground water withdrawals.”

Response: No response required.

2.2 Groundwater

2.2.1 Further Analysis of Impacts of Groundwater Withdrawal Needed

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1g	USEPA	“In this case, the supplemental DEIS does not fully analyze ground water impacts.”
ST-1i	SWO	“What will be the long-term effects to regional groundwater supplies and connected surface water sources given that groundwater will need to supplement surface water for 66 out of 70 years? To what geographical extent will impacts be observed?”

Response: Section 4.2.2.1 of the Final EIS contains a thorough analysis of the impacts of using groundwater for the proposed Project. Section 4.2.2.1 describes the proposed volumes of groundwater to be used as well as the scenarios under which groundwater would be used. The groundwater use scenarios are supported by groundwater modeling to estimate the regional effects of future pumping, to estimate the approximate yields from proposed wells, and to aid in identifying adverse effects, if any, from the pumping of wells as a back-up water supply. The groundwater model demonstrates the number of wells (i.e., 7 to 14), the sustainable yield (i.e., about 6,200 gallons per minute), and the anticipated areal extent of the drawdown areas that would be impacted by groundwater pumping (see Figure 4.2-2 in the Final EIS). The model also considers the recharge to the Veblen Aquifer. No further analysis is needed for the Final EIS. However, as real-time data becomes available (i.e., periodic measurements during pumping), the Settlement Agreement (see Section 1.5.2 of the Final EIS and Appendix K, Volume III) requires the Co-owners to (1) provide data to the SDDENR and the MnDNR to evaluate the Veblen Aquifer and the effects of extended groundwater withdrawal on Big Stone Lake and (2) perform tests to compare the groundwater pumping impacts to the modeling results provided during the water appropriation permit process.

2.2.2 Impacts of Groundwater Withdrawal on Surface Water

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1c	USEPA	The commenter recommends the Final EIS describe in much more detail the impacts to the Whetstone River and water users that may result from the reduction in stream flow.
SF-1h	USEPA	The commenter recommends that the FEIS provide improved detail on impacts to the Whetstone River from reductions in stream flow; analyze impacts to the ecosystem of changes to 24 acres of wetland basins; explain where the conclusion for no domestic wells comes from; and explain the annual average ground water withdrawal numbers more clearly.
SF-1i	USEPA	The commenter suggests the Final EIS discuss and describe in further detail the impacts to the Whetstone River and water users that would result from the reductions in stream flow.
ST-1b	SWO	The commenter expressed concern regarding the additional impact the proposed Big Stone II would have during times of drought. The hydrologic modeling was felt to be inadequate and it was recommended the Co-owners perform a simulation capable of simulating complex hydrological systems.
ST-1i	SWO	“What will be the long-term effects to regional groundwater supplies and connected surface water sources given that groundwater will need to supplement surface water for 66 out of 70 years? To what geographical extent will impacts be observed?”
ST-1m	SWO	“What will be the impacts of groundwater withdrawals to Big Stone Lake, Whetstone River, and Minnesota River?”
ST-1t	SWO	“Given that the Little Minnesota River is the headwaters for Big Stone Lake and contributes approximately 90% of water to the lake's supply (Jensen, 2007), what are potential impacts to the Little Minnesota River due to withdrawals from Big Stone Lake and the Veblen Aquifer.”
SS-1c	MnDNR	“The potential impact on downstream base flows during periods of drought appear to be under-investigated and significant. As an example, the average winter base flow of the Whetstone River will be reduced by 32%. MDNR is concerned with how these reduced base flows may affect surface water in Minnesota.”
SO-1f	CWA (CURE attachment)	“Furthermore, if low flows in the Minnesota River are the eventual result of the Big Stone II water draw down of the aquifer that feeds Big Stone Lake and the River itself, it will make it even harder and more expensive for towns like Montevideo to meet water quality regulations. The less water you have to work with, the harder it is to keep the river clean when you discharge treated wastewater into the system. Low flows will make it harder and more expensive for the Granite Falls Ethanol Plant to obtain and discharge Minnesota River water as well.”
SO-1w	CWA (attachment)	“The Veblen Aquifer discharges into Big Stone Lake. It makes no sense to consider the application for the withdrawal of groundwater without reference to the impact it will have on Big Stone Lake.”

Comment Number	Name	Comment Summary
SO-1z	CWA (attachment)	The commenter points out impacts on artesian wells, surface water, recharge rate, well interference, and that the Veblen aquifer represents the lowest cost option.
SO-1ag	CWA (attachment)	Expressing concern for recreational uses and property values at Big Stone Lake, the commenter notes that withdrawal of groundwater has the potential to impact Big Stone Lake, particularly during drought, and inhibit the lake's ability to recharge. The commenter believes that there will be impacts to Big Stone Lake from groundwater use. The planned water withdrawal makes no sense.
SO-1al	CWA (July 3, 2007 MnDNR letter attachment)	MnDNR staff believe if SD properly administers its rules/laws on well interference and aquifer mining, Big Stone II pumping will not significantly impact available water in the aquifer, if it extends into Minnesota, or likely cause significant loss of groundwater base flow in Big Stone Lake or the Minnesota River.
SO-1am	CWA (July 3, 2007 MnDNR letter attachment)	MnDNR staff believe Big Stone II pumping could reduce flows in the Whetstone River and further aggravate low flow and drought conditions if the Whetstone River produces less flow for downstream ecosystems.

Response: Commenters expressed concern about groundwater withdrawals and the potential impacts on regional groundwater and, specifically, the Whetstone River, Big Stone Lake and the Minnesota River. Section 4.2.2.1 of the Final EIS contains the analysis of the impacts of groundwater pumping by the proposed Project on surface waters. In that section (under the subheading Effects on Big Stone Lake Levels and Minnesota River Flows), the effects on Big Stone Lake levels and Minnesota River flows are analyzed; this section also discusses the impacts upon the Whetstone River and tributaries. In summary, the groundwater flow modeling predicts that pumping the proposed wells (1) would not cause a reduction in groundwater flows to Big Stone Lake or the Minnesota River and (2) would not cause a significant extension in the period of naturally occurring seasonal reduction of flow in surface water that would result in insufficient quantities of water for downstream users.

2.2.3 Impacts of Groundwater Withdrawal on Wildlife

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-2e	USDOJ	Several Waterfowl Production Areas (WPAs) are within the vicinity of the predicted maximum drawdown area. "The USFWS is concerned that the proposed groundwater pumping during drought periods could adversely impact the property interests of the USFWS in one or more of these areas."
SI-18c	Lanny Stricherz	"Further we do not have the water to spare here in SD, in times of drought. If the Veblen Aquifer is used as a backup, it will drain the wetlands and that puts our migratory waterfowl migration at risk."
SI-20d	Erica Zweifel	"Drawing down the Veblen aquifer (or any other aquifer), which is located beneath the Central and Mississippi migratory pathways, will affect not only humans but wildlife as well."
SI-20e	Erica Zweifel	"The area is part of the Great Plains wetlands which is one of the top twenty threatened bird habitats of the United States according to the American Bird Conservancy."

Comment Number	Name	Comment Summary
SFL-32b	Sierra Club Form Letter for SDEIS	“The vast quantities of water that would be required from groundwater and Big Stone Lake for operating Big Stone II are unacceptable. Tapping this water resource would affect the agricultural community, tourism and recreation, wildlife, and the very water people in the area drink.”

Response: The impacts to wildlife due to groundwater pumping are described in Section 4.4.2.1 of the Final EIS, under the Wildlife subheading. Additionally, see the Response to Comments in Section 2.2.4, below. In summary, a reduction in the flow of water within the Whetstone River could cause minor changes in the ways that wildlife use the river. Potential changes include shifts in forage, cover, and reproductive behaviors to adjacent stream reaches with flow more suitable to a given wildlife behavior. Changes in wildlife use of the Whetstone River caused by reductions in flow would not cause a significant loss of wildlife population or violate any statutes or regulations pertaining to wildlife. The aquatic and riparian habitats along the Whetstone River would not be significantly changed from their existing conditions. Impacts to wildlife use of wetland habitats would also be minimal.

An important factor in considering the hydrology of wetlands in the groundwater study area is the thickness of clay layers beneath the surface soils. Soil boring data available from SDDENR and the Co-owners’ hydrogeological investigations were used to identify areas where the thickness of the clay layer is less than 10 feet. Wetlands could be in hydraulic contact with groundwater and more influenced by variability in the water table in such areas. Conversely, the water table has little if any influence on wetlands sitting above thicker clay deposits. These wetlands are likely perched above the water table surface and would not be affected by changes in groundwater levels.

Based on Figure 4.4-1 in the Final EIS, which was derived from the groundwater modeling, no impacts would occur to wetlands, perched or non-perched, outside of the drawdown areas. This includes the numerous small isolated wetlands to the north of the Big Stone property, which typify PPR wetlands. This also includes the wetlands, lakes, rivers, and streams on the Lake Traverse Indian Reservation, including Owens Creek Fen. Wetlands would not be lost or permanently de-watered by groundwater pumping. There are no anticipated losses of wetlands, no loss of riparian areas, and no degradation or loss of any Federal- or State-protected wetlands as defined by Section 404 of the CWA or other applicable regulations. Pumping groundwater would have no effect on the hydrology of these wetlands, and hence no impact on wildlife use of these wetlands. Regionally, there would be no reduction in wildlife use of wetland habitats, since most wetlands in the region would not be affected by pumping of groundwater.

2.2.4 Impacts of Groundwater Withdrawal on Wetlands

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-2b	USDOJ	“The SDEIS indicates that the hydrology of a number of wetlands could be modified by the lowering of the groundwater table during periods of groundwater pumping. Additional discussion of these potential impacts should be provided in the Final EIS, and a commitment should be made to provide appropriate mitigation to offset these impacts. Although most of these wetlands are privately owned, the USFWS does have property interests in some of the wetlands in the vicinity of, or within, the area predicted to be impacted by groundwater pumping.”
SF-2f	USDOJ	The Co-owners should coordinate with Waubay NWR manager to address potential impacts on wetlands easements and WPAs by groundwater pumping and identify measures to mitigate impacts.
SF-2j	USDOJ	“The Department is concerned that the proposed groundwater pumping during drought periods could adversely impact wetlands in which the USFWS has property interests. The Western Area Power Administration and the project Co-owners should coordinate with the USFWS to discuss any mitigation measures and/or monitoring that would be necessary to ensure that the interests of the USFWS are adequate protected. A compensatory mitigation plan should be developed to offset impacts to privately owned wetlands.”
SI-18c	Lanny Stricherz	“Further we do not have the water to spare here in SD, in times of drought. If the Veblen Aquifer is used as a backup, it will drain the wetlands and that puts our migratory waterfowl migration at risk.”

Response: Impacts to wetlands due to groundwater pumping are described in Section 4.4.2.1 of the Final EIS, under the Wetland/Riparian Areas subheading. The USFWS was contacted to determine the location of USFWS land interests relative to the modeled drawdown areas; Waubay National Wildlife Refuge provided mapping of Waterfowl Production Areas (WPAs) and wetland and grassland easements. As shown by Figure 4.4-1 of the Final EIS, a USFWS wetland easement occupies most of the northern half of Section 16, Township 12 North, Range 47 West. This easement is west of the Big Stone property, at the northern edge of the drawdown area for the proposed Project. The minimum two-foot drawdown boundary for the proposed Project includes approximately the southern half and all of the eastern portion of this easement. According to NWI maps, there are approximately 22 wetlands in the easement; 12 of these lie within the drawdown area. They range in size from 0.25 acre to 2.8 acres, with eight of the 12 under one acre. All of these wetlands are underlain by thick surficial clays, and are thus perched wetlands. Well operations would not result in the loss of wetland area or function within this easement or in any USFWS land interests. Therefore, no mitigation or monitoring of wetlands is planned within the USFWS wetland easement. There are no USFWS land interests within the Alternative 3 modeled drawdown area.

In summary, wetlands would not be lost or permanently de-watered by groundwater pumping. There are no anticipated losses of wetlands, no loss of riparian areas, and no degradation or loss of any Federal- or State-protected wetlands as defined by Section 404 of the Clean Water Act or other applicable regulations. There would be no indirect loss of wetland or riparian areas caused by

degradation of water quality, diversion of water sources, or erosion and sedimentation resulting from altered drainage patterns.

2.2.5 Impacts of Groundwater Withdrawal on Domestic Wells

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1k	USEPA	The commenter states the Final EIS should indicate that no domestic wells exist in the proposed project area and discuss how the conclusion was made.
SO-1z	CWA (Attachment)	The commenter points out impacts on artesian wells, surface water, recharge rate, well interference, and that the Veblen aquifer represents the lowest cost option.
ST-1p	SWO	The commenter did not feel the Co-owners made a reasonable attempt to quantify the number of private wells or groundwater withdrawals from private wells.

Response: Domestic wells are discussed in Section 4.2.2.1 of the Final EIS under the Groundwater Pumping and Production Impacts subheading. In summary, the SDDENR lists 22 private wells in its database within the area of drawdown predicted by the groundwater model. These wells may be used for residential supply, crop irrigation, or livestock watering and range in depth from 25 to 202 feet according to the database. Therefore, some of the wells may be pumping from the Veblen Aquifer. Most of the homes in the drawdown area (i.e., the area of the aquifer impacted by pumping) use municipal or rural water distribution systems for their primary domestic water supply. The Co-owners committed, as part of the South Dakota groundwater appropriations permitting process, to ensure that current uses are maintained by modifying wells as necessary or connecting users to the Grant-Roberts Rural Water System at the Co-owners' expense.

2.2.6 Adequacy of Aquifer Test/Groundwater Modeling

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1aj	USEPA	The modeling used a period from 1930-2000 where only one drought was recorded. It is recommended by the commenter that the model should not assume only one drought over a 70 year span and should account for significant reductions in recharge to the Veblen aquifer if an extended drought were to occur.
ST-1a	SWO	The commenter did not feel the Supplemental EIS provided adequate analysis to indicate that "groundwater pumping from the Veblen Aquifer would not cause significant impacts to beneficial uses of the aquifer" and requested the Co-owners do so to ensure there would be no significant impacts to beneficial uses.

Comment Number	Name	Comment Summary
ST-1b	SWO	The commenter expressed concern regarding the additional impact proposed Big Stone II would have during times of drought. The hydrologic modeling was felt to be inadequate and it was recommended the Co-owners perform a simulation capable of simulating complex hydrological systems.
ST-1c	SWO	“Please use a valid hydrological model (i.e, MODFLOW or GMS) to simulate the combined effect of groundwater water levels during drought and pumping at a rate of 6,200 gallons per minute.”
ST-1d	SWO	“Please use a valid hydrological model to evaluate the short and long-term effects of withdrawal of 3,720 acre-feet per year of groundwater from the Veblen Aquifer.”
ST-1g	SWO	“How was the conclusion reached that impacts to groundwater would be ‘not significant’ without aquifer pumping tests and subsequent modeling with a valid groundwater model?”
ST-1j	SWO	“Why were climatic conditions modeled to simulate the period of time 1930 to 2000 as opposed to 2006 or 2007?”
ST-1w	SWO	The commenter requested a copy of the aquifer test data for the two 2” observation wells and two 12” pumping wells as discussed in the Supplemental EIS.
ST-1x	SWO	“It is requested that this model be re-run using data obtained since 2000 to reflect more current hydrological conditions as well as evaluating data in recent 10-year intervals to observe more current climatic conditions.”
ST-1z	SWO	“Calibration of a MODFLOW model using elevations and water levels from regional well logs is highly inaccurate. Please re-run the model using more accurate controls.”
ST-1ag	SWO	“Did the MODFLOW model represent confined or unconfined aquifer conditions?”
ST-1ah	SWO	“Was the recharge rate used in the model representative of a confined or unconfined aquifer?”
ST-1ai	SWO	“What methods were used to determine that the 82-hour pump test had no effect on surface water bodies near the pumping well?”
ST-1aj	SWO	“What were the effects on the observation wells located near the pumping well?”
ST-1ak	SWO	“Did the Co-owners have observation wells that penetrated both the water table and the confined aquifer?”
SS-1b	MnDNR	“The aquifer test performed for this project is not adequate to assess the long-term water supply capacity of the proposed well field.”
SS-1c	MnDNR	“The potential impact on downstream base flows during periods of drought appear to be under-investigated and significant. As an example, the average winter base flow of the Whetstone River will be reduced by 32%. MDNR is concerned with how these reduced base flows may affect surface water in Minnesota.”
SS-1d	MnDNR	“The groundwater model of proposed impacts does not take into account anything that occurred before 1945, including the ten-year drought of the 1930’s. MDNR recommends each of these concerns be addressed in the Supplemental Final EIS.” .

Comment Number	Name	Comment Summary
SS-1e	MnDNR	The commenter expressed concern that impacts to Big Stone Lake and downstream waters during expected periods of extended drought received only cursory analysis. The conclusions drawn from the model described to be “average” levels, the commenter felt masked significant impacts during an extended drought.
SS-1f	MnDNR	The commenter stated the lake level drawdown model which simulated historic water levels, under current and additional pumping rates did not accurately reflect known water levels that occurred during the same time period.
SO-1ak	CWA (MnDNR July 3, 2007 letter attachment)	The MnDNR is concerned about a very coarse assessment approach in evaluating the long-term viability of the water supply the aquifer(s) will be able to provide. Recommend run aquifer tests on completed wells for better information.
SO-1ao	CWA (MnDNR July 3, 2007 letter attachment)	The commenter expressed concern for accuracy of the predicted recharge rate of the Veblen aquifer and unknown aquifer conditions. The groundwater model did not successfully demonstrate groundwater would be available during the 1930s drought period. It does not provide the degree of accuracy an aquifer test would prove. If SDDENR over-predicted recharge, Big Stone I and II may not have adequate supplemental water supplies when surface water restrictions are also imposed.
SI-20c	Erica Zweifel	“The impact of global climate change on this region is not yet fully known and so we should not make decisions on the water resources of this area based on past data.”
SPH-3b	Public Hearing Milbank, SD Mary Jo Stueve	“We have concerns that the modeling component, engineering, investigation, analysis as done by Barr Engineering, Black and Veatch, etc., used a computer model using past climatological data and did not include years 2000 to 2007, for example, which have been drought years; and had those years been included, we might come out with a different outcome, as far as water table levels and how much the drop might be for groundwater draw. And the computer model also did not account for or project the future prediction with global warming, changes in temperatures that we know we can expect in the Midwest within a range, and our water variations. And that would be helpful to see.”

Response: Commenters expressed concern with respect to the groundwater modeling methods used, the assumptions used in the modeling, and the aquifer testing used to support the modeling. Based on these comments, Western provided clarification of the modeling performed in Section 4.2.1 of the Final EIS (under the subheading Impact Assessment Methods). Also, please refer to Section 3.2.2.1 of the Final EIS (under the heading Veblen Aquifer Characteristics Near the Proposed Plant Site) for the discussion of aquifer testing and characteristics of the Veblen Aquifer. In summary, the Co-owners installed 34 continuous-core borings using Rotasonic drilling methods. Two 2-inch diameter observation wells and two 12-inch diameter production wells (PW1-2 and PW1-4) were also installed. The locations of the exploratory and two production wells are shown on Figure 3.2-3 in the Final EIS. Information from the exploratory wells and pump tests at the two production test wells were used to characterize the groundwater resources in the proposed Project area. The information obtained from the drilling program and well testing provides definitive information about the Veblen Aquifer in the vicinity of the proposed plant site, such as thickness of the overlying clay zone, variability in aquifer thickness, and transmissivity characteristics at wells PW1-2 and PW1-4.

The core borings, well installations, and aquifer tests supported the development of a numerical groundwater flow model of the regional aquifer system, which was calibrated to observed groundwater level conditions and subsequently used to predict the effects of pumping of proposed plant water-supply wells. Additional descriptions of the test borings, details, methodology, and conclusions of the aquifer tests (including estimates of transmissivity, storativity, and hydraulic conductivity of the Veblen Aquifer), and details of the groundwater flow model may be found in Appendix M1 of the Final EIS (see Volume III). Results of these tests were used as prior knowledge in the calibration/optimization of the numerical groundwater flow model. Similar tests are planned for new wells after they are installed.

The surface-water modeling included historical climatic conditions over the 70-year period of 1930 to 2000 for the purpose of simulating future plant water use from surface water and storage, as well as estimating the additional demand for groundwater. The years 2001 through 2007 have been a period of somewhat wetter than normal conditions in the area of the proposed Project. While wetter than normal conditions may persist into the future, the analysis assumed that longer periods of drought, similar to those experienced in the historical record, would likely occur. Western believes that the conditions represented in this historical data are the best available at this time for assessing the proposed Project's requirements and impacts. The surface-water model's predictions of groundwater use for this same 70-year period were used as pumping rates in the groundwater model. The results of this 70-years of modeling indicated that the aquifer system was capable of meeting groundwater demands during this entire period.

The calibrated groundwater flow model (MODFLOW, which accounts for both confined and unconfined aquifers) was then used to predict the effects of pumping on groundwater levels, base flow contributions to the Whetstone River and groundwater inflows to Big Stone Lake for a 55-year period between 1945 and 2000. The unusually dry historical conditions right at the beginning of the groundwater flow model's simulation (1930-1944) did not allow for the quantitative evaluation of such factors as the effects of pumping on groundwater inflows to the Whetstone River, the effects of pumping on wetlands, and changes in aquifer storage in response to seasonal pumping fluctuations. Not only could these evaluations not be made during the first 15 years of the simulation, the effects of these successive dry years overwhelmed the sensitivity of the responses over much of the following 55-year simulation period. Therefore, in order to quantify pumping effects over a period of more normal conditions that included both wet and dry years, subsequent groundwater flow simulations used the 55-year period of 1945-2000. The pumping rates used in this predictive simulation were obtained from the surface-water model. The total groundwater pumping was distributed among 14 proposed wells. The groundwater modeling results were used to estimate the regional effects of future pumping and the approximate yields from proposed wells. The groundwater modeling results also aided in identifying adverse effects, if any, from the pumping of wells as a back-up supply of water for the existing plant and the proposed Big Stone II plant.

2.2.7 Veblen Aquifer Recharge

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1ai	USEPA	“Recharge of the Veblen Aquifer: Average annual recharge has not been determined for the Veblen aquifer. The model assumed 1 inch per year applied over the entire aquifer within the study area. The FEIS should include appropriate references /citations for this value.”
ST-1o	SWO	The commenter requested further discussion of the following: common aquifer characteristics, water budgets, recharge to aquifers and the recharge factors, connectivity to surface water bodies and the subsequent effects.
ST-1af	SWO	“Given that the Co-owners state the Veblen Aquifer is a confined aquifer, at what approximate geographic locations does recharge occur?”
ST-1ah	SWO	“Was the recharge rate used in the model representative of a confined or unconfined aquifer?”
SO-1x	CWA (attachment)	The commenter stated the recharge rate to the Veblen Aquifer is one of the key things that needs to be considered. The applicant admits they do not know the recharge rate. South Dakota has a clear policy that prevents water mining.
SO-1y	CWA (Attachment)	The commenter stated that since site specific data for recharge is not available, “one can only speculate that there would not be a draw down. The applicant should be required to demonstrate that the quantity of water withdrawn annually from a groundwater source will not exceed the quantity of the average estimated annual recharge of the water.”.
SO-1ao	CWA (MnDNR July 3, 2007 letter attachment)	The commenter expressed concern for the accuracy of the predicted recharge rate of the Veblen Aquifer and unknown aquifer conditions. The groundwater model did not successfully demonstrate groundwater would be available during the 1930s drought period. It does not provide the degree of accuracy an aquifer test would prove. If SDDENR over-predicted recharge, Big Stone I and II may not have adequate supplemental water supplies when surface water restrictions are also imposed.

Response: Recharge is a complex process that involves the interaction between precipitation, temperature, humidity, wind speed, sun angle, soil type, crop type, antecedent soil moisture, topography, and soil compaction. In most aquifer systems, groundwater elevations and flow directions are most sensitive to recharge. Unfortunately, recharge cannot be measured directly and there is inherent uncertainty in how climatologic and soil parameters (described above) control recharge rates and timing. Quantitative estimation of recharge is an important research topic in the field of hydrogeology (Bredehoeft, 2007). Several methods are currently under research evaluation in the region (Lorenz, 2007; Delin, Healy, Lorenz, and Nimmo, 2007). Different methods result in different values of recharge (Ruhl, 2002).

Recharge to the sand and gravel units is primarily by infiltrating precipitation where these units crop out or where there is a relatively thin cover of till. Much lesser amounts of recharge originate as vertical leakage of infiltrating precipitation through thicker till units. Recharge from infiltrating

rainfall is the primary mechanism for adding water to the aquifer system. There are no site-specific data for recharge. In western Minnesota, the U.S. Geological Survey estimates that average recharge rates are in the range of near zero to four inches per year, depending upon precipitation (Delin, 2007). However, based on recharge values of four to eight inches per year (commonly used in Minnesota for regional groundwater modeling), recharge in the groundwater area was conservatively estimated at one inch per year. Conservatively estimating recharge is important because recharge limits the extent of the cone of depression that develops when a well is pumping. In summary, the value of one inch per year is deemed to be reasonable but conservatively low. The value of one inch per year recharge that was used over the entire model domain is more representative of confined conditions than unconfined in that clayey soils would likely be present over confined areas of the aquifer.

2.2.8 Veblen Aquifer Characteristics, Extent, and Relationship to Surface Water

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
ST-1e	SWO	“What is the hydraulic conductivity, porosity and transmissivity of the Veblen aquifer?”
ST-1h	SWO	“Please describe the hydrological relationship of the Whetstone River to groundwater.”
ST-1n	SWO	“There has been no discussion about potential impacts of groundwater withdrawals or surface water withdrawals to upstream sources such as the Little Minnesota River. Please describe the hydrological interaction between this waterbody and the Veblen Aquifer and Big Stone Lake.”
ST-1o	SWO	The commenter requested further discussion of the following: common aquifer characteristics, water budgets, recharge to aquifers and the recharge factors, connectivity to surface water bodies and the subsequent effects.
ST-1al	SWO	“Are all the planned pumping wells located in the Veblen Aquifer known to be confined?”
SS-1a	MnDNR	The commenter expressed concern with the proposed use of ground water as an alternate supply of cooling water for the proposed Project. “. . . it is questionable if the glacial outwash deposits that lie within the project area and within Grant County are in fact part of the Veblen Aquifer. According to the USGS and South Dakota Geological Survey, the outwash deposits in Grant County are not considered to be part of the Veblen Aquifer.”
SO-1q	CWA (attachment)	Uncertainty regarding the areal extent of the Veblen Aquifer and whether it is connected between the Lake Traverse Reservation, portions of Roberts County, and Grant County.
SO-1ao	CWA (MnDNR July 3, 2007 letter attachment)	The commenter expresses concern for the accuracy of the predicted recharge rate of the Veblen aquifer and unknown aquifer conditions. The groundwater model did not successfully demonstrate groundwater would be available during the 1930s drought period. It does not provide the degree of accuracy an aquifer test would prove. If SDDENR over-predicted recharge, Big Stone I and II may not have adequate supplemental water supplies when surface water restrictions are also imposed.

Comment Number	Name	Comment Summary
SI-17g	Dave Staub	“Veblen Aquifer “draw- down” of 37 feet. Does this mean 37 feet over the entire area of the aquifer? It would be important to see the size (map) of the aquifer.”
SPH-2c	Public Hearing Milbank, SD Maggy Harp	“And the other piece, as Nancy mentioned, in the supplement, is that downstream there would be no impact and the wells in the area, and that this aquifer that you’re drawing from is confined and non-confined. And I’m questioning the fact that is it connected to Sisseton? Do your models show that this water may be up in the Sisseton area? And it gets recharged down here. You know, the complexity is mind boggling to me. And that’s my comment. Thank you.”

Response: Several commenters requested additional information about the Veblen Aquifer, its relationship with overlying surface waters, and possible connections to the Lake Traverse Reservation. Based on the above comments, additional characteristics of the Veblen Aquifer are described in Section 3.2.2.1 of the Final EIS (under the subheading Veblen Aquifer Characteristics Near the Proposed Plant Site), such as storativity, transmissivity, and hydraulic conductivity. Additionally, documents prepared by Barr Engineering are located in Appendix M (Volume III) that further describe aquifer characteristics, the nature of the aquifer zone encountered during exploration, and groundwater modeling activities. In summary, the results of exploration and groundwater modeling indicate that the Veblen Aquifer is a confined aquifer where a thick sequence of surficial clay overlies the aquifer. This occurs over large portions of the modeled area. In areas where a thin clay layer overlies the aquifer, or where a clay layer is absent, the Veblen Aquifer would be unconfined. Pumping of the proposed wells would not impact the Little Minnesota River, or aquifers on lands owned by the Sisseton-Wahpeton Oyate (located approximately 23 miles west of the proposed Big Stone II plant) (see Section 4.2.2.1 of the Final EIS, under the Groundwater subheading). Figure 4.2-2 in the Final EIS shows the maximum extent of drawdown, whose northern extent is approximately two miles south of the Roberts County line. Depending on whether the Veblen Aquifer is unconfined or confined (see Glossary in the Final EIS and Section 4.2.2.1), surface waters may or may not be in contact with the underlying aquifer.

2.2.9 Questions about the SDDENR Report

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
ST-1ad	SWO	“Does this report address groundwater withdrawals on the maximum appropriated amount of 10,000 acre-feet per year?”
ST-1ae	SWO	“Does this report take into account water users in Roberts County?”

Response: The report of Chief Engineer for Water Permit Application No. 6846-3, Otter Tail Corporation dated April 25, 2007, a copy of which is available through the SDDENR, is based on a maximum annual appropriation of 10,000 af from the Veblen Aquifer. Additionally, the recommendation notes that the total volume beneficial uses should not exceed 4,700 afy, averaged on a rolling 20-year period. The Chief Engineer’s report considers the extent and nomenclature of the

Veblen Aquifer, and notes that Roberts County is included in certain authors' descriptions of the aquifer. For purposes of the application, the Chief Engineer considers the Veblen Aquifer as a "group of outwash deposits" that is mapped into Roberts County, consisting of individual sand and gravel units that are "not continuous throughout the entire mapped extent however, interconnection between the outwash deposits is likely in places." Regardless of the interconnection of the sand and gravel units into Roberts County, Figure 4.2-2 in the Final EIS shows the maximum extent of drawdown, whose northern extent is approximately two miles south of the Roberts County line.

2.2.10 Other Comments about Groundwater

Comment ST-1f from SWO: "The SEIS describes impacts to groundwater as 'not significant.' Please provide the parameters for 'significant' and 'not significant.'"

Response: Western uses significance criteria to determine whether impacts from a proposed project are significant. The impact assessment for every resource area uses specific significance criteria to determine whether a significant impact would occur from constructing or operating a proposed project. The specific significance criteria for groundwater for the proposed Project can be found in Section 4.2.1 under the subheading Significance Criteria.

Comment SO-1n from CWA: "Withdrawal of water from underground aquifers can lower water tables enough to cause the overlying land to sink."

Response: In unconsolidated aquifers, such as sand and gravel, the buoyancy forces of water are minimal and the overlying soil is held up by grain-to-grain contact. Pumping would temporarily remove some water from the pores between the grains, but would not affect the ability of the soil to support its own weight and the weight of any structures on top of the land surface. Soil subsidence is therefore not expected.

Comment SO-1t from CWA: "Application 6846-3 (Section 2, p.3) noted, "no previous request for groundwater appropriations has been made related to the operation of the Big Stone Plant. Big Stone plant water rights and appropriations have been limited to surface water sources, specifically Big Stone Lake." USGS Open-File Report 98-268, showed however, 1.73 Mgal/day groundwater withdrawal in 1995, along with 1.73 Mgal/day surface water withdrawals. Application does not explain discrepancy, indeed, claims that no groundwater withdrawals requested to date. Was the 1995 groundwater withdrawal without a permit request? U.S. Department of the Interior, U.S. Geological Survey, Estimated Use of Water in South Dakota, 1995, Franklin D. Amundson, Open-File Report 98-268, Prepared in cooperation with the South Dakota Department of Environment and Natural Resources, see Charts p.17, Thermoelectric power use withdrawal by County 1995, Grant County 1.73 Groundwater 1.73 Surface Water = Total 3.46 Mgal/day."

Response: The identical withdrawal values for surface water and groundwater reported in the referenced report is apparently in error. The Big Stone plant only obtained surface water from Big Stone Lake under Water Permit 1983-3, issued in 1970. There is no record of installation or operation of a well to supplement surface water. This was confirmed by a survey of all water appropriations records for Grant County filed with the South Dakota Water Management Board. Western also checked with Otter Tail Power, which is not aware of any groundwater use in 1995 at the existing plant for operational purposes.

Comment SO-1aa from CWA: CWA cites that the Altamount [Altamont] and Dakota Sandstone would have lower impacts on wells and surface water impacts, and are being rejected solely on economic grounds. The public's interest could be better served by the use of water sources that do not

impact their surface waters and their wells. The Big Stone II partners are concerned only with their bottom line.

Response: The Co-owners selected the Veblen Aquifer on the basis of its proximity to the proposed Project, its favorable water-quality characteristics, and its likelihood of producing the requisite quantities of water (see Appendix M, Volume III). The Altamont aquifer, according to Hansen (1990), has water-transmitting characteristics that may make it viable as a potential water supply. However, Hansen also noted that the aquifer is everywhere confined by a thick sequence of clayey glacial till and the only mechanism for recharge of the Altamont aquifer is leakage through this thick till layer. Such an aquifer would be suitable for domestic use and occasional industrial use, but regular withdrawals at the rates necessary to serve as a back-up water supply for the proposed Big Stone II Project would have a likelihood of mining groundwater. This was the primary reason why the Altamont aquifer was not further evaluated by the Co-owners. Although the Dakota Formation presents a highly dependable water source, its depth and relatively poor water quality make it less attractive as a supply to wells.

Comment SO-1aj from CWA: “We have several serious concerns about water supply for Big Stone II that hinge on the reliability of the proposed groundwater appropriation. With the elimination of the additional reservoir storage option that the WMB considered in its approval of the surface water right Permit #6678-3, the groundwater backup water supply becomes a more critical option in the long-term management of the water supply needs for Big Stone I & II. The loss of the additional new water storage reservoir eliminates the ability to store any additional water in advance of need and requires the aquifer(s) to be able to produce the needed instantaneous water demand of the plant if the surface water source is restricted or unavailable due to extended drought conditions.”

Response: The use of groundwater as a supplemental water source for the proposed Big Stone II plant was evaluated as an alternative to an additional water storage pond in response to concerns about impacts to wetlands that would occur if a new pond were constructed. Investigation and modeling described in Section 4.2.2.1 of the Final EIS shows that the Veblen aquifer would provide an adequate back-up water source for proposed plant operations.

Comment SO-1ap from CWA: “It is our position, given the magnitude of the investment that more certainty should be provided for supplemental water supplies before this water right permit is granted. If groundwater supplies are restricted and since no new reservoir is planned to be constructed, there will be increased probability for requests for additional water for emergency cooling purposes that could result in requests to lower Big Stone Lake and reduce Minnesota River instream flows to ensure for essential base load power production is met during the hot and dry conditions typical in an extended period of drought. The proper approach at this early stage of planning would be to ensure adequate backup sources of water are available before the plant is constructed rather than relying on emergency actions to resolve problems that may not manifest themselves until a crisis is upon us.”

Response: Extensive drilling, testing, and evaluation were performed in a phased approach to evaluate groundwater as a back-up water supply. The study used as much information as possible short of actually installing the production wells. As with all evaluations of groundwater, there is some uncertainty associated with the results. For a discussion of these uncertainties, see Section 4.2.2.1 of the Final EIS under the subheading Groundwater Pumping and Production Impacts. Additional testing would be performed as each well is installed and developed to further reduce the remaining uncertainty. In addition, during extended drought periods, groundwater appropriation restrictions would limit the full output operation of the proposed plant under the proposed Project (wet cooling) but not under Alternative 3 (wet/dry cooling).

Comment SO-1aq from CWA: “Additionally, since BS II eliminated its new water storage reservoir option after the WMB took final action on Permit #6678-3, we believe that the importance of addressing alternative water supplies is an even more essential part of review on this permit application.”

Response: The use of groundwater as a supplemental water source for the proposed Big Stone II plant was evaluated as an alternative to an additional water storage pond in response to concerns about impacts to wetlands that would occur if a new pond were constructed. Investigation and modeling described in Section 4.2.2.1 of the Final EIS shows that the Veblen aquifer could provide an adequate back-up water source for proposed plant operations.

Comment SFL-37a from Retha Dooley: “We already know that in Minnesota the ground water around Granite Falls has been compromised due to processing ethanol.”

Response: The chemicals that would likely be used at the proposed plant for water treatment and other plant uses are provided in the Final EIS in Table 2.2-2, which lists the materials, quantities, delivery frequencies and delivery methods of the chemicals. Some of the chemicals and materials are considered hazardous substances and, as such, require appropriate handling and storage equipment and associated documentation. The proposed plant would be required to comply with all Federal and state regulations regarding the storage and management of chemicals. Spill management is addressed in Section 4.2.2.1 (see Construction Impacts) of the Final EIS. No plant chemicals would be used in the Granite Falls area.

2.3 Surface Water

2.3.1 Downstream Effects

Comment ST-1at from SWO: “There is limited discussion by the Co-owners of impacts to aquatic resources immediately downstream of Big Stone Lake. Instream flows of the Minnesota River within the Big Stone National Wildlife Refuge will be reduced but no instream flow assessment was presented.”

Response: Please refer to the subheading Effects on Big Stone Lake Levels and Minnesota River Flows in Section 4.4.2.1 of the Final EIS. Although reductions in flow releases from Big Stone Lake downstream to the Minnesota River would be expected as a result of increased plant withdrawals, these reductions are expected to be infrequent. The proposed increase in water usage (on the order of 8,800 afy) represents about nine percent of the average annual outflow from the lake. The occurrence of a noticeable flow reduction would depend on the interactions of a number of variables, including the timing and volume of plant withdrawals, seasonal and shorter-term runoff conditions, and other influences on lake levels. Modeling indicates that additional lake withdrawals would have little or no effect on flows in the Minnesota River on an average annual basis or over most flow intervals. These flow changes would occur for short durations that would not significantly impact fisheries in the Minnesota River. In addition, the surface water appropriations permit limits most lake appropriations to periods when the Minnesota River flows are relatively high (e.g., during spring runoff periods). Groundwater flow modeling predicts that pumping of proposed wells would not cause a reduction in groundwater flows to Big Stone Lake or the Minnesota River. The maximum drawdown of the modeled pumping wells does not extend to Big Stone Lake or the Minnesota River. The model also indicates that groundwater inflows into Big Stone Lake were not reduced during the 55-year simulation period.

Comment SS-1o from MnDNR: The commenter did not feel the Draft EIS sufficiently analyzed the water supply needs of the Big Stone Wildlife Refuge, Marsh Lake and Lac Qui Parle Lake. Decreased water supply during times of drought makes these basins more susceptible to fish kill, toxic algae, and botulism.

Response: The upper portion of the Minnesota River flows to a chain of lakes downstream from Big Stone Lake including Marsh Lake and the Lac qui Parle Reservoir near Montevideo. During extended drought periods, limited withdrawals would be allowed from Big Stone Lake if the lake level drops below elevation 967 (project datum) as provided in Water Permit No. 6678-3. This restriction would not change with the construction and operation of the proposed Big Stone II plant. During extended drought, water needs of the proposed plant would be met with groundwater appropriations. Therefore, Big Stone Lake water use would not have additional impact to downstream Minnesota River flows. Also see the Response above to Comment ST-1at.

2.3.2 Surface Water Use Impacts on Recreation

Comment Number	Name	Comment Summary
DEIS Comments		
SDEIS Comments		
SS-1l	MnDNR	Big Stone Lake is the largest recreational lake in Western Minnesota and provides an important tax base for the economy. It has been an ongoing process to restore the lake's water quality.
SO-1ae	CWA (attachment)	"Given the importance of Walleye fishing to Big Stone Lake and its commerce, this proposal is not in the public interest."
SO-1ag	CWA (attachment)	Expressing concern for recreational uses and property values at Big Stone Lake, the commenter notes that withdrawal of groundwater has the potential to impact Big Stone Lake, particularly during drought, and inhibit the lake's ability to recharge. Commenter believes that there will be impacts to Big Stone Lake from groundwater use. The planned water withdrawal makes no sense.
SI-19c	Gene Tokheim	"We do not have the water to support another dirty burning coal plant. Future generations have a right to an adequate public water supply, not to mention opportunities for recreation that we all took for granted when we were young."
SI-19d	Gene Tokheim	"Big Stone Lake is at risk from the water demands of the proposed Big Stone II coal plant. My husband and I live near Lac Qui Parle, just downstream. We remember being able to swim in this lake and eat the fish we caught more than once a month."
SFL-25a	CWA Form Letter for SDEIS Mary Ellen Proulx	"The public and future generations have a right to Big Stone Lake for recreation purposes. We DO NOT NEED another coal-burning plant in the U.S."

Response: The comments in this subcategory expressed concern that water used by the proposed plant would impact recreational use of Big Stone Lake. Surface water use, and the impacts of withdrawals from Big Stone Lake are discussed in Section 4.2.2.1 of the Final EIS under the Surface Water subheading. Study results from surface water modeling indicate that under the maximum surface water use scenario, the worst effect would be that Big Stone Lake would be 0.83 foot lower in two non-consecutive weeks out of a 70-year model period. On average, over 70 years, the lake elevation would only decrease by 0.15 feet. These fluctuations in lake levels would

not significantly affect recreation opportunities on Big Stone Lake. Essentially no change in the relative frequency of attaining the target recreational season pool elevation (968 feet project datum) is expected. In addition, permit limits have been designed to prevent impacts that would affect the recreational value of Big Stone Lake. Water use by the proposed plant would not impair the recreational use of Big Stone Lake. The Settlement Agreement (see Section 1.5.2 of the Final EIS and Appendix K, Volume III) required the Co-owners by June 27, 2007, and on an ongoing basis, to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR.

Additionally, the existing and proposed plants are zero wastewater discharge facilities (i.e., no plant process wastewaters are allowed to be discharged to waters of the United States), so wastewater would not affect water quality conditions or alter habitat for aquatic species in Big Stone Lake, the Whetstone River, or the Minnesota River.

2.3.3 Surface Water Use Impacts to Fisheries and Aquatic Ecosystems

Comment Number	Name	Comment Summary
DEIS Comments		
O-3ar	Joint Commenters	The commenter noted the MDNR analysis also discussed the impacts on the Minnesota River. “The reduction in the volume and frequency of cleaner water from the Big Stone Lake watershed coupled with hyper-eutrophic waters of the Whetstone creates conditions that are significantly more deleterious to the downstream aquatic ecosystem.” The commenters explained the water quality issues and supply and stated that the additional reduction of up to 10,000 acre-feet of water for the proposed plant would further impact the frequency and duration of outflows from the lake.
O-3as	Joint Commenters	“The MDNR also alerted the South Dakota Water Management Board to the fact that the water quality of the discharge from the Whetstone River is very poor compared to water quality in Big Stone Lake. Winter kill, summer kill and spawning success concerns for the fishery will increase with a greater percentage of the Whetstone River flows making up the available waters for the Minnesota River.”
SDEIS Comments		
SS-1h	MnDNR	The commenter did not feel the Supplemental Draft EIS adequately analyzed the affects of the water levels, particularly during the winter months when the affects are greatest. “The ice-covered months should be considered a separate stratum. This should be done because of a very real concern of winterkill of fish, which has occurred on Big Stone Lake in the past.”
SS-1j	MnDNR	MDNR is concerned that appropriating water during winter months accelerates the movement of oxygenated water along bottom sediments, thereby increasing BOD and decreasing the amount of oxygen available to support fish during winter.
SS-1k	MnDNR	“MDNR recommends a monitoring plan be developed and implemented as part of the Final Supplemental EIS. MDNR would like clarification on who would be accountable for restoration should a winterkill occur.”
SI-10c	Christine Marran	“Low water levels will kill plants, fish and other important wildlife.”

Response: The comments in this subcategory expressed concern that water use by the proposed plant would have impacts to surface water and aquatic systems. Based on these comments and the water use

scenario proposed for the proposed Project, Western has provided additional information describing the impacts of withdrawals from Big Stone Lake upon aquatic habitats. Section 4.2.2.1 of the Final EIS (under the subheading Effects on Big Stone Lake Levels and Minnesota River Flows) and Section 4.4.2.1 (under the Fisheries and Special Status Species subheadings) have been updated. In summary, intake velocities and the intake system design would remain unchanged from existing conditions. Withdrawals would be restricted to appropriation permit requirements as described in Section 2.2.1.4 of the Final EIS under the Water Supply and Use subheading. Limited appropriations are allowed from Big Stone Lake if the lake level drops below elevation 967 (project datum) as provided in Water Permit No. 6678-3. This restriction would not change with the construction and operation of the proposed Big Stone II plant. Refer to Section 3.2.2.3 of the Final EIS for pumping restrictions when Big Stone Lake levels drop below 967 feet. Lake levels would not be drawn down during ice covered months to a point where decreased oxygen levels would significantly increase the probability of winterkills. At the lowest allowed lake levels, there would still be sufficient depth to avoid winterkill conditions in most years.

Additional pumping would not result in new impingement or entrainment impacts that would adversely affect the stability of fish populations in the lake. Surface water withdrawals from Big Stone Lake would not violate any statutes or regulations which involve protection of fish habitat, including spawning areas. There would not be a loss of a population of aquatic species that would result in the species being listed or proposed for listing as threatened or endangered. Water withdrawal would not exceed State-permitted levels and water intake would not result in a significant impact on fish populations. No residual impacts to fisheries are expected. Also, refer to the Responses to Comments at Section 2.3.1, above and Section 2.3.5, below. Additionally, as noted in Section 2.3.2 above, the Settlement Agreement requires the Co-owners to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR on an on-going basis. Furthermore, the Co-owners have agreed to constructively participate in meetings with State agencies to address the management of the Big Stone Lake water flow and level issues.

2.3.4 Adequacy of Modeling

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1aj	USEPA	The modeling used a period from 1930-2000 where only one drought was recorded. It is recommended by the commenter that the model should not assume only one drought over a 70 year span and should account for significant reductions in recharge to the Veblen aquifer if an extended drought were to occur.
SS-1e	MnDNR	The commenter expressed concern that impacts to Big Stone Lake and downstream waters during expected periods of extended drought received only cursory analysis. The conclusions drawn from the model are described to be “average” levels, which the commenter felt masked significant impacts during an extended drought.
SS-1g	MnDNR	“It is important to note this level occurred without taking 18,000 acre-foot/year of water from Big Stone Lake. Consequently, all projected levels during a 1930s-level drought are brought into serious question.”

Comment Number	Name	Comment Summary
SS-1h	MnDNR	The commenter did not feel the Supplemental Draft EIS adequately analyzed the affects of the water levels, particularly during the winter months when the affects are greatest. “The ice-covered months should be considered a separate stratum. This should be done because of a very real concern of winterkill of fish, which has occurred on Big Stone Lake in the past.”
SS-1i	MnDNR	“The SDEIS also shows how water levels would decline as result of the appropriation. From this info it appears that, during the 1970’s, seven or eight winters would have experienced water levels a half a foot or more lower had the proposed appropriation occurred.”
ST-1k	SWO	The commenter wanted to know the period of record of historical climatic data used with the surface-water model. The commenter requested a model using climatic data for time intervals of 10 and 20 years and stated that use of recent data would more accurately reflect future conditions.
ST-1l	SWO	“Please use a valid water model and current climatic data to evaluate the impacts to surface water bodies (Big Stone Lake, Whetstone River, Minnesota River).”
SO-1af	CWA (attachment)	Given the state of climate science, future conditions will not likely replicate past conditions due to global warming. Therefore, none of the applicants modeling data should be accepted.

Response: The commenters expressed concern that the surface water model developed for the proposed Project was not adequate. The surface water model developed by the Co-owners is described in Section 4.2.1 of the Final EIS under the Impact Assessment Methods subheading. The surface-water model provides output on modeled lake levels on a quarter-month (approximately weekly) increment. Average levels are reported to summarize the results. The weekly effect on Big Stone Lake levels as modeled are presented in Figure 7 of the Application for Permit to Appropriate Water within the State of South Dakota (Barr, 2007b, attached as Appendix M-4 in Volume III of the Final EIS). The model included historical climatic conditions over the 70-year period of 1930 to 2000 for the purpose of simulating future plant water use from surface water and storage, as well as estimating the additional demand for groundwater. The period 1930 through 2000 was chosen because reliable climatological and hydrologic data were available and because this period is representative of drought, normal, and wet climatological conditions. The years 2001 through 2007 have been a period of somewhat wetter than normal conditions in the area of the proposed Project. While wetter than normal conditions may persist into the future, it was deemed more appropriate to assume that longer periods of drought, similar to those experienced in the historical record, would likely occur. The surface-water model's predictions of groundwater use for this same 70-year period were used as pumping rates in the groundwater model. The results of this 70-years of modeling indicated that the aquifer system was capable of meeting groundwater demands during this entire period. As described in Section 4.2.2.1 of the Final EIS (see Plant Water Use under the Surface Water subheading), the Co-owners used the detailed surface water model to evaluate how water would be managed during operations of the proposed plant. As shown by Figure 2.2-6 in the Final EIS, the modeled maximum annual combined surface water and groundwater appropriation would be approximately 16,200 af. Combined annual appropriations would exceed 16,000 af in three years of the 70-year modeling period. The maximum annual surface water appropriation over the 70-year modeling period would be about 13,600 af and the maximum groundwater appropriation would be 10,000 af (three occurrences).

The surface water model of withdrawals from Big Stone Lake by the proposed plant also included weekly periods over the winter months. Looking at the model predictions for each quarter monthly timestep during the months of December, January, February, March, and April (months when ice could be expected on Big Stone Lake), the model predicted a maximum difference in lake level of seven inches (i.e., when the proposed lake level would be lower than existing conditions). The model predicted an average difference in lake levels during the same months of 0.2 inches. Additionally, the model predicted that withdrawals of water by the proposed plant would cause the elevation of Big Stone Lake to decrease by less than three inches during 99.7 percent of the winter weeks and less than one inch during 84.9 percent of the winter weeks. For Comment SO-1af, please see Section 1.1.15, above.

2.3.5 Effects of Water Use on Big Stone Lake and the Minnesota River

Comment Number	Name	Comment Summary
DEIS Comments		
O-3ar	Joint Commenters	The commenters noted the MDNR analysis also discussed the impacts on the Minnesota River. “The reduction in the volume and frequency of cleaner water from the Big Stone Lake watershed coupled with hyper-eutrophic waters of the Whetstone creates conditions that are significantly more deleterious to the downstream aquatic ecosystem.” The commenters explained the water quality issues and supply and stated that the additional reduction of up to 10,000 acre-feet of water for the proposed plant would further impact the frequency and duration of outflows from the lake.
SDEIS Comments		
SS-1i	MnDNR	“The SDEIS also shows how water levels would decline as result of the appropriation. From this info it appears that, during the 1970’s, seven or eight winters would have experienced water levels a half a foot or more lower had the proposed appropriation occurred.”
SS-1r	MnDNR	“This project has the potential to severely impact some of Minnesota’s premier water resources, located at the headwaters of the Minnesota River, during an extended drought.”
SI-3b	Jean Dehmer	“Big Stone Lake can not withstand the water demands required by the proposed Big Stone II coal plant, at least not for the long term or in any sustainable fashion.”
SI-4d	Dave Dempsey	“Please protect our water, not a \$1.8 billion dollar boondoggle. It is not possible to ‘mitigate’ or lessen the environmental impact of what Big Stone II will do to Big Stone Lake.”
SI-15e	Leslie Reindl	“It is not possible to mitigate or lessen the environmental impact of what Big Stone II will do to Big Stone Lake as well as what another coal-burning plant will contribute to climate change.”
SI-19d	Gene Tokheim	“Big Stone Lake is at risk from the water demands of the proposed Big Stone II coal plant. My husband and I live near Lac Qui Parle, just downstream. We remember being able to swim in this lake and eat the fish we caught more than once a month.”
SI-19h	Gene Tokheim	“It is not possible to ‘mitigate’ or lessen the environmental impact of what Big Stone II will do to Big Stone Lake.”
SFL-1b	CWA Form Letter for SDEIS	Big Stone Lake is at risk from Big Stone II water demands; water levels will drop 3 feet if there is a dry winter and little or no spring rain.

Comment Number	Name	Comment Summary
SFL-1d	CWA Form Letter for SDEIS	“Worse, an agreement from the 70s allows Otter Tail to take water in ‘emergency situations’ and even from October to April if the lake is at or greter than 965, which is three-feet below current levels! The lake is already very shallow with an average depth of only eight feet. In this worst case scenario, almost half of the lake’s level could be gone to help burn more dirty coal!”
SFL-1e	CWA Form Letter for SDEIS	“Please protect our water, not a 1.8 billion dollar (and rising) business plan. It is not possible to ‘mitigate’ or lessen the environmental impact of what Big Stone II will do to Big Stone Lake.”
SFL-5a	CWA Form Letter for SDEIS Bill Blonigan	“If an agreement is made to keep lake levels at 965 feet it should be honored just as any agreement with American Indians regarding their rights should have been honored. Will your group be the renegers of this century?”
SFL-16a	CWA Form Letter for SDEIS Jeffrey Maas	“It is against the interests of the future to drain a lake to support an outdated, inefficient means of producing power.”
SFL-24a	CWA Form Letter for SDEIS Margaret O’Leary	“I grew up at my grandparents' in Beardsley MN and am personally opposed to further harming Big Stone Lake to supply water for this purpose.”
SFL-68a	CWA Form Letter for SDEIS David Starr	“This draining of a public resources for private gain is unacceptable.”
SPH-1b	Public Hearing Milbank, SD Myrna Thompson	“I would like to say that the tribe is very concerned and still does oppose the project, because we have no information on long-term environmental impacts over time, as well as the health impacts to our -- not only our people, the human factor, as well as the vegetation and the water, the air quality.”
SPH-2b	Public Hearing Milbank, SD Maggy Harp	“...the Office the Environment is concerned about the impact on our relatives in Sisseton, and as Nancy said, it would have no impact on the Minnesota River and the Big Stone River. This year, the Minnesota River was very, very low. We took a canoe down it and had portage across much of it. Some of it was only four to six feet deep. There were big huge trees in it that we didn't know even existed, which is okay, but it's just the fact that it's supposed to be at 10 to 15 feet, not four to six feet. So we know that Minnesota as a state is not going to be a resource for us in the future for water. They're just not a state that's not going to have it, if we start looking at droughts. So we are concerned about not only the fact of our relatives not having enough water, but ourselves having enough water.”

Response: Several commenters expressed concern that the water use by the proposed plant would impact Big Stone Lake, the Minnesota River, and other downstream water resources. The changes in water use by the proposed plant, including the use of groundwater, caused minor changes to the impacts on Big Stone Lake and the Minnesota River (in comparison to impacts described in the Draft EIS). These changes are discussed within the Surface Water subheading of Section 4.2.2.1 of the Final EIS, under the subheading Effects on Big Stone Lake Levels and Minnesota River Flows.

The South Dakota Water Management Board issued Water Permit No. 6678-3 on November 1, 2006, which authorizes an additional 10,000 af of water annually from Big Stone Lake. The permit specifies the diversion rates allowed by the proposed plant, authorizes the construction of the water use system,

and the placing of water to beneficial use subject to certain conditions. The permit includes the same withdrawal restrictions based on Big Stone Lake water levels and time of year as in the previous permit. The water appropriation permit was issued by the South Dakota Water Management Board in the interest of public policy, and thus water appropriations by the proposed Project are in conformance with South Dakota laws. The Water Management Board, in issuing the permits for water withdrawal, have determined that the proposed water use would not be damaging for the intended purpose. Specifically during October to April, no diversion of water is allowed from Big Stone Lake if the elevation of Big Stone Lake drops to below 965 feet, unless diversion is granted by permission of the Water Management Board. Other restrictions apply when the elevation of the Big Stone Lake is at or above 965 feet.

In summary, the proposed increase in water use by the proposed plant represents about nine percent of the average annual outflow from the lake. These reductions are expected to be infrequent. The study results indicate that the worst effect would be that the lake would be 0.83 foot lower in two non-consecutive weeks out of a 70-year model period (as compared to a one-foot reduction under the Project that was proposed in the May 2006 Draft EIS). On average, over 70 years, the lake elevation would only decrease by 0.15 feet. Minimum lake outflows to the Minnesota River downstream are 20 cfs whenever the lake level is greater than 967 feet; however, no water is available for release to the Minnesota River when the elevation of Big Stone Lake is below 967 feet. Reductions in flow releases from Big Stone Lake downstream to the Minnesota River would be expected as a result of increased plant withdrawals. These flow changes would occur for short durations that would not significantly impact fisheries in the Minnesota River. Additionally, as noted in Section 2.3.3 above, the Co-owners have agreed to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR and to participate in meetings with State agencies to address the management of the Big Stone Lake water flow and level issues.

The surface water model of withdrawals from Big Stone Lake by the proposed plant also included weekly periods over the winter months. Looking at the model predictions for each quarter monthly timestep during the months of December, January, February, March, and April (months when ice could be expected on Big Stone Lake), the model predicted a maximum difference in lake level of seven inches (i.e., when the proposed lake level would be lower than existing conditions). The model predicted an average difference in lake levels during the same months of 0.2 inches. Additionally, the model predicted that withdrawals of water by the proposed plant would cause the elevation of Big Stone Lake to decrease by less than three inches during 99.7 percent of the winter weeks and less than one inch during 84.9 percent of the winter weeks.

2.3.6 General Comments or Concerns about Surface Water Quality

Comment Number	Name	Comment Summary
DEIS Comments		
I-7b	Wendell Falk	"I am concerned about the Minnesota water system"
FL-9a	Sierra Club Form Letter Margaret Boettcher	"I believe that we, all of us, you and I, have a sacred duty to protect and preserve the gift of Creation—Clean Water, Clean Air."
PH1-8c	Public Hearing Big Stone City, SD Carol Eastman Standing Elk	". . . you should not have another plant, because you've already ruined the water. And all of these, all of these, you know, bodies of water, they're connected. So if you're going to have pollution in one, you know it's going to seep all over everywhere else."

Comment Number	Name	Comment Summary
PH1-8d	Public Hearing Big Stone City, SD Carol Eastman Standing Elk	“For one thing, you know, for me as an Indian woman, I know this. Water is life. We can't live without it. You pollute it, you're killing yourself; and you're killing us.”
PH4-8b	Public Hearing Benson, MN Karen Falk	“But then when we had to talk about how you couldn't really swim or tube in the Chippewa water, because there are too many organisms that would make you sick if you got it in your mouth. Then we talked about going fishing, and they're really, they're ten years old so they shouldn't be eating the fish at all. And it's pretty hard to look at a classroom of ten and eleven years old and tell them, ‘You can't do that anymore.’ And I do that every year. And they say, ‘Well, why?’ And I say, ‘Well, it's harmful.’”
SDEIS Comments		
SS-1m	MnDNR	Big Stone Lake has algae blooms and low dissolved oxygen levels, lowered lake levels from pumping will aggravate these conditions.
SI-6f	Susan Granger	“It makes no sense to build such a big plant with such potential for significant environmental impacts (air quality, water quality, etc.) when we are not yet vigorously pursuing other options including conservation and renewable sources like wind.”
SI-19d	Gene Tokheim	“Big Stone Lake is at risk from the water demands of the proposed Big Stone II coal plant. My husband and I live near Lac Qui Parle, just downstream. We remember being able to swim in this lake and eat the fish we caught more than once a month.”
SFL-9a	CWA Form Letter for SDEIS Peter Doughty	“The entire Minnesota River watershed is an important and vulnerable ecosystem. Protecting it from further damage, and facilitating its recovery, is paramount.”
SFL-24a	CWA Form Letter for SDEIS Margaret O'Leary	“I grew up at my grandparents' in Beardsley MN and am personally opposed to further harming Big Stone Lake to supply water for this purpose.”

Response: The comments categorized above have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project. Additional details regarding impacts to surface water, including the use of Standard Mitigation Measures (SMMs) during construction, compliance with state and Federal water quality standards, and the proposed plant’s design as a zero wastewater discharge facility, may be found in Section 4.2.2.1 of the Final EIS under the Surface Water subheading. The effects of water use from the proposed Project on Big Stone Lake and the Minnesota River are discussed in Section 2.3.5 above.

Additionally, please refer to Section 3.2.2.3 and Section 4.2.2.1 (Plant Water Use subheading) of the Final EIS for a discussion of the Big Stone Lake Restoration Project, which was initiated in 1983 to restore Big Stone Lake. In summary, because the proposed Big Stone II Project would operate under the withdrawal restrictions, the increase in water withdrawals from the proposed Project would not impact the water quality improvement achieved by the Big Stone Lake Restoration Project and would not impact their long-term goal of an increased lifespan for Big Stone Lake.

2.3.7 Water Quality Impacts due to Mercury Emissions

Please see the Comments and Response to Comments at Section 1.2.9 and 1.2.10, above.

2.3.8 Water Quality Impacts due to Other Air Emissions

Please see the Comments and Response to Comments at Section 1.3.7, above.

2.3.9 Other Comments about Surface Water

Comment F-1p from USEPA: *Page 4-4, Significance Criteria:* “The significance criteria listed visibility but omitted criteria for acid neutralizing capacity in sensitive lakes and deposition of sulfur and nitrogen compounds in Class I areas. Please include the significance criteria for sensitive lakes in the FEIS.”

Response: A significance criterion for sensitive lakes was added to the Final EIS. See Section 4.1.1, Significance Criteria.

Comment F-2l from USFWS and F-3l from USDOJ: “Water-8 and Water-9 - Bridges typically result in less impacts to stream systems than culverts. Culverts can become perched, can block fish passage, may become blocked with debris, may cause constriction in flow, and result in increased scour and/or sediment deposition downstream. We recommend bridges (e.g. Water 10) be included as standard practice instead of culverts and request further clarification regarding the determination between appropriate structures at any particular site. Replacing culverts with bridges could be considered mitigation for some project-related impacts on riparian habitat.”

Response: Due to the narrow width of the watercourses within the transmission corridors, Western anticipates the transmission lines would span the watercourses. Any work required in a stream would be addressed with the appropriate regulatory agency, including discussions on structures and actions that would be implemented to minimize impacts to streams.

Comment O-3ap from Joint Commenters: The commenters stated the need for Western to incorporate the analysis of the MDNR regarding the proposed Project’s impact on water supply and quality into the EIS. Specifically, the commenter noted that “The proposed Project appropriation represents approximately 20 – 35% of the total lake volume based on historic water levels. Consequently the withdrawal of this volume of water has the potential to significantly affect the ecology and recreational suitability of Big Stone Lake.” The commenter also stated that Big Stone Lake would be lowered 6-12 inches several times per decade. “Further, it reduces access to open water in shallow areas of the lake and increases the potential for navigational hazards caused by near surface rocks.”

Response: Big Stone is a 12,610-acre lake located on the Minnesota-South Dakota border. It has a mean depth of 11 feet and a maximum depth of 16 feet. (From Minnesota DNR website <http://www.dnr.state.mn.us/lakefind/showreport.html?downum=06015200>). The approximate lake volume is 140,000 af (11 feet mean depth times 12,610 acres). The modeled average annual appropriation of surface water would be 9,300 af and is equivalent to 6.6 percent of the estimated lake volume. The modeled maximum annual appropriation of surface water would be about 13,600 af and is equivalent to 9.7 percent of the estimated lake volume.

The commenter is correct that in earlier model runs considered for the original proposed Project (i.e., in the May 2006 Draft EIS, when groundwater use was not proposed), that Big Stone Lake would have been 6-12 inches lower because of the existing and proposed plant withdrawals for several weeks most decades during the 70-year model period. The water drawdown model developed by Barr Engineering for the proposed Project (i.e., assuming the use of groundwater as a supplemental

water source), indicates water levels on Big Stone Lake would be 0.83 foot lower in two non-consecutive weeks because of plant withdrawals during the 70-year model period. It is possible that during these limited time periods navigational hazards and limitations could occur, but the modeled lake levels are within the range of levels that have occurred historically on the lake.

Also refer to Section 4.2.2.1 of the Final EIS, which addresses the concerns associated with water use by the proposed Project. Also refer to the Responses to Comments in Sections 2.3.2, 2.3.3, and 2.3.5, above. Additionally, the Settlement Agreement (see Section 1.5.2 of the Final EIS and Appendix K, Volume III) also requires the Co-owners by June 27, 2007, and on an ongoing basis, to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR.

Comment O-3aq: “The MDNR voiced its concerns that steady demand of water for a base load power plant will increase during hotter and dryer climatic periods and concerns about emergency needs for cooling water for essential power production during these periods.”

Response: Withdrawals from Big Stone Lake would be restricted to appropriation permit requirements as described in Section 2.2.1.4 of the Final EIS under the Water Supply and Use subheading. Limited withdrawals would be allowed from Big Stone Lake if the lake level drops below elevation 967 (project datum) as provided in Water Permit No. 6678-3. This restriction would not change with the construction and operation of the proposed Big Stone II plant. Refer to Section 3.2.2.3 of the Final EIS for pumping restrictions when Big Stone Lake levels drop below 967 feet. In addition, during extended drought periods, groundwater appropriation restrictions would limit the full output operation of the proposed plant under the proposed Project (wet cooling) but not under Alternative 3 (wet/dry cooling). The impacts on the Minnesota River low flows are limited to less than two percent of the 2,800 low flow weeks modeled in the 70-year study period. This is because the surface water appropriations permit limits most lake appropriations to periods when the Minnesota River flows are relatively high (e.g., during spring runoff periods). These flow changes would occur for short durations and would not significantly impact water quality in the Minnesota River.

Comment O-3at: “In a re-issued DEIS, WAPA should examine the impacts that MDNR raised regarding the Project in its June 30, 2006, correspondence to the South Dakota regulators, and analyze available mitigation measures.”

Response: Western examined the impacts raised by the MDNR as noted in the responses provided for Comments O-3ap through O-3as. Numerous mitigation measures have been identified in the Final EIS, including standard mitigation measure (see Table 2.2-8) and additional mitigation measures (see Table 2.6-2).

Comment SO-1h from CWA: “First, a bit of background. When the Big Stone Plant was built in the mid- 1970s, the water intake facilities were sized for a future second generating station on the Big Stone site. The Big Stone Plant is permitted by the South Dakota Department of Environment and Natural Resources (SDDENR) to take up to 8,000 acre-feet from Big Stone Lake each year. The water is stored in ponds on the Big Stone site.”

Response: The comment accurately characterizes the background information regarding the water intake facilities at the existing Big Stone Plant.

Comment SO-1i from CWA: “When the surface elevation of Big Stone Lake falls below 967 feet, only limited pumping can occur. This restriction has been in place for more than 30 years and will not change with Big Stone II.”

Response: The comment accurately characterizes the water appropriations permit condition that allows only limited pumping when the surface elevation of Big Stone Lake falls below 967 feet. That restriction has been in place for more than 30 years.

Comment SI-6c from Susan Granger: “I am a lifelong western Minnesota resident. The Minnesota River is one of our most important local resources, as are Big Stone Lake and its associated wetlands.”

Response: Your comment has been noted. The proposed Project does not result in the loss of wetlands at the proposed plant site or groundwater areas. Refer to the Wetlands/Riparian Areas subheading in Section 4.4.2.1 of the Final EIS. Also see Section 4.2.2.1 of the Final EIS under the subheading Effects on Big Stone Lake Levels and Minnesota River Flows. Also see Section 2.3.5 above regarding the effects of water use from the proposed Project on Big Stone Lake and the Minnesota River.

Comment SI-6d from Susan Granger: “We need to work on making the Minnesota River, Big Stone Lake, Marsh Lake, and the wetlands more healthy – not further stress them.”

Response: Your comment has been noted. The proposed Project does not result in the loss of wetlands at the proposed plant site or groundwater areas. Refer to the Wetland/Riparian Areas subheading in Section 4.4.2.1 of the Final EIS. Also see Section 4.2.2.1 of the Final EIS under the subheading Effects on Big Stone Lake Levels and Minnesota River Flows.

Comment SFL-14a from Amelia Kroeger: “Draining a public body of water to accommodate an industry that produces substantial greenhouse gas emissions is, in my view, simply a poor long term decision.”

Response: Big Stone Lake would not be drained by the water use of the proposed plant. Permit restrictions for surface water (limited withdrawals when lake elevations below 967 feet) and ground water (cannot exceed 4,700 afy averaged over a 20-year period) would ensure that water use by the proposed Project would not have a significant effect on water supply. The proposed use of water by the existing and proposed plants is addressed in Section 2.2.1.4 (see Water Supply and Use) and Section 4.2.2.1 of the Final EIS (see Proposed Water Uses discussion in the Groundwater section and Plant Water Use in the Surface Water sections). Additionally, as noted in Section 2.3.3 above, as part of the Settlement Agreement, the Co-owners have agreed to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR and to participate in meetings with State agencies to address the management of the Big Stone Lake water flow and level issues.

Comment SFL-45a from Susan Johnson: “Minnesota needs to become a leader in wind and solar energy, not more polluting plants. People want to be able to eat the fish they catch. Tourism is a big industry in MN, let us work harder to clean up our lakes not pollute them. There is more than enough wind in our great state to provide much needed energy.”

Response: Your comment has been noted. Please refer to the discussion of renewable energy and wind in Section 2.5 of the Final EIS.

Comment SFL-58a from Mardi Bentzen: “Big Stone Lake is at risk from the water demands of the proposed Big Stone II coal – another resource which is dwindling – plant.”

Response: Please refer to the Responses to Comments in Section 2.1.1, above.

2.4 Requests for Information or Source Identification

Comment SF-1ag from USEPA: “*Measure of error for models:* Numerical hydrologic models were used to estimate reductions in stream flow in the Whetstone River, changes in ground water flow to wetlands and drawdowns in the Veblen aquifer. However, any model derived number has a measure of error. EPA recommends that the FEIS include error bars for estimates of quantitative changes in water levels and flow volumes. Western indicated at the December 20, 2007 meeting that it will provide such error bars in the FEIS.”

Response: The Final EIS was revised to include a brief discussion of uncertainty (see Section 4.2.2.1 under the subheading Groundwater Pumping and Production Impacts). A more detailed, technical response is provided below:

Evaluation of Parameter Sensitivity and Uncertainty

All types of groundwater models have some level of uncertainty associated with prediction. The sources of uncertainty derive primarily from the inherent unpredictability of geologic conditions. Drilling and logging of continuous-core borings, inclusion of well-log data, performance of pumping tests, and automated calibration of the groundwater model serve to reduce this uncertainty. The groundwater model’s predictions of maximum drawdown and reduction in the groundwater contribution to base flow of the Whetstone River are most sensitive to the estimates of hydraulic conductivity (permeability) of the Veblen Aquifer in the vicinity of the proposed pumping wells and the recharge rate.

The parameter optimization process conducted using PEST (i.e. the model calibration process) provides some insight into the calibrated model’s sensitivity to hydraulic conductivity parameters. The more sensitive a parameter is, the more constrained the value of the parameter. That is, there is less uncertainty in the value of a parameter that is “sensitive.” As was discussed in the description of the model calibration, hydraulic conductivity is defined using pilot points. A pilot point is nothing more than a point location where a parameter value (in this case, hydraulic conductivity) is estimated. The relative sensitivities of the horizontal hydraulic conductivity pilot points are shown on Figure 1. The pilot points with higher relative sensitivity values represent those model parameters for which the model is most sensitive to – i.e. which parameters have the greatest impact on the model’s calibration when they are changed. The highest relative sensitivity is attributed to pilot point KP-130. This pilot point is located near Big Stone Lake, near the existing Big Stone plant. This is also an area in which the model is most constrained by prior knowledge from the pumping test of PW 1-4. Pilot points, KP-132 and KP-205 are located several miles southeast of the proposed well field. Pilot Point KP-85 is within the proposed well field. In essence, what this means is that the hydraulic conductivity values used in the model near the existing Big Stone plant and the proposed well field are relatively well constrained; there is less uncertainty in the values used in these areas than else where in the model.

The uncertainty of the groundwater-flow model’s predictions on groundwater levels (i.e. drawdown) and base flow to the Whetstone River were evaluated by changing the model parameters that most control these conditions; namely recharge and hydraulic conductivity. Reducing the value of recharge or reducing the value of hydraulic conductivity will lead to increases in the predicted maximum drawdown and increases in the reduction of the groundwater contribution to base flow. This approach provides some quantification of that portion of the “error bar” that is “worse” than the prediction from the calibrated model.

Sensitivity Evaluation for Drawdown

The values of hydraulic conductivity in the model were lowered to one-half their calibrated values and twice their calibrated values over the entire model domain in order to evaluate the change in predicted drawdown. The values of recharge were also lowered independent of hydraulic conductivity by a factor of one-half (from 1 inch/year to 0.5 inch/year) and two-times (from 1 inch/year to 2 inches/year) their calibrated values. Because the simulation includes 358 stress periods, the logistics of looking at differences in predicted drawdown at every location within the model for each of the 358 stress periods is prohibitive. Therefore, four proposed pumping well locations were selected to evaluate the sensitivity of drawdown to changes in hydraulic conductivity values and recharge values. These four locations represent the center of the well field (where drawdown is predicted to be greatest) and peripheries of the well field, located east, north, and south of the center of the well field. Proposed well PW 4-9 represents the center of the well field. Proposed well PW-4-1 is east of center, PW 2-6 is north of center, and PW 4-11 is south of center.

For each sensitivity simulation, a transient simulation was first run with each new hydraulic conductivity value and each new recharge value in order to establish a base condition for which to compare drawdown. Then, the forward predictive simulation was run for 55 years of pumping with the new hydraulic conductivity and recharge values. Drawdown was computed for each of the four proposed well locations at each of the 358 time steps for each predictive run with a differing value of hydraulic conductivity and recharge. For each time step, the maximum and minimum drawdown value from the different predictive simulations was calculated. These maxima and minima represent sensitivity upper and lower bounds. Plots of the drawdown prediction for the calibrated values and the range for the parameters in the sensitivity runs are shown for each of the four wells on Figures 2 through 5. The maximum predicted drawdown over the entire simulation period was found to increase by 32 percent over the predicted value for the calibrated model.

Sensitivity Evaluation for Groundwater Interchange with the Whetstone River

The variations in hydraulic conductivity and recharge values, discussed above, were also used to evaluate the sensitivity of flow to and from the Whetstone River. A plot of the predicted flux between groundwater and the Whetstone River is shown on Figure 6 for the calibrated parameters (shown in red) and the range of predictive fluxes for the parameter values used in the sensitivity evaluation.

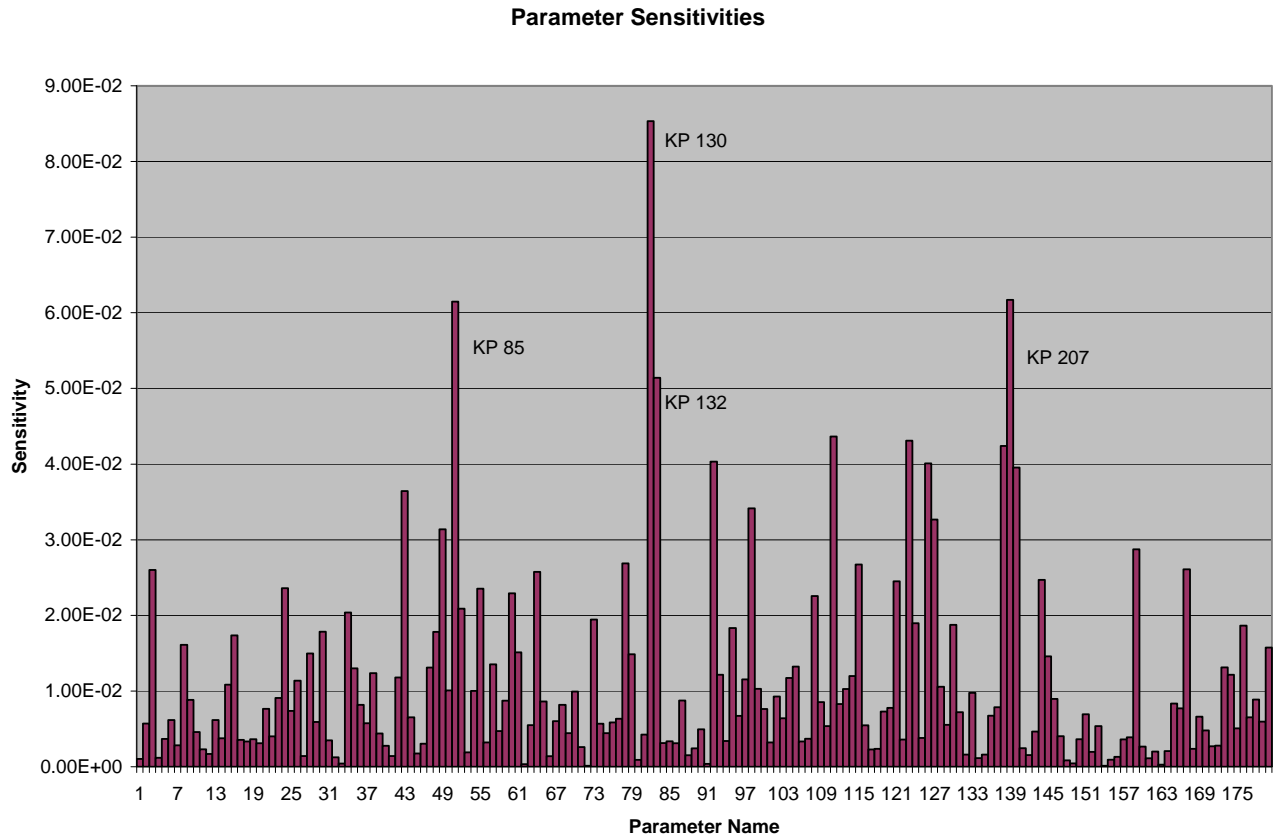


Figure 1
Relative Parameter Sensitivities from Optimization of Steady-State Model

PW 4-9 Drawdown: Calibrated Prediction and Sensitivity Range

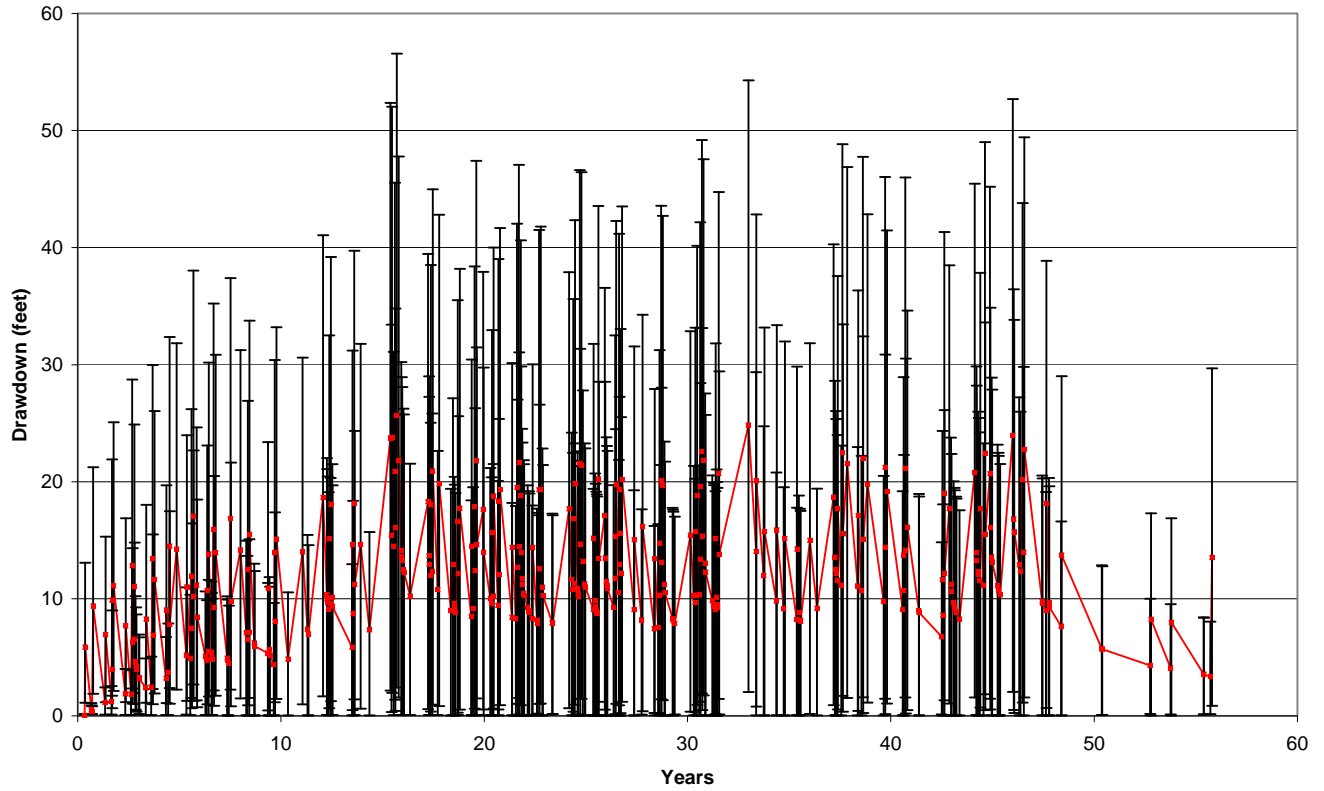


Figure 2
Calibrated Drawdown (red) and Upper and Lower Range of Predicted Drawdowns for Sensitivity
Evaluation: Proposed Well PW-4-9

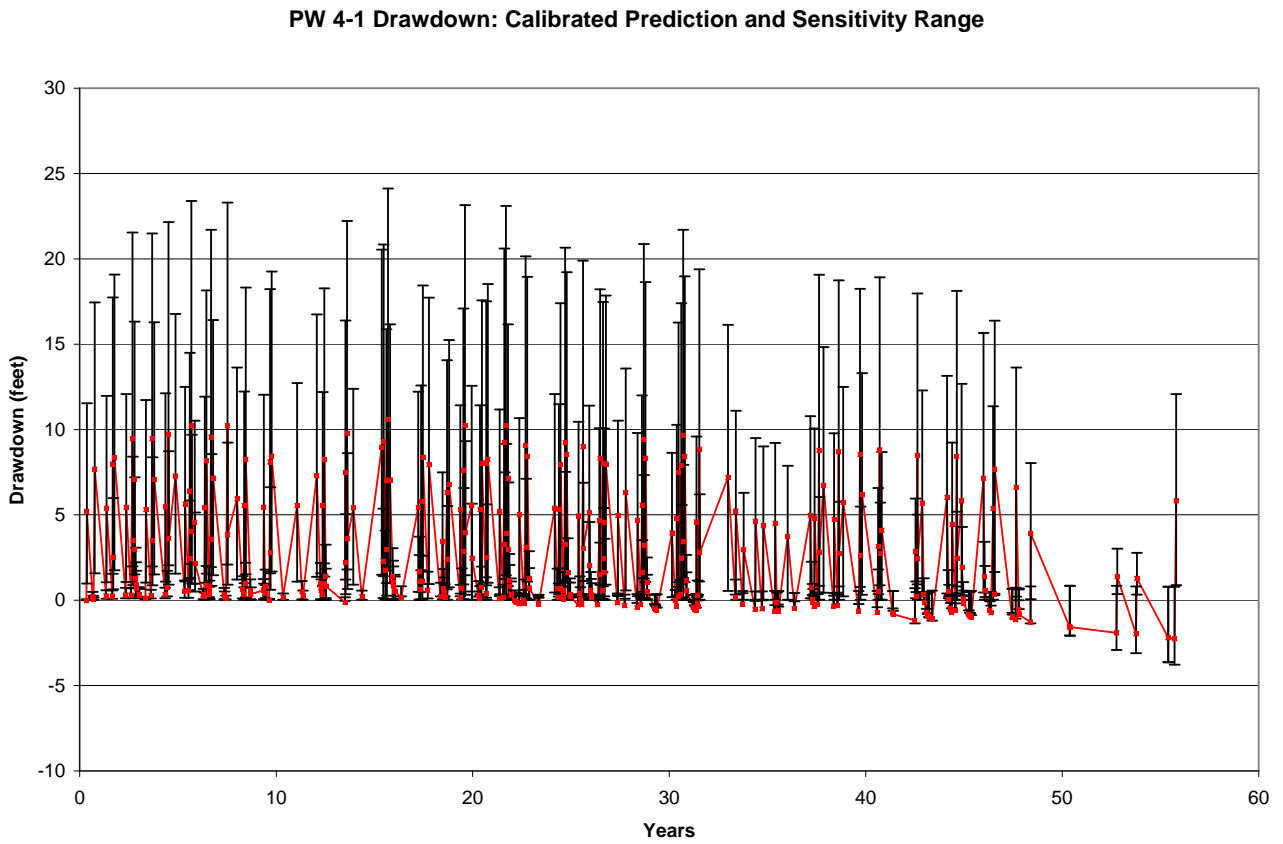


Figure 3
Calibrated Drawdown (red) and Upper and Lower Range of Predicted Drawdowns for Sensitivity Evaluation: Proposed Well PW-4-1

PW 2-6 Drawdown: Calibrated Prediction and Sensitivity Range

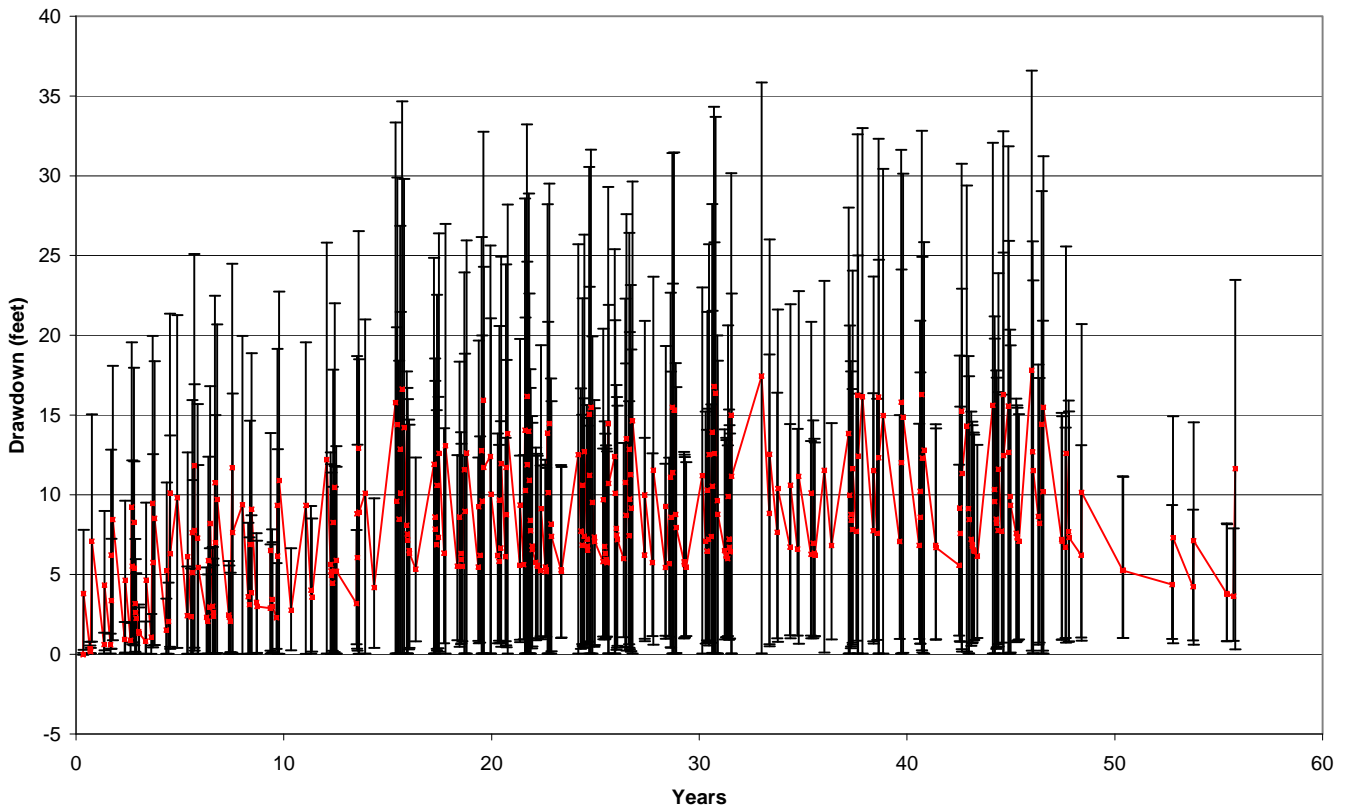


Figure 4
Calibrated Drawdown (red) and Upper and Lower Range of Predicted Drawdowns for Sensitivity Evaluation: Proposed Well PW-2-6

PW 4-11 Drawdown: Calibrated Prediction and Sensitivity Range

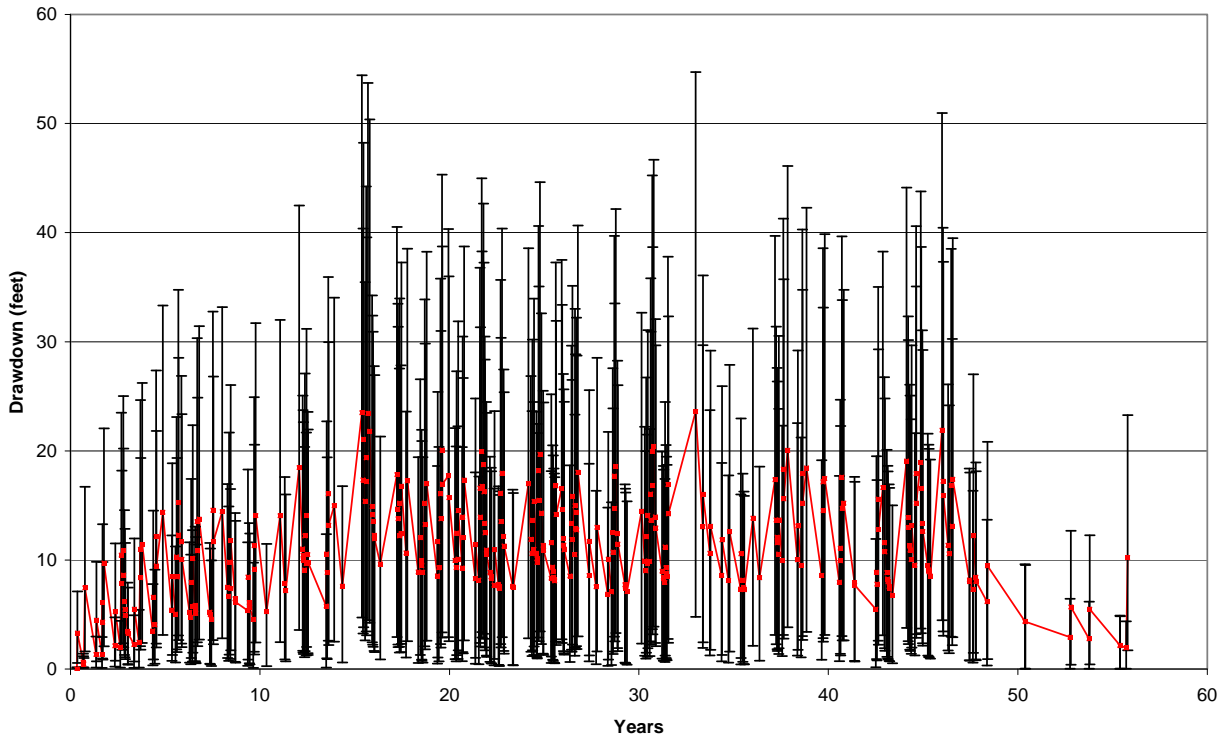


Figure 5
Calibrated Drawdown (red) and Upper and Lower Range of Predicted Drawdowns for Sensitivity
Evaluation: Proposed Well PW-4-11

Whetstone River - Groundwater Flow: Calibrated Prediction and Sensitivity Range

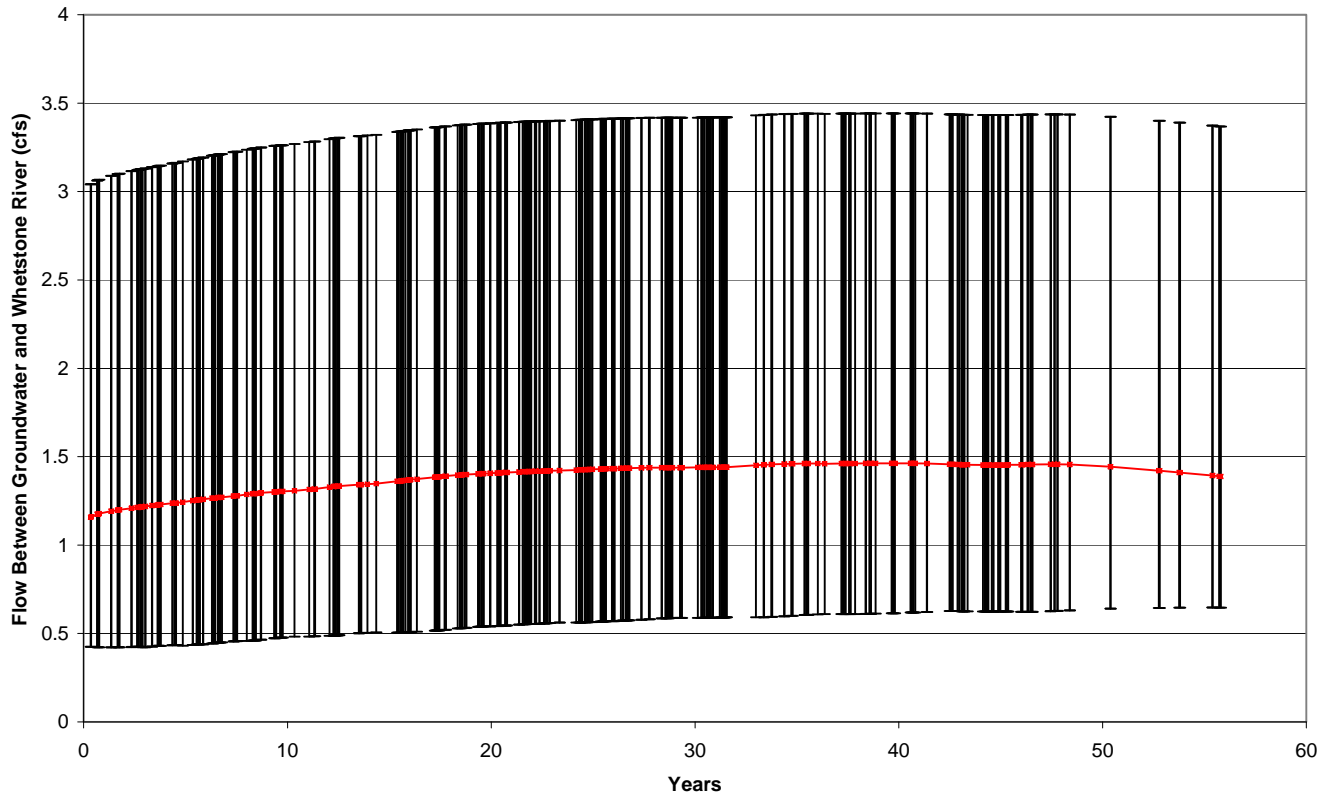


Figure 6
Calibrated Flux with Whetstone River (red) and Upper and Lower Range of Predicted Flux for Sensitivity Evaluation

Comment SF-2h from USDOJ: “Section 3.2.4, Surface Water, page 3-4, third paragraph (continuing onto the top of page 3-6); and Section 4.2.4.1, Revised Proposed Action, Effects on the Whetstone River, page 4-16: The source of the statements about streamflow characteristics of the Whetstone River should be provided. The conclusions concerning mean monthly discharge are inconsistent with streamflow statistics for the Whetstone River near Big Stone City, SD (USGS gauging station number 05291000). The USGS has been collecting streamflow data at this site since 1931, and the available statistics for this station indicate that the mean of monthly discharge for March and April is nearly twice that as the means of monthly discharge for May, June, and July. Also, note that the mean of monthly discharge at this station for January and February is 6.7 and 15 cfs, respectively. The streamflow statistics for this gaging site are available on the Internet at:

http://waterdata.usgs.gov/nwis/monthly/?referred_module=sw&site_no=05291000&por_05291000_8=900123,00060,8,1910-04,2006-09&format=html_table&date_format=YYYY-MM-DD&rdb_compression=file&submitted_form=parameter_selection list

Questions concerning this comment can be directed to Lloyd Woosley, Chief of the USGS Environmental Affairs Program, at (703) 648-5028 or at lwoosley@usgs.gov.”

Response: The Final EIS discussion of the modeling of groundwater pumping effects on the Whetstone River has been revised to provide additional clarity on what Whetstone River flows are based on model results and those that are actual historical flow monitoring data (see Section 4.2.2.1 of the Final EIS under the subheading Effects on the Whetstone River). The groundwater flow model predicted baseflow of the modeled portions of the Whetstone River upstream of its confluence with the Minnesota River for non-pumping conditions at approximately two cfs. The actual range of stream flows monitored at Big Stone City during January and February for the period 1932 to 1988 ranged between zero cfs and six cfs for 87 percent of the measurements. Thus, Western deemed the flow model to be a good predictor of the groundwater contribution to the baseflow of the Whetstone River.

Comment ST-1q from SWO: “What is the source of the reported average annual groundwater pumped from the aquifer for irrigation during between 1979 and 2005? The SEIS reports this value to be 819.3 acre-feet for that time span out of 6,389 acre-feet appropriated for each year.”

Response: As stated in Section 3.2.2.1 of the Final EIS, the source of the data is SDDENR Water Rights Program permit files. The amount permitted (i.e., available for pumping) was 6,389 af; however, the actual amount pumped, as reported, was 819.3 af.

Comment ST-1r from SWO: “What are estimated future water needs for beneficial use over the next 70 years?”

Response: According to the SDDENR website, there are no other future groundwater appropriation projects pending within the areas of predicted drawdown, as shown on Figure 4.2-2. The list of past, present, and future projects presented in Section 4.11.3 of the Final EIS that would use groundwater are not located in the groundwater areas proposed for use by the proposed Project. Therefore, the reasonably foreseeable cumulative impacts associated with the use of groundwater would be the proposed Project and the current water users.

Comment ST-1v from SWO: “What are growth projections for the expanded groundwater area? What are the anticipated groundwater needs for future beneficial use?”

Response: Western is not aware of any growth projections for the expanded groundwater area. The future estimated beneficial needs of the proposed plant are reflected by Water Permit No. 6846-3, issued by the SDDENR on November 6, 2007, which authorizes the annual withdrawal of up to 10,000 af of groundwater. SDDENR maintains a website for the Water Rights Program that provides information on pending applications to appropriate water. According to the SDDENR website

(SDDENR, 2007a), there are no other future groundwater appropriation projects pending within the areas of predicted drawdown, as shown on Figure 4.2-2. The list of past, present, and future projects presented in the Draft EIS that would use groundwater are not located in the groundwater areas. Therefore, the reasonably foreseeable cumulative impacts associated with the use of groundwater would be the proposed Project and the current water users.

Comment ST-1w from SWO: “This section discusses installation of two 2” observation wells and two 12” pumping wells relative to aquifer tests being conducted. However, there is no data presented in the SEIS that supports an aquifer test being conducted. The SEIS reviewer anticipates presentation of the data collected such pumping rate, duration of pumping, drawdown, and recovery water levels in the piezometer and pumping wells in addition to fundamental hydrologic parameters. The Sisseton Wahpeton Oyate request a copy of this aquifer test data.”

Response: Additional description of the aquifer test may be found in Appendix M1 in the “Groundwater Supply Evaluation” report dated March 27, 2007, prepared by Barr Engineering.

Comment ST-1y from SWO: “Please supply copies of the wells logs and locations of those well logs used to evaluate aquifer thickness.”

Response: Additional description of the wells drilled by the Co-owners may be found in Appendix M1 in the “Groundwater Supply Evaluation” report dated March 27, 2007, prepared by Barr Engineering.

Comment ST-1z from SWO: “Calibration of a MODFLOW model using elevations and water levels from regional well logs is highly inaccurate. Please re-run the model using more accurate controls.”

Response: See response below for Comment ST-1aa.

Comment ST-1aa from SWO: “Are the wells logs used for the model representative of the entire 1,000 square miles addressed in the model?”

Response: Logs for all wells within the entirety of the 1,000 square miles of the model domain that were available through the SDDENR and the Minnesota County Well Index were used in the model (a total of approximately 1,500 well logs). These wells were distributed over the entire model domain. Model parameter data such as aquifer thickness and sand content were obtained from these well logs. Approximately 122 of these well logs had sufficient information to estimate regional groundwater levels for model calibration. These well logs were supplemented with more detailed information from the project borings and wells in the vicinity of the proposed well field.

Comment ST-1ac from SWO: “Please supply a copy of the report from South Dakota DENR which contends that an annual recharge rate of 0.34 inches per year would balance withdrawals from the proposed plants.”

Response: The “Report on Water Permit Application No. 6846-3” prepared by the Chief Engineer for the Water Rights Program is a public document and is available by contacting the SDDENR at www.state.sd.us/denr.

2.5 Other Water Comments

Comment ST-1s from SWO: Comment received from the Sisseton-Wahpeton-Oyate related to floodplains: “The Federal Emergency Management Agency “approximates” floodzone boundaries most everywhere in the United States, not just in the area of the Big Stone II plant. The FEMA

floodzone determinations should not be minimized for the sake of construction a coal-fired power plant.”

Response: The floodplains identified in Figure 3.2-1 of the Final EIS are based on Federal Emergency Management Agency maps for the proposed Project area, both the proposed plant site and transmission corridors. Floodplain areas have not been minimized.

Comment SO-1an from CWA: “Minnesota’s concern remains as we originally stated to the WMB in our letter of June 30, 2006 regarding the need for alternative water supplies: ‘We request that the permittee be required to explore and functionally develop alternative water sources that are not tied to natural surface water systems and would be available for emergency use during periods of drought as a condition before permission is granted.’”

Response: There are no viable sources of water supply in proximity to the proposed plant other than surface water from Big Stone Lake and groundwater from the Veblen Aquifer. Both sources were evaluated, and the Co-owners determined that wet cooling with groundwater back-up is the preferred alternative for cooling at the proposed plant.

Comment SI-7d from Michaeleen Kelzenberg: Western believes the commenter notes that if errors occur in water management it should be on the side of conservation of this resource. “To [Too] much of our water supply is being consumed,...” The commenter questioned how can aquifers be replenished when the proposed activities draw down lakes, drain wetlands, and send most of the rainfall down stream.

Response: The use of water by the proposed plant is addressed through enforceable permit restrictions in the water appropriation permits, as well as conditions of the Settlement Agreement. The Settlement Agreement (see Section 1.5.2 of the Final EIS and Appendix K, Volume III) required the Co-owners by June 27, 2007, and on an ongoing basis, to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR. The SDDENR will continue to be responsible for managing South Dakota’s water resource for public and private use through its Water Rights Program. Based on the impact analysis in Section 4.2.2.1 of the Final EIS, the use of groundwater by the proposed plant would not exceed the recharge rate. The proposed plant would not significantly increase impervious area, and therefore, would not result in a significant increase in stormwater runoff. In any event, the proposed Project is a zero wastewater discharge facility. No process water would leave the proposed plant.

Comment SI-8b from Joe Makepeace: “This includes our air that we breath [breathe], water that we drink and use for recreation, and soil that produces our food.” [Western believes comment refers to concern about chemicals, carbon dioxide, and mercury in the environment.]

Response: The chemicals that would likely be used at the proposed plant for water treatment and other plant uses are provided in the Final EIS at Table 2.2-2, which lists the materials, quantities, delivery frequencies, and delivery methods of the chemicals. Some of the chemicals and materials are considered hazardous substances and, as such, require appropriate handling and storage equipment and associated documentation. The proposed plant would be required to comply with all Federal and State regulations regarding the storage and management of chemicals. Spill management is addressed in Section 4.2.2.1 of the Final EIS. Specific mitigation measures would be implemented during construction and operation of the proposed Project (see Tables 2.2-8, 2.2-9, and 2.6-2 in Chapter 2 of the Final EIS) to minimize impacts from chemical spills. Please refer to Responses to Comments in Sections 1.1 and 1.2 above regarding the impact of CO₂ and mercury in the air and water from the proposed Project. Please see Section 3.1 below regarding concerns about soil.

Comment SPH-3a from Mary Jo Stueve: “Clean Water Action still has great concerns on this project, and I’ll speak specifically to what we’re talking about here with the Supplemental Draft EIS tonight. We have concerns that the applicants failed to consult with or investigate the Sisseton-Wahpeton Oyate water use rights and interests, especially with this groundwater proposal.”

Response: Figure 4.2-2 in the Final EIS shows the extent of drawdown anticipated from groundwater pumping. Pumping of the proposed wells would not impact aquifers on lands owned by the Sisseton-Wahpeton Oyate.

2.6 Other Comments Noted Related to Water

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SO-1r	CWA	“Family histories recount Big Stone Lake as ‘spring-fed’ with specific ecological sensitive hillside areas relying on ‘maintained’ aquifer levels. (Rosella Carlson, oral history to grandchildren, 1960s and Martin ‘Punk’ Carlson, historical lakeshore homeowner with hillside ‘spring-feed’ to keep minnows fresh, 1990s-current).”
SI-7g	Michaeleen Kelzenberg	“If an additional coal plant is needed it should be built using a design that can divert water from an abundant supply into a recirculating environment that has a minimal need for replenishment.”
SI-14b	Traci Rasmusen-Myers	“Water is a precious resource and it needs to be treated as such.”
SI-14c	Traci Rasmusen-Myers	“It may be a renewable resource, but the rate at which it renews is a long process. The time requirement needed is greater than what is being provided due to increase demand on water in all areas of life.”
SI-16c	Beth Rogers	“I am for clean water.”
SI-17a	Dave Staub	“It does take time to collect thoughts on paper of what is the concern of many residents like myself in the vicinity [vicinity] of Big Stone II. There is a lot of concern about giving up wind rights to outside corporations and financial markets as well as air quality and water rights to the heavy hand of the coal industry, especially in a time of awakening to the alarming rate of rise of CO ₂ and global warming.”
SI-19b	Gene Tokheim	“Many of us believe that we are at a critical time in our planet's ability to recover damage that humans and our industries have done water and the living things that depend on it. We can't pretend to be ignorant about this problem any more.”
SI-19f	Gene Tokheim	“The South Dakota Water Management Board is not acting as responsible stewards of our common water supply.”
SFL-2a	John Almlı	“If we destroy our waters, the other stuff won't matter!”
SFL-6a	Jayne Caldwell	“ONLY GOD CAN MAKE CLEAN WATER - PEOPLE TAKE PRIORITY OVER COAL AND MONEY.”
SFL-9a	CWA Form Letter for SDEIS Peter Doughty	“The entire Minnesota River watershed is an important and vulnerable ecosystem. Protecting it from further damage, and facilitating its recovery, is paramount.”

Comment Number	Name	Comment Summary
SFL-15b	Carmen LaChappelle	“Taking action that we know will negatively impact our ecosystem will ripple down from the obvious -- visibly [visibly] less water, less fish -- to the less obvious, but equally or more detrimental -- changes to the plant life both in and around the water supply, reduction in plants for animal habitat, loss of invertebrate [invertebrate] and other species.”
SFL-23a	CWA Form Letter for SDEIS Julie O’Brien	“I am a 46 year old female who has enjoyed swimming, canoeing & other lake activities all my life. I can’t tell you the extreme lake degradation that I’ve seen over the course of that lifetime. The fact that my five and ten year old sons cannot see their feet very well at the bottom of the lake when they’re standing in the water up to their armpits horrifies me about the state of lake and water quality in a state which I’ve enjoyed all my life.”
SFL-26a	CWA Form Letter for SDEIS Deborah Raymond	“My father grew up in Ortonville, Mn. And Big Stone Lake played an important role in his life. I know he would want the same for the next generation.”
SFL-31a	Dick Unger	“My children have reactive airway medical problems. This could result from the existing plant. We already can’t eat the fish in our beautiful river. We get no money or power from Bigstone, only pollution and water shortages.”
SFL-32a	Sierra Club	“Please accept my comments on the supplemental draft environmental impact statement for the Big Stone II coal-fired power plant and transmission expansion. I value clean air, clean water, and the interests of public health and our natural legacy over the profits of a utility company.”
SFL-48a	Colleen Krebs	“As citizens, business people, and politicians are rapidly coming to realize, the time is past for energy that is either dirty or needing huge amounts of water to produce.”
SFL-63a	Mary Lysne	“Taking water from Big Stone Lake for a coal burning power plant is the wrong direction for our continent.”

Response: Your comments have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project.

3.0 Geology, Minerals, Paleontological Resources and Soils

No comments were received related to geology, minerals, or paleontological resources.

3.1 Soil

Comment SI-8b from Joe Makepeace: “This includes our air that we breath, water that we drink and use for recreation, and soil that produces our food.” [Western believes comment refers to concern about chemicals, carbon dioxide, and mercury in the environment.]

Response: Table 2.2-2 in the Final EIS lists the materials, quantities, delivery frequencies, and delivery methods of the chemicals that would likely be used at the proposed plant. Spill management is addressed in Section 4.2.2.1 of the Final EIS. The proposed plant would be required to comply with all Federal and State regulations regarding the storage and management of chemicals. Specific mitigation measures would be implemented during construction and operation of the proposed Project (see Tables 2.2-8, 2.2-9, and 2.6-2 in Chapter 2 of the Final EIS) to minimize impacts to soil from

chemical spills. Western has provided information in the Mercury Response Paper (Response Paper A, Volume II) about the effects of mercury deposition on soils and the subsequent uptake in plants. Also, Section 4.1.2.1 of the Final EIS under the subheading Mercury Emissions from the Existing and Proposed Plants summarizes the commitments of the Co-owners to install emissions controls at the proposed plant. If the proposed Big Stone II plant is constructed (and after implementation of emissions controls), mercury emissions from the existing and proposed plants would be less than the emissions from the existing plant. Although the combined plants would continue to emit mercury, Western has concluded that the decrease in mercury emissions compared to the emissions of the existing plant would result in reduced impacts to the environment. Therefore, there would be fewer impacts to soils. Responses to comments regarding CO₂ and mercury in the air and water are discussed in Sections 1.1 and 1.2, above.

4.0 Biological Resources

4.1 Habitat Loss

Comment Number	Name	Comment Summary
DEIS Comments		
O-1w	CWA	CWA believes that Western needs to further examine the proposed Big Stone II's impacts on wildlife and vegetation, taking into account the total wildlife lost due to both habitat loss and habitat fragmentation.
O-1av	CWA	"How much wildlife would be lost due to habitat loss and fragmentation?"
PH3-8h	Public Hearing Granite Falls, MN Patrick Moore	"Rare ecosystems, such as wetlands and prairies, provide a unique habitat for wildlife. The loss of the tall grass prairie, in particular, has already led to a decline in many bird and mammal species. Rare and special-status butterfly species will be particularly affected by fragmentation and the loss of prairie vegetation. Since 94.5 percent of natural vegetation in the region has already been converted, it's critical that the remaining prairie be carefully protected from further encroachments."
SDEIS Comments		
No comments received.		

Response: With the proposed Project, impacts to vegetation and the corresponding impacts to wildlife would not result in fragmentation of vegetation communities on the proposed plant site. This is because the construction and operation of the components of the proposed Project would occur in areas that are either currently disturbed (i.e., part of the existing facility or in low-quality vegetation communities), and/or are consolidated in a manner that would not divide high- or medium-quality vegetation communities. The highest quality vegetation communities on the Big Stone property, including high quality prairie and the forested bluffs along the Whetstone River, would not be affected by the construction and operation of the proposed plant. The habitat loss impacts resulting from the proposed Project are discussed in Section 4.4.2.1 of the Final EIS under the Vegetation and Wildlife subheadings. Habitat loss impacts as the result of transmission line installations are discussed in Section 4.4.2.2 under the Wildlife subheading.

4.2 Impacts to Vegetation and Wildlife due to Global Warming

Comment Number	Name	Comment Summary
DEIS Comments		
O-1z	CWA	The commenter asks how the proposed Big Stone II will contribute to the global warming impact on vegetation and wildlife.
O-1aw	CWA	“How will Big Stone II's contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?”
SDEIS Comments		
No comments received.		

Response: Please see Response to Comments in Sections 1.1.8 and 1.1.9, above, regarding vegetation and wildlife impacts due to global warming. See Response to Comments in Section 1.2.11 above and Section 4.3 below, regarding impacts to vegetation and wildlife due to mercury emissions.

4.3 Impacts to Vegetation and Wildlife due to Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
T-1g	SWO	“There are many roots, berries, medicinal plants & herbs that could become contaminated due to the increased source of air pollution; as well as water, which is considered the source of all life, considered most Sacred to the traditional lifeways of our people.”
O-1y	CWA	The commenter states the Draft EIS denied any “constituents would be introduced into any water body that would cause an adverse effect on wildlife” yet recent studies show all aquatic and bird species exposed to mercury are affected.
O-1aw	CWA	“How will Big Stone II's contribution to mercury contamination and global warming impact local and non-local wildlife and vegetation?”
I-21b	Terry J. Makepeace	“Also, do you have any knowledge of the harm that these chemicals will have both short and long term on the plant, animal, aquatic, and human life in the area?”
PH2-1c	Public Hearing Morris, MN Mary Jo Stueve	“The application does not address in a calculated, cumulative manner what the impact would be on human, plant, and environment surrounding the area. Neither does the Draft EIS.”
PH3-8e	Public Hearing Granite Falls, MN Patrick Moore	“The Wisconsin Department of Natural Resources has discovered that exposure to mercury contributes to low fertility rates in the common loon. Based on current research, all aquatic or bird species exposed to mercury are likely to be affected by the contamination. What impact will Big Stone II's mercury really have on wildlife? Contrary to the Draft EIS, reducing local sources of mercury pollution can have a large impact on mercury levels in local water bodies.”
SDEIS Comments		
No comments received.		

Response: These comments are the same as the ones addressed in Section 1.2.11 of the Response to Comments above. In addition to being addressed under Air Quality impacts in Section 4.1.2.1 of the Final EIS, the impacts of mercury emissions on vegetation are discussed in Section 4.4.2.1 under the Air Emissions subheading. This update addresses effects to traditional lifeways of Native Americans. Mercury emissions from the combined existing and proposed plants would be lower than the current emissions from the existing plant. Therefore, mercury emissions generated by the operation of the proposed plant would have a reduced potential to cause impacts to vegetation and wildlife in the area.

4.4 Impacts to Special Status Species

Comment Number	Name	Comment Summary
DEIS Comments		
F-2ad	USFWS	“Page 4-4-17. This section should include measures that may be applied if Dakota skippers are located.”
PH3-8g	Public Hearing Granite Falls, MN Patrick Moore	Wetland/riparian, forest, and prairie ecosystems are ideal habitat for ecologically significant and rare plant species. What will happen to the vegetation, including 25 special status plant species that may occur within this project site? How will the loss of vegetation and the fragmentation of habitats impact the wildlife we saw that day? Will habitat be created or enhanced to mitigate the effects of habitat loss?
SDEIS Comments		
No comments received.		

Response: Sensitive plant species that may be present on the Big Stone property would most likely be found within the less-disturbed, higher-quality vegetation communities. Since there are no proposed short- or long-term impacts to these areas, there would be no anticipated loss of sensitive plant species that may exist within these areas.

The results of surveys for the federally-threatened western prairie fringed-orchid (*Platanthera praeclara*) are discussed in Section 4.4.2.1 of the Final EIS under the Special Status Species subheading. In summary, no individuals or populations of this species were located during the surveys of the proposed plant site. Moreover, with the proposed Project, impacts to this species have been greatly reduced if not eliminated. There are no anticipated impacts to State or Federal listed species. Surveys for potential habitat for the Dakota skipper, a Federal candidate butterfly, indicated small areas of marginal habitat that would not be impacted by the proposed activities. A survey was conducted for the State-listed species American spikenard (*Aralia racemosa*) and for the State-listed species eastern grey squirrel (*Sciurus caroliniensis*), because the South Dakota Natural Heritage Database listed these species as potentially present in Grant County. The intent of the surveys was to provide objective, scientifically valid documentation of the actual presence of these species on the Big Stone property. The results of the survey indicated that neither species is present on the Big Stone property. Based on the results of field surveys for sensitive plant species, and on general vegetation surveys conducted for the proposed Project, there is no identified need for further consultation with USFWS or South Dakota Game, Fish and Parks Department (SDGFP) at the proposed plant site regarding special status plant, vertebrate or invertebrate species, as well as no cause for an application for a State takings permit.

4.5 Indirect Effects of Vegetation and Wildlife Loss

Comment O-1aa from CWA: “What impact will Big Stone II really have on wildlife (including the 27 special status terrestrial and fish species that “may exist” within the project area)? At the very least, the draft EIS should have estimated the economic effect that Big Stone II will have on wildlife protection areas, state parks, wildlife management areas, and scientific and natural areas due to wildlife and vegetation loss.”

Response: As discussed above in Section 4.4 and in the Vegetation and Wildlife portions of Section 4.4.2.1 of the Final EIS, field surveys indicate that there would be no loss of individuals or populations of sensitive or special status species. The majority of the State-listed species that SDGFP lists as “potentially present in Grant County” are freshwater mussels or freshwater fish in the Whetstone River. The proposed Project is a zero wastewater discharge facility, meaning that it would not release process water or stormwater to the Whetstone River. Reductions in flow of the Whetstone due to groundwater use would not result in significant impacts to aquatic habitat, since groundwater contribution to the Whetstone is less than two percent of base flow.

The existing Big Stone facility has been operating for over 30 years, and Western did not identify any known adverse economic effect on nearby WPAs, State parks, Wildlife Management Areas, or Scientific and Natural Areas. The coexistence of nearby wildlife and natural resource entities with the Big Stone facility would continue as it has for the last 30 years, and the economic viability of these entities would not be negatively affected by the construction and operation of the proposed plant.

Comment PH3-4b from Katie Laughlin: “The Draft EIS should have thoroughly analyzed the cost of Big Stone II associated with increased healthcare from air pollution and environmental decline from acid rain, mercury contamination, and the loss of rare habitats and species.”

Response: See Section 7.1 of Responses to Comments for a response on healthcare issues. See Section 1.3.9 regarding acid rain and Section 1.2 regarding mercury contamination. This response is related to the loss of rare habitats and species. As discussed above in Section 4.4 and in the Vegetation and Wildlife portions of Section 4.4.2.1 of the Final EIS, field surveys indicate that there would be no loss of individuals or populations of sensitive or special status species. Sensitive species that are potentially present on the Big Stone property would most likely be found within the less-disturbed, higher quality vegetation communities, or in the Whetstone River. Since there would be no short- or long-term impacts to higher-quality habitats or aquatic habitats in the Whetstone River, there would be no anticipated loss of sensitive plant species that may exist within these areas.

Comment SPH-1b from Myrna Thompson: “I would like to say that the tribe is very concerned and still does oppose the project, because we have no information on long-term environmental impacts over time, as well as the health impacts to our -- not only our people, the human factor, as well as the vegetation and the water, the air quality.”

Response: Short-term and long-term impacts to air, water, natural resources and local health resulting from the construction and operation of the proposed Project are discussed in detail throughout Chapter 4 of the Final EIS. Impact analyses for the various areas detailed in the comment are based on modeling, field surveys, current literature research or a combination of these approaches. In general, impacts resulting from the proposed Project would be confined to low-quality vegetation areas, which have been previously disturbed. Air emissions from the proposed Project are addressed in Section 4.1.2.1 of the Final EIS. Impacts to water resources are addressed in Section 4.2 of the Final EIS, and public health is addressed in Section 4.7. Environmental Justice is addressed in Section 4.10 of the Final EIS.

4.6 Wildlife Impacts

Comment Number	Name	Comment Summary
DEIS Comments		
F-2ak	USFWS	“Page 4.4-31. A discussion should be included regarding the impacts of construction on invertebrates and measures that could be used to minimize impacts.”
I-20m	Gil Lanners	“Also, transmission lines emit an electro magnetic field, have a constant hum and are patrolled by low flying aircraft, all of which may be detrimental to wildlife.”
PH3-8a	Public Hearing Granite Falls, MN Patrick Moore	“I was stunned by the wildlife we saw on that river that day. And I am concerned that the Draft EIS does not adequately consider the Big Stone II's impact on wildlife.”
SDEIS Comments		
SI-10c	Christine Marran	“Low water levels will kill plants fish and other important wildlife.”
SI-12b	Adam Miller	“Please do not approve this project if it does harm to the wildlife in the area.”
SI-20d	Erica Zweifel	“Drawing down the Veblen aquifer (or any other aquifer), which is located beneath the Central and Mississippi migratory pathways, will affect not only humans but wildlife as well.”
SFL-15b	CWA Form Letter for SDEIS Carmen LaChappelle	The commenter was concerned that the Proposed Action would negatively impact the ecosystem and ripple down from the obvious -- visibly less water, less fish -- to the less obvious, but equally or more detrimental -- changes to the plant life both in and around the water supply, reduction in plants for animal habitat, loss of invertebrate and other species.
SFL-32b	Sierra Club Form Letter for SDEIS	“The vast quantities of water that would be required from groundwater and Big Stone Lake for operating Big Stone II are unacceptable. Tapping this water resource would affect the agricultural community, tourism and recreation, wildlife, and the very water people in the area drink.”
SFL-66b	Carmine Profant	“The negative impact on public health and wildlife is certain in this project. Despite mercury controls, the first few years of Big Stone IIs operation would put out quantities of mercury that will stay in Minnesota's water systems for years to come.”

Response: The comments in this subcategory express concerns about impacts to wildlife from the construction and operation of the proposed Project, including water withdrawals to support the proposed Big Stone II power plant. Based on these comments, additional discussion on the impacts to wildlife is provided in the Wildlife subsection of Section 4.4.2.1, as well as in the Wildlife portion of the Special Status Species subsection of Section 4.4.2.1 of the Final EIS. In summary, wildlife studies for the proposed Project included field studies using accepted methods for wildlife inventory and impact analysis, including use of the USFWS Habitat Suitability Index for analyzing potential impacts to a state-listed mammal. Field studies contributed to the South Dakota Natural Heritage database with the reporting of a northern river otter in July 2006. Wildlife inventory and impact assessment methods are described in detail in Section 4.4.1 of the Final EIS under the subheading Impact Assessment Methods.

Features that characterize the predominant existing wildlife habitats would not be changed by construction of the proposed Big Stone II plant. The majority of the proposed construction and

operation impacts would occur in a landscape dominated by row crops, hayfields, and pastures, as well as within the existing plant area. Areas disturbed by human activities dominate the proposed plant and groundwater areas and are used by deer, small mammals, pheasants, and other species typically capable of co-existing with intensive human land uses. As a result, construction and operation of the proposed Big Stone II plant would not substantially reduce opportunities for wildlife to utilize disturbed habitats.

Species dependent on less-disturbed, native vegetation communities or on extensive forested or riparian cover would not experience habitat losses, because the proposed Project has no long-term impacts on habitats in medium- or high-quality vegetation communities or on forested or riparian areas.

The Co-owners' water use plan is designed to minimize water use to the extent practicable, only using the water required for operations. The surface water and groundwater appropriations include restrictions to minimize impacts to Big Stone Lake and the Minnesota River and to prevent withdrawal of groundwater in excess of its rate of recharge. The Settlement Agreement (see Section 1.5.2 of the Final EIS and Appendix K, Volume III) requires the Co-owners to provide all data used to evaluate the effects of water withdrawals from Big Stone Lake to the SDDENR and MnDNR.

Aquatic and riparian habitats along the Whetstone River would not be substantially changed from their existing conditions, and there would be no loss of wetlands associated with construction and operation of the proposed plant and groundwater wells. Potential reductions in groundwater contribution to the Whetstone River flow are less than two percent of base flow during the April-July period. Water in the Whetstone River during the growing season and peak wildlife activity is almost entirely from surface runoff. No surface water would be withdrawn from or discharged to the Whetstone River. As a result, impacts to aquatic invertebrates or their habitats would be less than significant.

Terrestrial invertebrates that prefer undisturbed habitats would experience a reduction in habitat area. However, low-quality and/or disturbed habitat dominates the Big Stone property and surrounding area. Terrestrial invertebrates that utilize high- and medium-quality habitats would not experience long-term losses of habitat, since the proposed Project does not include long-term impacts to these habitats. Impacts to medium-quality grassland habitats are relatively small, would be short-term, and would be mitigated through revegetation of the disturbed area with native grasses.

The effect of mercury emissions on wildlife is also discussed in Section 4.4.2.1 under the Wildlife subheading (see Air Emission Impacts to Wildlife). Mercury emissions from the combined existing and proposed plants would be lower than the current emissions from the existing plant. Although the combined plants would continue to emit mercury, the decrease in mercury emissions (and a corresponding decrease in methylmercury) would result in reduced impacts to the wildlife of the area.

4.7 Wildlife Impacts due to Electric and Magnetic Fields

Comment Number	Name	Comment Summary
DEIS Comments		
I-20m	Gil Lanners	“Also, transmission lines emit an electro magnetic field, have a constant hum and are patrolled by low flying aircraft, all of which may be detrimental to wildlife.”
I-20u	Gil Lanners	“The power line in question, crosses the Department of Natural Resources land. I believe this would raise issues with the wildlife flight patterns. I personally have seen dead wildlife from flying into the existing power lines), from fog, mornings or evenings, not being able to see this line, or even being startled. The hum that the power line makes, must, as I see it, also affect the breeding aspects of wildlife.”
SDEIS Comments		
No comments received.		

Response: Transmission lines would be designed to minimize electric and magnetic fields (or electromagnetic fields or EMF) and would have EMF levels similar to other existing transmission lines. Due to corona, the transmission lines would cause a hum or crackling noise, depending on climatic conditions. Typically, corona noise is higher with precipitation and/or high humidity. The transmission lines would be designed to minimize corona. Tension would be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution would be exercised during construction to avoid nicking the conductor surface, which may provide points for corona to occur. Through implementation of SMM Inf-8 (measures to reduce corona), impacts to wildlife would be minimized. In addition, in accordance with SMM Bio-10, the Big Stone Co-owners would implement an Avian Protection Plan to minimize avian collisions with transmission lines. The plan would identify timeframes for construction and routine maintenance to avoid the nesting period of breeding birds.

4.8 Avian Species Impacts, including Raptors and Bald Eagles

Comment Number	Name	Comment Summary
DEIS Comments		
F-2h	USFWS	“For all routes adjacent to or crossing likely bird concentration areas (e.g. large wetlands, riparian areas, lakes, and conservation lands), bird deflectors and/or other devices to minimize bird strikes should be incorporated in project design.”
F-2r	USFWS	“Bio-10 and Bio-12- We recommend development of an avian protection plan to address collisions/electrocutions. See www.aplic.org .”
F-2s	USFWS	“Bio 13- We recommend inclusion of a reference to future consultation with the Service’s Migratory Birds office regarding potential impacts to migratory birds during the nesting season.”

Comment Number	Name	Comment Summary
F-2aa	USFWS	The commenter suggests consultation with the Service's Migratory Bird Management Office which may be helpful in providing further technical assistance.
F-2ac	USFWS	The commenter recommends further discussion be included in the document regarding what will be done if a new eagle nest is found closer to the power plant as well as preconstruction surveys to locate nests.
F-2ag	USFWS	The commenter recommends the application of measures outlined in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996.
F-2ah	USFWS	The commenter requests details as to who will determine where flight diverters may be appropriate as well as when transmission lines will be monitored to detect future avian collision mortality; this should be detailed in an avian protection plan.
F-2ai	USFWS	"Page 4.4-30. Additional mitigation measure W-2 (requiring no work January-August) is mentioned for transmission line construction. A similar effort should be made to avoid impacts to nesting bald eagles in association with power plant constructions."
I-20k	Gil Lanners	"The present and preferred route is across about a mile of D.N.R. wildlife refuge in sections 26 & 27 of Omro. Including, across the southern part of Lanners Lake. The largest body of water in the area. The second largest body of water in the area is located about ¾ of a mile south of Lanners Lake. There is also another water containing wildlife refuge about ½ mile southeast of Lanners Lake, So there are natural wildlife flyways between these areas."
I-20l	Gil Lanners	"I have observed wildfowl striking the power lines. The result is usually devastating."
I-20u	Gil Lanners	"The power line in question, crosses the Department of Natural Resources land. I believe this would raise issues with the wildlife flight patterns. I personally have seen dead wildlife from flying into the existing power lines), from fog, mornings or evenings, not being able to see this line, or even being startled. The hum that the power line makes, must, as I see it, also affect the breeding aspects of wildlife."
PH3-8b	Public Hearing Granite Falls, MN Patrick Moore	"It states that Big Stone II will cause a net loss of 532 acres of wildlife habitat in its construction, and on page 4-48 it kind of breaks that down, and it says there will be high ecological quality areas, 27.5 acres along the Whetstone River that will be affected. I have to tell you the bills were very high ecological areas. We saw egrets. We saw mink. We saw half a dozen different duck species. But perhaps most importantly, we saw four immature bald eagles that day nesting along the river. I understand by reading the EIS that raptor species may occur within the proposed project area. I'm here to tell you that they do occur. We saw four immature bald eagles flying overhead this April."
PH3-8c	Public Hearing Granite Falls, MN Patrick Moore	"And we're concerned about the loss of active nests, and that would be a violation of the Migratory Bird Treaty Act. The bald eagle is a federally-threatened species, and if this plant would, perhaps, cause a disturbance of breeding and foraging habitat, if breeding raptors are present or adjacent to the proposed site, they may abandon breeding territories. That's what it says there, and I'm here to tell you that we saw federally-protected species of birds that may be affected by this plant."

Comment Number	Name	Comment Summary
SDEIS Comments		
SI-18c	Lanny Stricherz	“Further we do not have the water to spare here in SD, in times of drought. If the Veblen Aquifer is used as a backup, it will drain the wetlands and that puts our migratory waterfowl migration at risk.”

Response: There were numerous concerns and issues brought up about avian life within the proposed Project area. A few concerns regarded bird strikes with transmission lines, resulting in avian mortalities. Eagle, raptor, and other avian species impacts are discussed in the Wildlife: Nongame Species and Special Status Species portions of Section 4.4.2.1 of the Final EIS. In general, there are no anticipated impacts to the forage, nesting, or reproductive habits of eagles, raptors, or avian species. Long-term impacts to bird species would result from the increased potential for collision of migrating and foraging birds with overhead wires. The potential for increased mortality from collisions or electrocution at transmission lines would be mitigated, in part, through the implementation of an Avian Protection Plan. The Co-owners propose to mark transmission lines in avian high-use areas (WPAs and Wildlife Management Areas and communication flyways, which are those areas birds use to move back and forth from feeding to loafing areas) in cooperation with the appropriate agencies. Avian collisions are less likely to occur on the proposed plant site. As with the transmission lines, the level of cumulative impacts resulting from avian collisions with proposed plant structures would not be expected to be significant based on the past, present and reasonably foreseeable future projects.

The transmission lines and substation modifications would be designed and built in accordance with “Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006.”

There are no known bald eagle nests within one-quarter mile of the existing or proposed plants. While the bald eagle has been removed from the endangered species list, the eagles are still protected under the Golden and Bald Eagle Protection Act and the Migratory Bird Treaty Act. Eagles and raptors have used nearby suitable habitats during the 33-year operation of the existing plant. The operation of the proposed Big Stone II plant is not expected to reduce or impede eagle or raptor use of those habitats. A bald eagle nest was observed in September 2004 approximately 0.3 miles from the proposed Project site boundary and approximately 1.3 miles from the primary proposed plant construction area. This nest continued to be used by eagles until May 2007, when it was blown down in a storm. Following the loss of the nest, a pair of eagles built another nest in a nearby tree. This nest is more than one-quarter mile from the proposed Project site boundary. In the event that an additional eagle nest is found closer to the proposed power plant prior to construction, the Co-owners would contact USFWS agency staff.

There would be no loss of wetlands resulting from construction and operation of the proposed plant or use of groundwater. This is because area wetlands derive their hydrology primarily from surface water runoff. The contribution of groundwater to non-perched wetlands is insufficient to be a significant factor in the water regime of those wetlands. As a result, groundwater well operations would not cause a decline in wetland habitats for avian use. The potential for wetland impacts related to groundwater use is discussed in detail in the Wetland/Riparian Areas (Big Stone II Plant Site) portion of Section 4.4.2.1 of the Final EIS.

4.9 Wetland/Riparian Areas

4.9.1 Wetlands Impact Analysis for the Proposed Plant Site

Comment Number	Name	Comment Summary
DEIS Comments		
F-1b	USEPA	“The DEIS indicates potentially significant impacts to wetlands. The FEIS should provide the additional necessary information on wetland impacts for both the power plant site and transmission lines, including a demonstration of the least environmentally damaging practicable alternative (LEDPA) for wetland impacts, and mitigation of those impacts.”
F-1d	USEPA	The Draft EIS estimated the new plant and facilities will directly impact 65 acres of wetlands. The commenter recommends additional analysis of means to mitigate potential actions. The USACE wetlands permit was declined due to insufficient information demonstrating this proposed Project is the Least Environmentally Damaging Practicable Alternative (LEDPA). The commenter recommends additional information be provided to confirm the LEDPA status of the proposed Project.
F-1g	USEPA	“In this case, the DEIS does not fully analyze wetland alternatives.”
F-1i	USEPA	The commenter explains that the Final EIS should provide sufficient information to determine whether the proposed plant site is LEDPA as required by 404(b)(1) Guidelines (40 CFR Part 230) and mitigation for the impacts.
O-1t	CWA	“CWA believes that the draft EIS should have fully discussed the consequences of long-term wetland/riparian habitat loss associated with Big Stone II.”
O-1v	CWA	The commenter does not believe Western analyzed the available mitigation measures for the affected wetlands in accordance with NEPA and section 404 of the Clean Water Act.
O-2j	Sierra Club	The commenter feels the Draft EIS failed to comply with CEQ regulations by not adequately analyzing mitigation options in two ways. The Draft EIS did not, in their opinion, adequately consider the mitigation of wetland displacement by the implementation of the action. Also, it was felt the option to mitigate the wetland displacement by limiting the degree or magnitude of the action was not fully taken into account.
O-2k	Sierra Club	The analysis of the alternatives to wetland displacement was, in the opinion of the commenter, inadequate and in order to be in compliance with Section 404 of the Clean Water Act, must be included in the Final EIS.
FL-8b	Sierra Club Form Letter	“...the DEIS does not mitigate the impact transmission lines will have on wetlands, and less damaging alternatives.”
SDEIS Comments		
SF-1a	USEPA	“We commend Western for the elimination of 65 acres of wetland impacts and are revising our comments of August 7, 2006 on wetland impacts from the power plant.”
SF-2c	USDOJ	Specific details on the location of the 133 wetlands identified in the modeling area should be provided.

Comment Number	Name	Comment Summary
ST-1ao	SWO	The commenter discusses the numerous wetlands on the Lake Traverse Reservation and noted their traditional and cultural importance to the Sisseton-Wahpeton people in the area of the proposed Project, their delicate nature, and their sensitivity to pollutants such as mercury.

Response: The commenters asked for additional information on impacts to wetlands at the plant site, including analysis of alternatives, the selection process in determining the least environmentally damage practicable alternative (LEDPA), and mitigation options. Some commenters stated the analysis was inadequate and did not show compliance with Section 404 of the CWA. As noted in Section 2.2 of the Final EIS, changes to the proposed Project include elimination of the 450-acre make-up water storage pond. With the elimination of constructing the 450-acre make-up water storage pond, which would have impacted 65 acres of wetlands, the proposed Project would not result in the loss of wetlands at the proposed plant site.

The proposed pipelines from the groundwater areas to the proposed plant site can likely be routed to avoid most wetlands. In addition, construction activities associated with the erection of the proposed utility poles and stringing of line for electricity distribution to the wells would likely avoid direct impacts to wetlands. Wetlands would be avoided to the extent possible in accordance with SMM Bio-3. Since all the streams in the groundwater area are small and can be spanned, no direct impacts are expected. However, if wetlands cannot be avoided, disturbance would likely be small; a U.S. Army Corps of Engineers (USACE) CWA Section 404 nationwide permit would most likely apply to crossing locations. In accordance with SMM Land-10, damage to land features would be restored as nearly as practical to their original condition after the installation of the pipelines and electrical distribution lines. Mitigation for impacts to jurisdictional wetlands would be required as part of the CWA Section 404 permit.

Figure 4.4-1 in the Final EIS was prepared in response to other USDOJ comments regarding the location of wetlands within the modeled groundwater drawdown area. The figure shows the distribution of perched and non-perched wetlands within the modeled drawdown areas for the proposed Project and Alternative 3. In summary, there are no USFWS land interests within the Alternative 3 modeled drawdown area. However, as shown by Figure 4.4-1, there is a USFWS wetland easement occupying most of the northern half of Section 16, Township 12 North, Range 47 West. As discussed in Section 4.4.2.1, groundwater appropriations would not result in loss of wetland area or function within this easement or in any USFWS land interests. Additionally, based on this map, which is derived from the groundwater modeling, there would be no impact to wetlands, lakes, rivers, or streams on the Lake Traverse Reservation, which is over 20 miles from the groundwater drawdown area. Refer to Section 4.4.2.1 of the Final EIS for additional discussion of impacts to wetland/riparian areas as a result of groundwater pumping.

4.9.2 Wetlands Impact Analysis for Transmission Lines

Comment Number	Name	Comment Summary
DEIS Comments		
F-1b	USEPA	“The DEIS indicates potentially significant impacts to wetlands. The FEIS should provide the additional necessary information on wetland impacts for both the power plant site and transmission lines, including a demonstration of the least environmentally damaging practicable alternative (LEDPA) for wetland impacts, and mitigation of those impacts.”
F-1g	USEPA	“In this case, the DEIS does not fully analyze wetland alternatives.”
F-1j	USEPA	The commenter stated the Final EIS should include a detailed assessment of the wetland stream crossing impacts of transmission line corridors, including an estimated footprint for transmission towers and access roads.
F-1v	USEPA	For the discussion of wetland and vegetation impacts, the commenter asked for a more precise analysis in the Final EIS of the corridors and actual location of power lines and their impacts to aid in comparing the different Draft EIS alternatives.
F-1x	USEPA	The commenter recommended follow-up information in Section 4.4.3.5 include a more precise accounting for wetlands in the alternative corridors, including actual acreage impacted by line, functions and values.
O-1t	CWA	“CWA believes that the draft EIS should have fully discussed the consequences of long-term wetland/riparian habitat loss associated with Big Stone II.”
I-28c	Roy Smith	“In addition, the DEIS does not mitigate the impact transmission lines will have on wetlands.”
FL-8b	Sierra Club Form Letter	“In addition the DEIS does not mitigate the impact transmission lines will have on wetlands, and less damaging alternatives.”
SDEIS Comments		
SF-1b	USEPA	“We continue, however, to recommend that the FEIS include a detailed assessment of the wetland and stream-crossing impacts of the transmission line corridors, including an estimated footprint for transmission towers and access roads for power line construction and maintenance.”
SF-1m	USEPA	The commenter commends Western for eliminating the 65 acres of direct wetland impacts from the proposed power plant. For wetlands potentially impacted by the transmission line corridors, it is recommended the Final EIS include a detailed assessment of the wetland and steam crossing impacts, including an estimated footprint for transmission towers and access roads for construction and maintenance.
SF-1n	USEPA	The commenter stated the Final EIS should include more information about the actual pathways of the two alternatives and their potential impacts to determine what type of CWA Section 404 permit would be required.
SF-1ab	USEPA	The commenter expressed concern that a description of the potential impacts from construction of the transmission lines and their maintenance was not included in the Draft EIS. It is suggested this analysis be included in the Final EIS.

Comment Number	Name	Comment Summary
SF-1ac	USEPA	For the discussion of wetland and vegetation impacts, the commenter asked for a more precise analysis in the Final EIS of the corridors and actual location of power lines and their impacts to aid in comparing the different Draft EIS alternatives. Same as Comment F-1v.
SF-1ae	USEPA	The commenter recommended follow-up information in Section 4.4.3.5 to include a more precise accounting for wetlands in the alternative corridors, including actual acreage impacted by line, functions and values. Same as Comment F-1x above.

Response: The commenters suggested a more detailed analysis was needed to describe the impacts transmission corridors would have on wetlands. The states of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. The South Dakota Public Utilities Commission (SDPUC) selected a centerline for the South Dakota portion of the lines as part of the January 16, 2007, Decision and Order Approving Stipulation and Granting Permit to Construct Transmission Facilities. Although a wetland delineation has been done for the route, final structure placement has not been determined, and therefore, specific wetland impacts have not been calculated. The MnPUC authorized the transmission line route for the Minnesota portion of the proposed Project on January 15, 2009, by approving the Co-owners’ preferred route: Alternative A (Corridor A and Corridor C). The MnPUC issued their final written order granting the Certificate of Need and the Route Permit on March 17, 2009. The Co-owners would identify a transmission line centerline and acquire an easement from the landowners for the transmission ROW within the designated route approved by the MnPUC. . Therefore, the Final EIS evaluated the resources within three- to four-mile-wide corridors instead of specific routes. Details about the permitting processes are described in Section 4.4.2.2 of the Final EIS under the subheading Wetland/Riparian Areas.

Conservative estimates of long-term impacts to wetlands from calculations based on the percentage of wetland habitat within each corridor are provided in Table 4.4-8 of the Final EIS. The estimates in Table 4.4-8 are based on detailed estimates provided in Table 4.4-4, of impacts to wetland/riparian areas within transmission corridor areas that include the footprint dimensions of the permanent transmission structures, as well as temporary impacts due to access roads, temporary structures, staging areas, and activities associated with the construction of structures. For example , permanent structure impacts were assumed to be 1,000 square feet per 700 linear feet of 230-kilovolt (kV) transmission line and per 800 linear feet of 345-kV transmission line (see Impact Assessment Methods in Section 4.6.1 of the Final EIS). Based on these calculations, the estimated range of long-term impacts to wetlands is between 8.1 to 20 acres per corridor (see Table 4.4-8 of the Final EIS). However, in accordance with SMM Bio-3 (see Table 2.2-8 in the Final EIS), construction of permanent structures would avoid wetland and riparian areas to the extent practical. Structure placement would be avoided within wetlands covered by USFWS-administered wetland easements. If wetland or riparian areas are unavoidable, impacts would be minimized or mitigated in accordance with USACE and State requirements (see discussion below). Construction methods for the transmission lines are discussed in Section 2.2.2.3 of the Final EIS. In accordance with several of the SMMs (see Table 2.2-8 in the Final EIS), species of concern would be protected in accordance with approved protocols (Bio-1, Bio-2, and Bio-10); care would be used to preserve and repair the natural landscape and vegetation (Bio-4, Bio-5, Bio-6, and Bio-8, and Bio-9); and other mitigation protocols would minimize impacts to land (Land-1 through Land-10).

4.9.3 General Concerns about Impacts to Wetlands

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SI-6c	Susan Granger	“I am a lifelong western Minnesota resident. The Minnesota River is one of our most important local resources, as are Big Stone Lake and its associated wetlands.”
SI-6d	Susan Granger	“We need to work on making the Minnesota River, Big Stone Lake, Marsh Lake, and the wetlands more healthy—not further stress them.”
SI-7d	Michaeleen Kelzenberg	The commenter notes that if errors occur in water management it should be on the side of conservation of this resource. Too much of our water supply is being consumed. How can our aquifers be replenished when draw down lakes, drain our wetlands and send most of our rainfall down stream?
SI-18c	Lanny Stricherz	“Further we do not have the water to spare here in SD, in times of drought. If the Veblen Aquifer is used as a backup, it will drain the wetlands and that puts our migratory waterfowl migration at risk.”

Response: Slightly lower lake levels at Big Stone Lake are expected on rare occasions as a result of increased power plant withdrawals. Study results indicate the worst effect would be that the lake would be 0.83 foot lower in two non-consecutive weeks out of a 70-year model period. On average, over 70 years, the lake elevation would only decrease by 0.15 feet. Reductions in flow releases from Big Stone Lake downstream to the Minnesota River would be expected as a result of increased plant withdrawals but the reductions are expected to be infrequent. The proposed increase in water use (on the order of 8,800 afy) represents about nine percent of the average annual outflow from the lake. The surface water appropriation permit limits most withdrawals to periods when the Minnesota River flows are relatively high (e.g., during spring runoff periods). In addition, groundwater flow modeling predicts that pumping of the proposed wells would not cause a reduction in groundwater flows to Big Stone Lake or the Minnesota River. For more detail, refer to Section 4.2.2.1 of the Final EIS under the subheading Effects on Big Stone Lake Level and Minnesota River Flows. The small change in lake elevation and the infrequent flow reductions in the Minnesota River, would not result in significant impacts to wetlands. An analysis of impacts to wetlands from groundwater pumping is also presented in the Final EIS; see Section 4.4.2.1 under the subheading Well Operations. The analysis showed that pumping groundwater would not result in the loss of wetlands either within or outside of the drawdown area (see Figure 4.4-1 in the Final EIS for a graphic of the drawdown area).

4.9.4 Other Wetland Comments

Comment F-1w and SF-1ad from USEPA: The USEPA expressed concern that the “DEIS lists ‘Issues related to wetland/riparian areas due to constructing and operating Big Stone II’ are related solely to air emissions” in the Prairie Pothole Ecoregion area. The USEPA recommended that the Final EIS expand the section for the Prairie Pothole Ecoregion area to include impacts to wetlands and riparian areas due to construction and maintenance of power lines in that area.

Response: A discussion of the Prairie Pothole Region and the wetlands for the transmission corridors was added to Section 3.4.3.5 in the Final EIS. Impacts to wetlands, including those within the Prairie Pothole Region, have not been quantified because a specific centerline route has not been

selected. Impacts to Prairie Pothole Region wetlands along the transmission line routes in South Dakota and Minnesota would be minimized through the design of the route and avoidance of wetland areas to the extent practicable. Prior to construction of the transmission line, wetlands impacts would be delineated and approval processes followed as described in Section 4.4.2.2 of the Final EIS under the subheading Wetland/Riparian Areas.

Comment F-2c from USFWS and F-3d from USDO: “As we have discussed with project planners, if a route crosses Service-administered wetland easements, poles cannot be placed within any wetlands covered by the terms of the easement. Service easements prohibit draining, burning, leveling, and filling of wetlands. Pole installation would be a form of wetland fill. Wetland easements would not restrict placing poles on uplands sites.”

Response: SMM Bio-3 (see Table 2.2-8 in the Final EIS) indicates wetlands would be avoided to the extent practical. Structure placement would be prohibited within wetlands covered by USFWS-administered wetland easements. Transmission lines would either span these easements or be routed to avoid the wetlands. Although structures can be placed on upland sites, some restrictions would apply if the upland site is a USFWS-administered grassland easement. The Co-owners plan to avoid wetlands to the extent practical and would coordinate with the USFWS on the placement of structures within USFWS-administered grassland easements (i.e. if the MnPUC grants a route that includes new rights-of-way (ROW) through these resources).

Comment F-2g from USFWS and F-3h from USDO: “On all routes, the transmission line right-of-way and structural design should accommodate future restoration of drained wetlands that contain a segment of the line right-of-way. Many agencies and individuals are actively restoring drained wetlands on private and public land across Minnesota. Just as the presence of wetlands should not eliminate the option for line construction, the presence of a line should not eliminate the option for wetland restoration.”

Response: Western recognizes that agencies and individuals are actively restoring drained wetlands in the proposed Project area. In past conversations with the USFWS, restorable wetlands greater than 10 acres in size were of particular interest to the agency. The presence of the transmission line does not preclude agencies or individuals from restoring a wetland under the transmission line. The Co-owners would work with the entity restoring the wetlands to address concerns, if such activities are to occur within the easement for the transmission line. The MnPUC authorized the transmission line route for the Minnesota portion of the proposed Project on January 15, 2009, by approving the Co-owners’ preferred route: Alternative A (Corridor A and Corridor C).

Comment L-1b from YMSWCD: “There are also a number of wetlands that run parallel to this road that may be adversely impacted and the proposed line would need to cross over Spring Creek at several locations.”

Response: Rivers and creeks would be spanned. Placement of transmission line structures would be designed to avoid or minimize impacts to wetlands and riparian areas in accordance with SMM Bio-3.

Comment O-1au from CWA: “What will be the environmental and economic consequences of wetland loss associated with Big Stone II (including lost flood protection, impacts on fishing and hunting revenues, etc.)?”

Response: The construction and operation of the proposed Big Stone II plant would not result in the loss of wetlands. Since there would be no loss of wetlands, there would be no adverse environmental or economic consequences associated with wetland loss. Additionally, with respect to the groundwater areas, all the streams are small and can be spanned, and there are no anticipated losses of wetlands, no

loss of riparian areas, and no degradation or loss of any Federal- or State-protected wetlands as defined by Section 404 of the CWA or other applicable regulations. Prior to construction of the pipelines and electrical distribution system for the wells and the transmission lines, wetlands impacts would be delineated and approval processes followed as described in Section 4.4.2.2 of the Final EIS under the subheading Wetland/Riparian Areas. With implementation of SMM Bio-3, wetlands would be avoided to the extent practical and impacts would be minimized. Therefore, no economic consequences of concern are anticipated relative to wetland issues. Refer to Section 4.4.2 of the Final EIS under the subheading Wetland/Riparian Areas for detailed discussion of wetland issues associated with the proposed Project.

Comment SF-1j from USEPA: “Ground water pumping could potentially alter the hydrologic regime of 24 wetland basins totaling 77.4 acres. The supplemental DEIS states that these wetlands would not be lost or permanently dewatered by ground water pumping. However the supplemental DEIS includes no analysis or discussion about impacts to ecosystems or aquatic communities that may result from a decrease in the frequency and degree of wetness in these wetlands. The Final EIS should discuss such impacts.”

Response: The potential effects of groundwater use on wetlands are discussed under the Groundwater Areas subsection within the Wetland/Riparian Areas portion of Section 4.4.2.1. Modeling of the groundwater use on wetlands that are in contact with the aquifer (non-perched wetlands) indicates that the actual response to a reduced groundwater input would be minor, and would not be observable in most years. This is because the principal source of water to wetlands in the Big Stone area is surface runoff. The contribution of groundwater to non-perched wetlands is estimated to be less than two percent of wetland hydrology. Such a small reduction of an input to a wetland’s water regime would not result in a shift in the period of saturation or inundation.

4.10 Mitigation Measures for Biological Resources

4.10.1 General Biological Mitigation Measures

Comment F-2i from USFWS: “Long-term maintenance issues associated with transmission line right-of-ways should be addressed as having potential for adverse impacts on habitat and wildlife. Suggested measures include: a) avoid clearing vegetation during the avian breeding season (May - July) or postpone maintenance until late summer, fall or winter; b) apply Best Management Practices when working in riparian zones (e.g. replacing vegetation by reseeding and/or replanting elsewhere, avoiding sedimentation, and avoiding stream work during fish spawning season. Other minimization measures may be appropriate as determined through future discussion of maintenance activities).”

Response: Transmission line maintenance and repair must be conducted in compliance with North American Electric Reliability Council (NERC) transmission system reliability requirements. Weather and field conditions play a major role in determining when maintenance can occur. Habitat damaged during maintenance would be repaired or compensation would be provided based on the preference of the affected landowner or land-management agency. In accordance with SMM Bio-10, the Avian Protection Plan to be developed by the Co-owners would identify timeframes for routine maintenance to avoid the nesting season of breeding birds.

Comment F-2m from USFWS: “Bio-1 – Surveys are mentioned but nothing is said about what will be done with survey information. We suggest including information about appropriate permits or consulting further with agencies. This is similarly mentioned in other areas of document.”

Response: As suggested in the comment, Bio-1 has been revised to state that the survey results would be used for developing action plans and for consulting further with agencies on mitigation requirements.

Comment F-2t from USFWS and F-3k from USDO: “Page 2-32. Dust control measures will be applied during road construction. We recommend inclusion of measures to avoid environmental impact (e.g. use of non-toxic substances for dust control and ensuring adequate buffer zones between application site and wetland areas). If pumping water from streams/lakes, measures should be taken to avoid extraction during low water levels, particularly during primary spawning season (April, May, June), as well as implementing measures to preclude entrainment of fish/eggs in pumping apparatus.”

Response: The Co-owners do not anticipate significant construction of roadways for the transmission lines. In general, construction equipment would use the ROW for project access, which would minimize construction of access roads. If dust control measures become necessary, non-toxic materials would be used. Access roads would avoid wetlands, and adjacent wetlands would be protected by Best Management Practices (BMPs), such as hay bales or silt fences. Water appropriation from streams or lakes for use in dust control is not anticipated for the proposed Project. However, if it becomes necessary the Co-owners would minimize water use during low water levels and spawning seasons as feasible, and would comply with any provisions laid out in the applicable National Pollutant Discharge Elimination Protection (NPDES) stormwater construction permits and/or water use permits.

Comment F-2ab from USFWS: “Page 4.4-11. The fifth paragraph mentions implementation of the SMM’s and additional mitigation. Clarification is needed regarding the term ‘additional mitigation.’”

Response: As described in Section 4.0 of the Final EIS, additional mitigation measures (if adopted) are provided, when needed to reduce impacts beyond the level obtained by the SMM. These additional mitigation measures would be reviewed by Western and a decision would be made as to which ones should be implemented and incorporated into the Record of Decision. Any additional mitigation adopted by Western in the Record of Decision will be addressed and made available in a Mitigation Action Plan for the proposed Project. Additional mitigation measures have been listed in Table 2.6-2 of the Final EIS.

Comment F-2aj from USFWS: “Page 4.4-31. WL-1 involves wildlife surveys which are mentioned as a means of mitigation. There should be an explanation of how the surveys will be used to attain appropriate mitigation.”

Response: Results from ground-nesting bird surveys stipulated under WL-1 would be used for permit application purposes and/or for additional consultation with appropriate agencies. It is anticipated that the process of applying for additional permits or entering into further consultation would result in a decision, based on the survey data, on the need for mitigation, as well as an agreement on what constitutes appropriate mitigation.

4.10.2 Vegetation Mitigation Measures

Comment Number	Name	Comment Summary
DEIS Comments		
F-2p	USFWS	“Bio-5- The document needs to address invasive species control on disturbed lands that are identified in a condition to facilitate natural revegetation.”
F-2q	USFWS	“Bio 9- Further information is needed to determine how shrubs will be reestablished.”
F-2af	USFWS	“4.4-20. The last paragraph states that non agricultural lands will be “reclaimed and reseeded, where appropriate.” Further clarification is needed to understand what is meant by “where appropriate.”
PH3-8f	Public Hearing Granite Falls, MN Patrick Moore	Regardless of mitigation efforts, the disturbance of native plant communities often introduces long-term or permanent change to the local plant community.
SDEIS Comments		
No comments received.		

Response: Several SMMs and additional mitigation measures are designed to reduce impacts to vegetation during construction activities associated with the proposed Project. Western has reviewed these mitigation proposals and believes that the development of an action plan in consultation with natural resource agencies as proposed would identify necessary mitigation to minimize impacts to vegetation.

Western has deleted the phrase “where appropriate” from the Vegetation subsection of Section 4.4.2.2. Nevertheless, in accordance with SMM Bio-5, revegetation of short-term impacts to vegetation communities would use native seed mixtures. Most of the revegetation efforts for the proposed plant site would occur in areas that are previously disturbed, non-native dominated vegetation communities. Revegetation with native grasses would improve the ecological quality of these areas. Additional mitigation measure V-1 would provide for an Integrated Weed Management Plan to control and manage existing noxious weeds and to prevent their spread into revegetated areas (see the Vegetation subheading in Section 4.4.2.1 in the Final EIS). Also, see Section 4.11 in this comment response document for further information on noxious weed management along the proposed transmission lines. The methods for re-establishing shrubs, as addressed in SMMs Bio-4 and Bio-9, would be determined in consultation with the affected landowner or land management agency.

Due to the elimination of the 450-acre make-up water storage pond, the impacts to vegetation from construction of the proposed plant have been reduced from 96.4 acres (as described in the Draft EIS) to a long-term impact of 4.4 acres of forest and prairie vegetation. Long-term impacts to wetland/riparian areas (65.2 acres in the Draft EIS) from construction of the proposed plant have been reduced to zero acres.

4.10.3 Wetland Mitigation Measures

Comment F-2n from USFWS: “Bio-3 – Clarification is needed to determine if all wetland impacts will be mitigated. The Service recommends avoidance, minimization, and replacement of all wetlands (jurisdictional and non-jurisdictional) impacted by the project. A wetland mitigation plan should be developed and made available for agency review.”

Response: SMM Bio-3 was modified in the Draft EIS to include both jurisdictional and non-jurisdictional wetlands. In addition, impacts to wetlands that could not be avoided would be minimized or mitigated. Wetland impacts are discussed in the Section 4.4.2.1 (under the Wetlands/Riparian Areas subsection, Big Stone II Plant Site portion) of the Final EIS. The proposed Project would not result in the loss of wetlands at the proposed plant site. All the streams within the groundwater areas are small and can be spanned, and there are no anticipated losses of wetlands from the pipelines and electrical distribution system for the wells. Therefore, there is no need for further agency review or development of a mitigation plan for this component of the proposed Project. Wetland impacts associated with the transmission line cannot be determined at this time. Prior to their construction, transmission line wetland impacts would be delineated and the approval processes followed as described in Section 4.4.2.2 in the Final EIS under the subheading Wetland/Riparian Areas.

Comment F-2o from USFWS: “Bio-4 – Mitigation of impacts to riparian areas should address replanting shrubs/trees, reseeding with grasses/forbs/wetland plants, location of mitigation areas and replacement ratios.”

Response: SMM Bio-3 includes mitigation of riparian areas. SMM Bio-5 addresses repair and reseeding of disturbed areas. Replacement ratios would be identified during the CWA Section 404 process.

Comment F-2ae from USFWS: “Page 4.4-19. All riparian areas expected to be impacted should be included in a mitigation plan. Riverine and associated riparian areas are priority resources for the Service.”

Response: Riparian areas at the proposed plant site, groundwater areas, and along the transmission lines would be avoided to the extent practical. If riparian areas cannot be avoided, mitigation would be developed in accordance with SMM Bio-3.

Comment O-1v from CWA: Commenter expressed concern with the loss of 56.5 acres of jurisdictional wetlands at the proposed plant site, insufficiency of mitigation analysis of wetland impacts, and coordination with USACE permitting process.

Response: With the elimination of the 450-acre make-up water storage pond (whose construction would have impacted 65 acres of wetlands), the proposed Project would not result in the loss of wetlands at the proposed plant site. There is no need to continue to coordinate with the USACE regarding wetlands at the proposed plant site.

Comment O-2j from Sierra Club: The commenter states that the Draft EIS did not comply with regulations to adequately analyze mitigation options associated with displacement of wetlands associated with construction of the make-up water storage pond.

Response: The make-up storage pond has been eliminated and is not included in the proposed Project.

Comment I-28c from Roy Smith: “In addition, the DEIS does not mitigate the impact transmission lines will have on wetlands.”

Response: See the Response to Comments in Section 4.9.2 above.

Comment FL-8b from Sierra Club: “In addition, the DEIS does not mitigate the impact transmission lines will have on wetlands, and less damaging alternatives.”

Response: See the Response to Comments in Section 4.9.2 above.

Comment SF-2b from USDOJ: “SDEIS indicates that the hydrology of a number of wetlands could be modified by the lowering of the groundwater table during periods of groundwater pumping. Additional discussion of these potential impacts should be provided in the Final EIS, and a commitment should be made to provide appropriate mitigation to offset these impacts. Although most of these wetlands are privately owned, the USFWS does have property interests in some of the wetlands in the vicinity of, or within, the area predicted to be impacted by groundwater pumping.”

Response: Final EIS Figure 4.4-1 shows the distribution of perched and non-perched wetlands within the modeled drawdown areas for the proposed Project and Alternative 3. In summary, there are no USFWS land interests within the Alternative 3 modeled drawdown area. However, as shown by Figure 4.4-1, there is a USFWS wetland easement occupying most of the northern half of Section 16, Township 12 North, Range 47 West. As discussed in Section 4.4.2.1, groundwater appropriations would not result in the loss of wetland area or function, or shifts in wetland water regimes within this easement or in any USFWS land interests. Also see response for SF-2d below.

Comment SF-2d from USDOJ: “The Final EIS should provide an estimate of the number of years in which groundwater pumping is likely to be needed to provide back-up water supply. Based on this estimate, a calculation should be made of the acres of wetlands impacted on an annualized basis, irrespective of the jurisdictional status of the wetlands. A compensatory mitigation plan should be developed to offset these impacts, and the plan should be discussed in the Final EIS. A commitment to implement the plan should be provided in the Record of Decision for the project.”

Response: This estimate has been added to the Final EIS. Groundwater would be required in 66 years out of the 70-year period modeled. Projected water supply use and the estimated share of surface water and groundwater use over the life of the proposed Project are discussed in Section 2.2.1.4 of the Final EIS. Wetland impacts are discussed in the “Wetland/Riparian Areas” (Big Stone II Plant Site) portion of Section 4.4.2.1 of the Final EIS. There would be no wetland impacts associated with the construction or operation of the proposed plant or groundwater wells. This is because there is no direct filling of wetlands at the proposed plant or well locations. Moreover, analysis of groundwater contribution to non-perched wetlands in the drawdown area indicates that groundwater contribution is insufficient to exert an influence on the water regime of non-perched wetlands. Hence, periodic use of groundwater would not result in impacts to non-perched wetlands. As a result, there is no identified need for a compensatory mitigation plan to offset wetland impacts.

Comment SF-2j from USDOJ: “The Department is concerned that the proposed groundwater pumping during drought periods could adversely impact wetlands in which the USFWS has property interests. The Western Area Power Administration and the project Co-owners should coordinate with the USFWS to discuss any mitigation measures and/or monitoring that would be necessary to ensure that the interests of the USFWS are adequately protected. A compensatory mitigation plan should be developed to offset impacts to privately owned wetlands.”

Response: See the response for SF-2b above.

4.11 Other Biological Resources Comments

Comment I-20e from Gil Lanners: “And the poles are a weed source that infects the nearby area.”

Response: The introduction of noxious weeds and other undesirable plant species within disturbed areas of the proposed corridors and substation expansions could occur during construction from off-road driving, unwashed vehicles and improper maintenance of temporary construction laydown and parking areas. Noxious weeds could also be introduced through transferring topsoil, construction materials and/or soil stabilizing materials with noxious weeds into a previously uninfested area.

Noxious species are generally fast-growing and could displace native species and inhibit the establishment of native grass, forb and shrub species in areas beyond the construction areas. As noted in Section 4.4.2.1 of the Final EIS, implementing additional mitigation measure V-1 (preparation and implementation of an Integrated Weed Management Plan to prevent, control and manage noxious and invasive weeds during construction and maintenance activities for the proposed Project) would address noxious weed introduction and there would be no residual short- or long-term impacts associated with introducing or spreading noxious weeds, if adopted in the Record of Decision.

5.0 Cultural Resources

There are no comments relating to cultural resources.

6.0 Land Use

6.1 Land Use Planning

6.1.1 Easement Compensation and Loss of Farming Revenue

Comment Number	Name	Comment Summary
DEIS Comments		
I-20a	Gil Lanners	“My Dad signed the easement for the construction of the present line about 50 years ago for \$100.0 compensation, per setting. It is all insult to your and my intelligence to consider that it be fair and equitable compensation.”
I-20b	Gil Lanners	“My calculation is that each year, each setting, results in a \$7. to \$9. direct loss, due to the land area not being farmed. In addition that figure should be doubled due to farming around the poles and doubling up on seed population, fertilizer and chemical application. Typically, because of the doubling of crop inputs and the difficulty in cultivating the curved rows, that area is lost as well.”
I-20j	Gil Lanners	“Finally, the matter of compensation should be revisited. Form my above comments. I am sure you understand my position on the matter. Please be advised that the 5th amendment and the laws of eminent domain do not allow for the taking of private property without fair and just compensation. I think compensation should be paid annually. And periodically adjusted for inflation and other circumstances that may arise.”
I-20o	Gil Lanners	“If you consider this loss of agricultural revenue for generations to come, it is academic that power lines should be buried when crossing prime agricultural land. Power companies will argue that is not feasible. I highly dispute their rational. They only see their side of the situation. Also, the power companies have means of recouping their expenditures, farmers do not.”
SDEIS Comments		
No comments received		

Response: Laws and regulations have changed significantly over the last 50 years. Easement compensation, which has adjusted over time in response to the general inflation of the economy, is based on fair market value for the life of the easement. Per SMM Land-9, right-of-way easements for

the transmission lines would be purchased through negotiations with each landowner affected by the proposed Project. Payment would consider the full value for crop damages or other property damage during construction or maintenance of the transmission lines.

6.1.2 Recreation

Comment Number	Name	Comment Summary
DEIS Comments		
O-1u	CWA	“How will declining waterfowl populations affect hunters?”
O-1au	CWA	“What will be the environmental and economic consequences of wetland loss associated with Big Stone II (including lost flood protection, impacts on fishing and hunting revenues, etc.)?”
I-10a	Susan Granger	Commenter expresses concern about the project’s potential effect on Minnesota water quality. Her opinion is that most of the mercury that is accumulating in Minnesota rivers and lakes is from air-borne emissions, and most of that is from coal-burning power plants. Most of the lakes and rivers are ‘mercury impaired’ posing risks to people, aquatic life and recreation.
FL-4g	CWA Form Letter Timothy DenHerder	“Mercury pollution is a serious problem for anyone who eats fish, in addition to the wildlife (especially birds) that make living in Minnesota attractive and support a strong tourism and outdoor recreation industry, providing over 300,000 jobs in Minnesota alone.”
PH3-5h	Public Hearing Granite Falls, MN Duane Ninneman	“We very concerned about what the Big Stone coal plants are doing to slowly destroy the recreation and tourism economy that has been established for around Lac qui Parle Lake and the Lac qui Parle Wildlife Management area.”
PH3-10g	Public Hearing Granite Falls, MN Duane Ninneman	“We are very concerned about what the Big Stone Coal Plants are doing to slowly destroy the recreation and tourism economy that has been established for generations around Lac qui Parle Lake and Lac qui Parle Wildlife management area.”
SDEIS Comments		
SI-8b	Joe Makepeace	“This includes our air that we breath, water that we drink and use for recreation, and soil that produces our food.” [Western believes comment refers to concern about chemicals, carbon dioxide, and mercury in the environment.]
SFL-32b	Sierra Club Form Letter for SDEIS	“The vast quantities of water that would be required from groundwater and Big Stone Lake for operating Big Stone II are unacceptable. Tapping this water resource would affect the agricultural community, tourism and recreation, wildlife, and the very water people in the area drink.”

Response: The commenters provided a variety of comments which expressed concern for the negative effects the proposed Project may have on recreation and in turn, tourism in South Dakota and Minnesota. Because of changes to the proposed Project, Western updated Section 4.6.2.1 of the Final EIS under the Land Use Planning and Recreation subheadings.

The existing and proposed plants are zero wastewater discharge facilities (i.e., no plant process wastewaters are allowed to be discharged to waters of the United States), so wastewater would not affect water quality conditions or alter habitat for aquatic species in the Whetstone River. Other mitigation measures (discussion in Section 4.2.2.1 of the Final EIS) would prevent deterioration of water quality, which in turn affects the recreation attributes of the area. Additional mitigation measure

W-1 was added by Western to minimize the adverse impacts from spills. Water quality issues associated with mercury are also discussed in responses to comments in Sections 1.2.1 and 1.2.5 above and in the Mercury Response Paper (Response Paper A, Volume II).

With the elimination of the 450-acre make-up water storage pond, no loss of wetlands is anticipated at the proposed plant site. In accordance with SMM Bio-3 (see Table 2.2-8 in the Final EIS), construction of transmission structures would avoid wetland and riparian areas to the extent practical. If wetland or riparian areas are unavoidable, impacts would be minimized or mitigated in accordance with USACE requirements (see additional discussion in Section 4.9 of this Volume II). In accordance with several of the SMMs, species of concern would be protected in accordance with approved protocols (Bio-1, Bio-2, and Bio-10); care would be used to preserve and repair the natural landscape and vegetation (Bio-4, Bio-5, Bio-6, and Bio-8, and Bio-9); and other mitigation protocols would minimize impacts to land (Land-1 through Land-10).

6.2 Agricultural Practices and Prime and Unique Farmland

6.2.1 Farming Issues Related to Location of Transmission Structures

Comment Number	Name	Comment Summary
DEIS Comments		
I-20d	Gil Lanners	“In addition, we have had thousands of dollars of damage to farm machinery from striking the power line poles.”
I-20i	Gil Lanners	“If you insist on the overhead line, please, get rid of the double pole structure and go to a single pole, set exactly on the property lines. The present structures are set about 8 to 10 feet south of the property lines, adding to the aggravation.”
I-20o	Gil Lanners	“If you consider this loss of agricultural revenue for generations to come, it is academic that power lines should be buried when crossing prime agricultural land. Power companies will argue that is not feasible. I highly dispute their rational. They only see their side of the situation. Also, the power companies have means of recouping their expenditures, farmers do not.”
I-20r	Gil Lanners	“As a landowner and farmer in Omro township in Yellow Medicine County, I have farmed under the Otter Tail Power company power line for my whole farming career. I have some concerns with the aggravations of farming under this power line. The grief of turning machinery out for each power line setting for each aspect of farming; planting, cultivating spraying, combining and the tillage work, along with the overlapping of farm chemicals under each tower.”
I-20z	Gil Lanners	“I would personally like to see the power line be constructed in the county road #3 right of way, east of St. Leo. The proposed alternative route should have the power line settings be in the county road ditch, where the setting would not bother anyone, verses in prime farmland.”
PH3-9d	Public Hearing Granite Falls, MN Gary Johnson	“Also in moving the line down there, at the last public meeting we held earlier this spring, the majority of the concerns were, were mercury and carbon dioxide and some of the constituents that we have down there didn't get a chance to voice their concerns.”
SDEIS Comments – No comments received.		

Response: The commenters expressed concern for the impacts of transmission towers on farming operations. In summary, Western is aware of the impact transmission towers have on farming operations. However, the states of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. Nevertheless, per SMM Land-9, rights-of-way for the transmission lines would be purchased through negotiations with each landowner affected by the proposed Project. Payment would consider the full value for crop damages or other property damage during construction or maintenance of the transmission lines. Issues associated with burial of transmission lines are discussed below in Section 6.2.3.

6.2.2 Electrical Interference

Comment Number	Name	Comment Summary
DEIS Comments		
I-20c	Gil Lanners	“Because of the electric field near the present 115000 kv line the use of GPS• WAAS, for electronic guidance of farm machinery, is rendered useless. I project that this very significant problem may very well, in the future, because of agricultural technology advances, render the farm land near the power line, valueless for agricultural production.”
I-20n	Gil Lanners	“I am very concerned about the electro magnetic field produced in the power line area. Presently, the 115 kv line renders useless the satellite produced GPS-WAAS signal, for electronic guidance of farm machinery. It is basic physics that as the voltage of the line is increased, the magnetic field of influence will increase exponentially. It is reasonable to assume that in the, not so distant future, farm machinery will operate robotically from electronic signals. At which time, the land within the area of influence will become useless for agricultural crop production. Modern farm tractors, combines, sprayers, etc. have numerous electronic controllers incorporated into their manufacture. There are controllers for the engine, transmission, hydraulics and more, that operate on very minimal voltages. I understand that a 345 kv overhead line will drive these controllers amuck. Can you imagine a 500-1000 horsepower tractor or combine on the loose!”
I-20p	Gil Lanners	“If it evolves that an overhead line will be built. I strongly believe that the alternate route from Canby to Granite Falls would be the best choice. It would avoid the wildlife areas and problems mentioned in the above paragraphs. And if it was build [built] in the highway #3 right of way, the structures would physically not interfere with farming operations. And there would be fewer agricultural acres involved in the electronic interference.”
I-20q	Gil Lanners	The commenter expressed more concerns regarding how the power line would affect agricultural electronic guidance signals.
I-20s	Gil Lanners	“How does this power line going to affect the new electronics within the farm equipment? What effects will it have on the new electronic technologies of the future? Tractors, combines, sprayers, two-way radios, satellite dishes. G.P.S.), internet and other electronics are surely in the infancy of technology. Are you willing to improve the power lines in a few years when frequency emissions renders new technology inoperable? Wi-fi laptops currently lose their connection when within this magnetic field, Won't you be taking a step backwards by not allowing agriculture to keep up with technology?”

Comment Number	Name	Comment Summary
I-20t	Gil Lanners	“I know of a neighbor who is a ham radio operator who claims problems), and that is with the current 115 kv of power. What will happen at 230 kv of power? The settings are being engineered for 345 kv of power, can you image what problems this may create?”
SDEIS Comments		
No comments received.		

Response: One commenter expressed concern that electrical interference would cause problems for his global-positioning-system (GPS) guided farm equipment. Western has added discussion of this issue in Section 4.6.2.2 of the Final EIS (under the subheading Agricultural Practices and Prime and Unique Farmland). In summary, differential GPS (dGPS) systems are available for precision farming that are similar to FAA’s WAAS, but are considerably more accurate due to a number of techniques that correct GPS signal errors and improve its receiver-end processing. The commenter does not specify the age of his GPS system; however, information that we reviewed indicates that fewer problems are apparent with technically improved systems, such as dGPS.

6.2.3 Underground Transmission

Comment Number	Name	Comment Summary
DEIS Comments		
I-20o	Gil Lanners	“If you consider this loss of agricultural revenue for generations to come, it is academic that power lines should be buried when crossing prime agricultural land. Power companies will argue that is not feasible. I highly dispute their rational. They only see their side of the situation. Also, the power companies have means of recouping their expenditures, farmers do not.”
SDEIS Comments		
No comments received.		

Response: Underground transmission (discussed in Section 2.5.4 of the Final EIS) was eliminated from detailed consideration by the Co-owners, because it is impracticable at higher voltages, costly to install and difficult to maintain. The use of underground transmission is typically limited to a maximum of 100-kV where underground installation can be accomplished without capacity limitations due to heat generated by the underground cables. Such systems are typically short distance and installed to mitigate overriding factors that warrant their application (e.g., underwater interconnections between land masses). Therefore, the Co-owners concluded that underground transmission was not practical.

7.0 Infrastructure, Public Health and Safety, and Waste Management

7.1 Public Health and Safety

7.1.1 Analysis of Public Health Impacts (General)

Comment Number	Name	Comment Summary
DEIS Comments		
O-4j	MnRES	“Both the issue of global climate change and mercury deposition raised above have profound implications for public health and for the regional economy that are either ignored or insufficiently addressed in the DEIS - as are other externalities.”
O-4s	MnRES	“... externalities related to any and all other ‘backside’ health impacts are simply ignored. A rather conservative estimate using established externalities values for new coal-fired power plants would suggest that a billion-dollar coal-plant project - even when fitted with modern pollution controls - is, over the probable half-century lifetime of the plant, likely to impose an additional dollar cost on society of at least half again that much via the health-impairing, often lethal impact of fine particulates and other pollutants (see e.g. Abt Associates, 2002; Burtraw & Toman, 1997) - even if one were shortsighted enough to set aside the extraordinary costs, and risks, to public health stemming from carbon dioxide emissions and global warming.”
I-1c	Lori Askelin	“It doesn’t adequately take into account the implications of the expansion of the coal plant and the impact on human health.”
I-1e	Lori Askelin	“I strongly oppose the expansion of this new coal plant, and transmission lines to serve it. The WAPA DEIS should reflect the extensive health and environmental damage Big Stone II will create, and propose alternatives to its construction.”
I-17g	Jeanne Koster	“The treatment of mercury emissions on pages 4 8 through 4 10 raises serious but unresolved regulatory and economic issues. Furthermore, it overlooks certain issues with potentially grave public health consequences. It also overlooks an obligation to consider alternatives that can forestall the regulatory problem and may forestall the economic problem.”
I-21a	Terry J. Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”
I-22a	Ellen Mamer	“I am concerned that the proposed expansion of the Big Stone II coal plant will negatively affect our environment and our health in known and unknown ways. Please delve deeper into environmental and health aspects of this coal plant before the final EIS.”
I-28h	Roy Smith	“I strongly oppose the expansion of this new coal plant unless the EIS truly addresses the extensive health and environmental damage Big Stone II will cause unless the concerns stated herein are addressed.”

Comment Number	Name	Comment Summary
FL-1f	CWA Form Letter	“... The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-8g	Sierra Club Form Letter	“The WAPA DEIS should reflect the extensive health and environmental damage Big Stone II will create, and propose alternatives to its construction.”
SDEIS Comments		
No comments received.		

Response: The comments primarily expressed concern with the effects of releasing atmospheric pollutants into the environment and the impacts upon public health. Some comments expressed concerns that the Draft EIS did not address the health effects of the proposed Project. Based on the comments in this subcategory, the introduction in Section 3.1.1 (under the subheading Greenhouse Gas Emissions and Climate Change) and the analysis in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS have been expanded to include GHG emissions. Additional details regarding analysis of mercury emissions also have been provided in a Mercury Response Paper (Response Paper A, Volume II), including discussion of mercury emissions controls. Tables have been updated describing the projected emissions of the proposed plant in Section 4.1.2.1 of the Final EIS. As discussed below, numerous laws and regulations are intended to protect human health associated with atmospheric pollution sources.

As discussed in Section 4.1.1 of the Final EIS, two types of national air quality standards are established by the Federal Clean Air Act and its amendments. Primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation and buildings. Results of the air quality analysis for the proposed Project show that constructing and operating the proposed Big Stone II plant, transmission lines and substation modifications would not contribute to or cause an NAAQS or PSD increment thresholds to be exceeded.

Through the use of various types of emission controls for NO_x and SO₂, there would be no increase in NO_x or SO₂ emissions from the site as a result of the operation of the proposed Big Stone II plant. Detailed information about the emission controls for NO_x, SO₂ and other types of emissions are discussed in Section 4.1.2.1 under the subheading Plant Emissions and Air Quality Impacts Assessment. Table 4.1-2 provides a summary of the Project emissions for both the existing and proposed plants. Particulate emissions from the proposed Project would be controlled with a conventional jet-pulse fabric filter (baghouse) followed by a WFGD system. Although particulate matter would increase, the air dispersion modeling shows there would be no exceedances of the PSD increment or the NAAQS for PM₁₀ and PM_{2.5} with operation of the proposed Big Stone II plant. The WFGD system would control SO₂ emissions. Exhaust from the existing and proposed plants would be combined and ducted to the WFGD system that is common to both boilers.

Actual emissions of mercury from the existing plant in 2004 were 189.6 lb. As discussed in Section 4.1.2.1 of the Final EIS, the commitment of the Co-owners in the Settlement Agreement with the MnDOC is to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (a decrease of approximately 57 percent over the current emission rate). Refer to Section 4.1.2.1 of the Final EIS and the Mercury Response Paper (Response Paper A, Volume II) for additional details regarding mercury. See Section 1.5.2 of the Final EIS for some of the key elements of the Settlement Agreement. See Appendix K, Volume III for the Settlement Agreement.

The SDBME is the regulatory agency responsible for issuing a PSD permit for the proposed plant. During the permit review process, the SDDENR determined what emissions would be regulated from the proposed plant and specific control technologies and other conditions for proposed plant operations. The Co-owners would be required to comply with the limits and operating conditions of their air permit, and SDDENR would monitor emissions for the proposed plant and take regulatory action if conditions are not met. As such, any short-term and long-term residual impacts would meet regulatory requirements and would be less than significant.

In summary, even with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, compliance with the conditions of the air permit for the proposed plant, and compliance with NAAQS, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment.

Additionally, the Center for Disease Control (CDC) submitted, “the power plant project will [be] constructed and operated in full compliance with all Federal and state regulations. We understand that both the South Dakota DENR and the Minnesota DNR will issue the necessary environmental permits and will be conducting appropriate monitoring activities to ensure compliance. If the proposed mitigation measures are followed, there should be very minimal effect on human health.”

One comment stated, “. . . externalities related to any and all other ‘backside’ health impacts are simply ignored. A rather conservative estimate using established externalities values for new coal-fired power plants would suggest that a billion-dollar coal-plant project - even when fitted with modern pollution controls - is, over the probable half-century lifetime of the plant, likely to impose an additional dollar cost on society of at least half again that much via the health-impairing, often lethal impact of fine particulates and other pollutants (see e.g. Abt Associates, 2002; Burtraw & Toman, 1997) - even if one were shortsighted enough to set aside the extraordinary costs, and risks, to public health stemming from carbon dioxide emissions and global warming.” The study by Abt Associates focused on fine particles which are formed when emissions of SO₂ and NO_x react with ammonia to form particles less than 2.5 microns in diameter. According to the study, power plants were responsible for about two thirds of the SO₂ and one quarter of the NO_x emitted in 2001. The study focused on 41 power plants that emitted more than 40,000 tons of SO₂ and had SO₂ emissions either increase or decrease by less than half the national average between 1990 and 2001. The Burtraw & Towman study focused on the impact of GHG mitigation efforts on conventional pollutants and the associated cost impact. While Western has not conducted a study to assess the health impacts or costs associated with projected emissions from the proposed Big Stone II plant, it is still possible to reasonably assess whether its SO₂ emission would increase or decrease. With the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, and compliance with the conditions of the air permit for the proposed plant, SO₂ emissions from the combined existing

and proposed plants would decrease as a result of the proposed plant being constructed. Since SO₂ emissions from the existing and proposed plant combined would be lower than SO₂ emissions from the existing plant alone, it reasonable to assume the SO₂ impacts in the surrounding area would also decrease. The emission controls for the proposed plant would also include a SCR system for NO_x emission control. With operation of the SCR on the proposed plant, NO_x emissions for the combined plants would not increase above the level emitted by the existing plant alone. The WFGD system for the proposed Big Stone II plant would also be used to reduce emissions from the existing Big Stone plant that did not have SO₂ and NO_x pollution control equipment installed at the time of the Abt Associates study.

7.1.2 General Project-Related Concerns about Health

Comment Number	Name	Comment Summary
DEIS Comments		
T-1c	SWO	“Air Quality will be impacted and will most likely be detrimental to the health & safety of tribal members.”
B-3d	Rose Creek Anglers	“I highly believe that the proposed emission reductions will not be enough to negate current threats to our fisheries and our health?”
B-3f	Rose Creek Anglers	“The EPA has begun to respond to this growing threat to our health and has mandated that coal fired power plants reduce their mercury emissions by 70% by the year 2017.”
B-3p	Rose Creek Anglers	“We need to put the health of our children ahead of an energy source which is cheap to produce in the short run but tremendously expensive in the long run when we have the wisdom to consider all the truly expensive external costs associated with its production.”
I-12b	Thomas Hillenbrand	“Bringing another coal plant will be detrimental to health and safety to local people while people in other states will benefit from electricity generated. SD does not need any more plants for its own needs.”
I-13a	Patrick Johnson	“I am writing to comment on the WAPA Draft Environmental Impact Statement for the proposed Big Stone II coal plant expansion. I am deeply concerned about this proposed expansion and how it will affect Minnesota’s environment, and our health.”
I-27a	Elizabeth Smith	“The environmental and related health costs of a coal fired plant are significant, especially for those like myself who have asthma.”
I-29g	Gerald L. Steele	“Would it not be better to protect our population from those harmful air and water pollutants? I think so.”
I-29j	Gerald L. Steele	“But we need to do it cleanly without fear of harm to coming generations of children and adults.”
FL-1f	CWA Form Letter	“. . . The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”

Comment Number	Name	Comment Summary
FL-16b	Sierra Club Postcard	“Cost- The DEIS does not consider the full range of costs related to future operation and expansion of a coal plant including the rising cost of coal and its transport, the likely future regulation of carbon dioxide, and the significant social costs such as a recently estimated \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Coal plants contribute significantly to such diseases.”
FL-16c	Sierra Club Postcard	“The Mercury and Environmental Justice- The DEIS does not adequately take into account the Environmental Justice implications of the expansion of the coal plant and the impact on ... and the impact on human health, particularly for women, children, and subsistence fishers. For examples, the disproportionate impact on Native American families that live in proximity to the plant, and consume a large amount of fish.”
PH3-7e	Public Hearing Granite Falls, MN Delores Miller	“Like mercury has not been addressed like it should be, as it was stated in this last comment up here. And that is one of my top priorities as far as health of children and the unborn babies and of the elderly, and the carbon dioxide, the asthma problems and all of these other things that come up. We need the coal power, but we also need an alternative.”
SDEIS Comments		
SI-23b	John Sens	“Building a new coal plant is a step backwards, as it will be bad for the health of the area, it will pollute, and it contributes to global warming. Why should we use this technology when newer technologies that will be cheaper in the long run are available.”
SFL-39a	Sierra Club Form Letter for SDEIS Ian Harding	“Think of HOW MANY MORE CASES OF THE MISERY OF ASTHMA AND POOR HEALTH this proposed coal plant will cause?”

Response: The comments in this subcategory related the potential for future impacts to public health to the construction of the proposed Big Stone II plant. Please see Response to Comments in Section 7.1.1, above.

7.1.3 Public Health Impacts and their Costs due to CO₂ and Mercury Emissions

Comment Number	Name	Comment Summary
DEIS Comments		
O-1ax	CWA	“What will be the widespread impact on human health from Big Stone's mercury emissions?”
I-2c	Lois Braun	The commenter notes that the health costs of coal burning are astronomical. Every year Minnesota alone spends \$303 million on neurobehavioral disorders and \$30.6 million on asthma in Minnesotan children. “Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses.”

Comment Number	Name	Comment Summary
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado . . .”
I-11b	Merle Green	“Financial cost of using coal is increasing as are health and environmental cost. Mercury and other matter from emissions contribute significantly to nervous system and respiratory problems.”
I-12c	Thomas Hillenbrand	“Let's try to make this an environmental issue rather than an economic one. Health over economic prosperity. The mercury and carbon dioxide emissions for these plants are very serious health issues for local and global residents. I would like to ask the PUC to go slowly and to seriously consider the concerns of the local citizens who live in the immediate area.”
I-21a	Terry J. Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”
I-28a	Roy Smith	“At age 73, I've seen the transformation of our atmosphere into a sewer for short-term economic gain. We just can't continue "more of the same." It's not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO ₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates.”
I-28e	Roy Smith	“. . .social costs are significant: a recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from this plant will contribute significantly to these illnesses.”
I-30b	Gregory Stricherz	“When coal is burned, it becomes one of the worst dispersers of mercury. When that mercury is released into the atmosphere, it pollutes lakes making the fish from those lakes dangerous to eat. The mercury is also borne for long distances in the air and can cause serious bodily harm when it is inhaled.”
FL-1f	CWA Form Letter	“. . . The Environmental Impact Statement did not address the contribution that the proposed coal plant's mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-8c	Sierra Club Form Letter	The commenter expressed concern that the Draft EIS did not consider the full range of costs related to future operation and expansion of a coal plant, including mercury and particulate matter from coal plant emissions contribution to neurobehavioral disorders and asthma in Minnesota children.

Comment Number	Name	Comment Summary
FL-16d	Sierra Club Postcard	“Mercury from coal plant emissions contaminate fish tissue and cause neurobehavioral disorders. The DEIS ignores recent studies in Massachusetts, Ohio, Florida, and the Great Lakes showing that local sources of mercury impact local water bodies to a greater extent than previously known. Minnesota recently passed one of the strongest mercury reduction laws in the country. Transmission lines for a new dirty coal plant just over our border destroys the progress of bi-partisan leadership in setting new standards for mercury reduction in Minnesota.”
PH1-4a	Public Hearing Big Stone City, SD Delores Miller	“ . . . I didn't see anything mentioned as the mercury, about the mercury pollution and how it affects the health of the people involved. And I thought to myself, all these other issues were addressed, the birds, the land. Didn't mention the lakes. Just all kinds of issues, but nothing about how it affects our health and how our children and grandchildren are going to be affected. And it kind of tells me that it's going to be swept under the rug, because there are issues that need to be addressed.”
PH1-7e	Public Hearing Big Stone City, SD Mary Jo Stueve	“When it's released into the air, it settles downwind of the power plants where it contaminates lakes, rivers, and the fish we eat. Exposure to mercury pollution is especially harmful to women of child-bearing age, fetuses, and children, because it interferes with the development of the nervous system and leads to neurological problems. Mercury exposure costs billions of dollars each year due to reductions in IQ, poverty, low-weight birth, welfare recipients, lost education and opportunity, and special education costs. A recent Mount Sinai Medical School study quantified the annual economic impacts of mercury exposure at an estimated \$1.3 billion. And this cost is attributable to U.S. power plants alone.”
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	<p>Commenter states that health concerns include :</p> <ol style="list-style-type: none"> 1) Harm to women of child bearing age, fetuses, and children due to mercury pollution; leads to neurological problems. 2) Low birth weight due to mercury exposure; included in the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for mercury so any additional mercury is biologically significant.
PH4-1e	Public Hearing Benson, MN Cesia Kearns	“And we're keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that's kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
PH4-6g	Public Hearing Benson, MN Andrew Falk	“ . . . One of the most interesting statistics I heard was one tablespoon of mercury will pollute 40 acres of lake. It will make it so all the fish in that are deemed unsafe for human consumption. We're talking about 189 pounds of mercury per year. The next year. The next year. The next year. I'm not sure exactly what the life expectancy of this plant is. I'm assuming it's close 20 to 40 years. But how much of mercury are we willing to put in this environment, are we willing to subject our children and families to? It just seems that these questions have not been adequately addressed in this EIS.”

Comment Number	Name	Comment Summary
SDEIS Comments		
SFL-54a	Bob Peterson	“Mercury can do neurological damage.”

Response: The comments expressed concern that impacts to human health and health care costs would increase, with much of the increase associated with emissions of CO₂ and mercury from the proposed plant. Please see Response to Comments in Sections 1.1.9 and 1.1.10 regarding CO₂ and Response to Comments regarding mercury in Sections 1.2.3, 1.2.4, 1.2.5, and 7.1.1, above. Also, please refer to the Mercury Response Paper (Response Paper A, Volume II) for additional details regarding mercury.

7.1.4 Public Health Impacts and their Costs due to Other Emissions (e.g., SO₂, NO_x, PM)

Comment Number	Name	Comment Summary
DEIS Comments		
O-1n	CWA	The commenter stated that the proposed Big Stone II will emit thousands of tons of nitrogen oxides, sulfur dioxide, and particulate matter into the air each year which will negatively impact health and lead to increased healthcare costs.
I-2c	Lois Braun	The commenter noted that the health costs of coal burning are astronomical. Every year Minnesota alone spends \$303 million on neurobehavioral disorders and \$30.6 million on asthma in Minnesotan children. “Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses.”
I-8e	Joe Foss	“I’m quite concerned about the increased levels of nitrogen oxide, sulfur dioxide, and particulate matter from a new coal plant. . .I had difficulty breathing . . .when I’d exercise outside. I have read stories of children having the same difficulty when they live fairly close to a factory or power plant. I don’t believe this new power plant addresses these concerns.”
I-9a	Sergio Gaitan	“It is with dismay that I read about the plans to expand the Big Stone II coal-fired power plant by a huge 600 MW. It is disconcerting that after so much evidence of the polluting and health effects of coal-fired electrical generation that releases soot, NO _x and SO _x into the air, that your institution is even considering this coal expansion.”
I-9c	Sergio Gaitan	“My 10 year old nephew Julian suffers from asthma. He has trouble breathing the polluted air here in St. Paul Minnesota. The prevailing winds coming from the coal fired plant are sure to blow that soot over Minnesota exacerbating the mercury pollution for the fish in our 10,000 lakes and increasing the CO ₂ and particulate matter concentrations in the air we breathe. I wonder if you care about our children from where you sit in Colorado . . .”
I-11b	Merle Green	“Financial cost of using coal is increasing as are health and environmental cost. Mercury and other matter from emissions contribute significantly to nervous system and respiratory problems.”

Comment Number	Name	Comment Summary
I-21a	Terry J. Makepeace	“I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”
I-28a	Roy Smith	“At age 73, I've seen the transformation of our atmosphere into a sewer for short-term economic gain. We just can't continue "more of the same." It's not only economically narrow-minded and short-sighted, but immoral to dump million of additional tons of CO ₂ into the atmosphere, to shower the downwind shadow of this plant with mercury, and to spew forth more asthma inducing particulates.”
I-28e	Roy Smith	“. . . social costs are significant: a recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from this plant will contribute significantly to these illnesses.”
FL-8c	Sierra Club Form Letter	The commenter expresses concern that the Draft EIS did not consider the full range of costs related to future operation and expansion of a coal plant.
PH4-1e	Public Hearing Benson, MN Cesia Kearns	“And we're keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that's kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
SDEIS Comments		
No comments received.		

Response: The comments expressed concern that impacts to human health and health care costs would increase, with much of the increase associated with emissions of NO_x, SO₂, and particulates from the proposed plant. As noted in Section 1.3.3 above, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment. Please see Section 4.7 (Infrastructure, Public Health and Safety, and Waste Management) of the Final EIS for a discussion of public health and safety issues and Response to Comments in Sections 1.3.3, 1.3.4, and 1.3.6 above. Also, please refer to Section 7.1.1, above, for a general analysis of public health impacts associated with emissions of atmospheric pollutants from the proposed plant.

7.1.5 Health Concerns from Eating Contaminated Fish

Comment Number	Name	Comment Summary
DEIS Comments		
T-1d	SWO	“The fish in the lakes within the original boundaries of the Lake Traverse Reservation could become contaminated. This contamination could result in fish that will be unsafe to eat.”

Comment Number	Name	Comment Summary
I-30b	Gregory Stricherz	“When coal is burned, it becomes one of the worst dispersers of mercury. When that mercury is released into the atmosphere, it pollutes lakes making the fish from those lakes dangerous to eat. The mercury is also borne for long distances in the air and can cause serious bodily harm when it is inhaled.”
FL-1f	CWA Form Letter	“. . . The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-4g	CWA Form Letter Timothy DenHerder-Thomas	“Mercury pollution is a serious problem for anyone who eats fish, in addition to the wildlife (especially birds) that make living in Minnesota attractive and support a strong tourism and outdoor recreation industry, providing over 300,000 jobs in Minnesota alone.”
FL-16c	Sierra Club Postcard	“The Mercury and Environmental Justice- The DEIS does not adequately take into account the Environmental Justice implications of the expansion of the coal plant and the impact on human health, particularly for women, children, and subsistence fishers. For examples, the disproportionate impact on Native American families that live in proximity to the plant, and consume a large amount of fish.”
PH3-6b	Public Hearing Granite Falls, MN Julie Jansen	Commenter stated that health concerns include : 1) Harm to women of child bearing age, fetuses, and children due to mercury pollution; leads to neurological problems. 2) Low birth weight due to Mercury exposure; included in the billion dollar expenses from U.S. power plants associated with poverty, welfare, and education. 3) Big Stone Lake and the upper Minnesota River are already under fish consumption advisories for Mercury so any additional Mercury is biologically significant.
PH4-1e	Public Hearing Benson, MN Cesia Kearns	“And we're keenly aware of, at this point, of the impact of coal burning on human health and the environment, including, you know, the particulate matter can contribute to health problems like asthma. Mercury being a huge concern for, you know, a sensitive population like pregnant women and children. And like I said, communities that have a higher rate of fish consumption. And that's kind of the tip of the iceberg, I guess. So I just strongly oppose the construction of that plant, and the transmission lines to serve it.”
PH4-6f	Public Hearing Benson, MN Andrew Falk	“Many of these people don't live in this area. They don't live in the community. They don't go fishing in these lakes. For those of us that live here, we want to have these questions addressed and answered. We live in this community. We work here; we play here. We want to make sure that we can go fishing, and that we can eat our fish.”
PH4-6g	Public Hearing Benson, MN Andrew Falk	“. . . One of the most interesting statistics I heard was one tablespoon of mercury will pollute 40 acres of lake. It will make it so all the fish in that are deemed unsafe for human consumption. We're talking about 189 pounds of mercury per year. The next year. The next year. The next year. I'm not sure exactly what the life expectancy of this plant is. I'm assuming it's close 20 to 40 years. But how much of mercury are we willing to put in this environment, are we willing to subject our children and families to? It

Comment Number	Name	Comment Summary
		just seems that these questions have not been adequately addressed in this EIS.”
PH4-8b	Public Hearing Benson, MN Karen Falk	“But then when we had to talk about how you couldn't really swim or tube in the Chippewa water, because there are too many organisms that would make you sick if you got it in your mouth. Then we talked about going fishing, and they're really, they're ten years old so they shouldn't be eating the fish at all. And it's pretty hard to look at a classroom of ten and eleven years old and tell them, 'You can't do that anymore.' And I do that every year. And they say, 'Well, why?' And I say, 'Well, it's harmful.' ”
SDEIS Comments		
SI-19d	Gene Tokheim	“Big Stone Lake is at risk from the water demands of the proposed Big Stone II coal plant. My husband and I live near Lac Qui Parle, just downstream. We remember being able to swim in this lake and eat the fish we caught more than once a month.”
SFL-3a	CWA Form Letter for SDEIS Scott Anderson	“This is the land of 10,000 lakes and we can't even eat the fish anymore because of coal!”
SFL-31a	CWA Form Letter for SDEIS Dick Unger	“My children have reactive airway medical problems. This could result from the existing plant. We already can't eat the fish in our beautiful river. We get no money or power from Bigstone [Big Stone], only pollution and water shortages.”
SFL-45a	CWA Form Letter for SDEIS Susan Johnson	“Minnesota needs to become a leader in wind and solar energy, not more polluting plants. People want to be able to eat the fish they catch. Tourism is a big industry in MN, let us work harder to clean up our lakes not pollute them. There is more than enough wind in our great state to provide much needed energy.”

Response: The comments in this subcategory were concerned with the health impacts of eating fish contaminated by mercury, which several commenters attributed to coal plants. Please see Response to Comments at Sections 1.2.3, 1.2.4 and 1.2.7, above, and in the Mercury Response Paper (Response Paper A, Volume II). Also, please refer to Section 4.10.2.1 (under the Environmental Justice subheading) of the Final EIS for a discussion of the impact of the proposed Big Stone II plant on the general population and minority and low income populations from higher fish consumption.

7.1.6 Other Public Health Comments

Comment F-4a from CDC: The CDC commented, “The DEIS addressed our potential concerns. If the proposed mitigation measures are followed, there should be minimal effect on human health.”

Response: Your comment has been noted.

Comment T-1h from SWO: “There are unknowns regarding the long-term environmental impacts which will threaten the health & well-being of our people for generations to come.”

Response: Even with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, compliance with the conditions of the air permit for the proposed plant, and compliance with NAAQS, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment. Additional discussion regarding public health impacts may be found in Section 7.1.1 above.

Comment T-1i from SWO: “Health benefits to people, animals, plant life, and water need to be considered with utmost importance.”

Response: Such comments will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project.

Comment S-2b from SDPUC: “In Section 4.8.2.3 – Hazardous Materials and Waste Management, there is no mention of exposure of employees at the adjacent ethanol plant to hazardous substances and wastes that will be present at the proposed Big Stone II Power Plant.”

Response: Additional consideration for personnel at the adjacent ethanol plant has been added in Section 4.7.2.1 of the Final EIS.

Comment I-17j from Jeanne Koster: “The omission of a detailed consideration of an environmentally better mercury reduction alternative seems the more egregious when viewed in the light of mercury’s ferocious neurotoxicity. Neurological impairment has certain economic consequences, particularly considering special education needs, that can and should be quantified in this EIS. Economics aside, the best control is certainly an ethical imperative, especially if it can be done at reasonable cost. Where is the credible analysis of mercury control alternatives in this DEIS?”

The seriousness of the imperative to consider best mercury control should be established by at least a couple of paragraphs about the known effects of mercury on human health.

It threatens developing fetuses and children under fifteen with neurological impairment that might just shave points off young IQ’s or, more seriously, blight their lives with ADHD or even autism. Eating mercury tainted fish is one pathway for mercury damage to health. Other pathways exist that are less well understood, as a Texas study suggests. In 2005, a University of Texas, San Antonio, Health Science Center study of 1200 school districts in Texas reported a very significant increase in the rate of autism 17% per 1000 [cumulative] lbs of mercury emitted in counties with coal fired power plants. (‘Mercury Pollution, Autism Link Found . . .,’ Reuters, Thursday, March 16, 2005).

The need for mothers and children to AVOID fish in the diet is also a tragic impact. Fish are the most reliable source for Omega 3 oil, increasingly revealed to be essential to human health. For an undetermined proportion of individuals, vegetable source omega 3 oils will not suffice. Deep water fish are the best source, but the fish in our lakes are a not insignificant source.

It seems that omega 3 oils are absolutely essential for healthy neurological development, and bipolarity can be a deficiency disease potentiated by lack of omega 3 in the mother’s diet during a child’s gestation. (Papolos, Demitri and Janic). ‘The A-Zs of Omega-3s,’ The Bipolar Child Newsletter, Spring 2001, Volume 7) For an undetermined proportion of individuals, vegetable source omega 3 oils will not suffice. Deep water fish are the best source, but the fish in our lakes are a not insignificant source. Mom just has to eat more fish to ensure her baby develops properly.

Oh, wait. I momentarily forgot. Mom’s not supposed to eat the fish!!!”

Response: Regarding the 2005 University of Texas, San Antonio study and the 2001 article in the Bipolar Child Newsletter, Western acknowledges these studies and their findings. See Section 1.2.1 of the Responses to Comments, above, for more detailed discussion on the ability to extrapolate from the results of either national or regional-scale mercury impact studies. In this same section there is a discussion on the results from a USEPA study that can be used as a guide to assess the mercury deposition from the proposed plant on the surrounding area, including the neurological

impact. The results indicate that of the remaining 10 percent (after accounting for the 90 percent of mercury emissions that would be removed) emitted into the atmosphere, approximately 36 percent of the particle-bound mercury and 68 percent of the vapor-phase divalent mercury would be deposited locally, and the rest would diffuse vertically to the global cycle. No further analysis has been conducted to study the neurological impact, but it is still possible to make a reasonable assessment based on whether the mercury emission from the existing and proposed Project would increase or decrease in the surrounding area. With the implementation of the air pollution controls for the proposed plant, the rate of mercury deposition from the combined existing and proposed plants would decrease as a result of the proposed plant being constructed. Since the combined mercury emissions from the existing and proposed plant would be lower than mercury emissions from the existing plant alone, it is reasonable to assume the mercury impacts in the surrounding area would also decrease, including the neurological impacts.

Please also see the Mercury Response Paper (Response Paper A, Volume II) for additional details regarding mercury, as well as Sections 1.2.3 and 1.2.4 of the Responses to Comments.

Comment I-20v from Gil Lanners: “I also have concerns over the stray voltage issues involving possible health risks, such as cancer. Could this power line become the target of a possible future lawsuit?”

Response: Stray voltages are from deteriorating wiring or defective, improperly wired, or grounded equipment. While standing on damp earth or other conductive ground, an animal may receive a small electric shock when contacting parts of milking equipment, electrically heated or pumped watering facilities, or other electric equipment around the farm. Stray voltage is a phenomenon that occurs between two contact points in any animal confinement area where electricity is grounded. By code, electrical systems, including farm systems and utility distribution systems, must be grounded to the earth to ensure continuous safety and reliability. Inevitably, some current flows through the earth at each point where the electrical system is grounded. At these points, a low level of voltage, called neutral-to-earth voltage develops. When neutral-to-earth voltage is measured between two objects that may be simultaneously contacted by an animal, it is frequently called stray voltage. Stray voltage does not cause electrocution and is not ground current, or earth current. Stray voltage only affects farm animals that are confined in areas of electrical use. It does not affect humans (MnDOC, 2006). Transmission lines do not, by themselves, create stray voltage because they do not connect to businesses or residences. Transmission lines, however, can induce stray voltage on a distribution circuit that is parallel to and immediately under the transmission line (MnPUC, 2008b). Stray voltage is different than EMF, although some may incorrectly associate the term with EMF. Please refer to Section 3.7.3.2 and Section 4.7.2.2 of the Final EIS for a description of EMF and discussion of public health issues associated with EMF. Western is unable to speculate whether the transmission lines for the proposed Project could become the target of a future lawsuit. Stray voltage issues are not anticipated along any of the proposed transmission line routes.

Comment I-21b from Terry J. Makepeace: “Also, do you have any knowledge of the harm that these chemicals will have both short and long term on the plant, animal, aquatic, and human life in the area?” [Western believes the commenter is referring to mercury, sulfur, and other harmful chemicals released into the environment.]

Response: The chemicals that would likely be used at the proposed plant for water treatment and other plant uses are provided in the Final EIS at Table 2.2-2, which lists the materials, quantities, delivery frequencies, and delivery methods of the chemicals. Some of the chemicals and materials are considered hazardous substances and, as such, require appropriate handling and storage equipment and associated documentation. The proposed plant would be required to comply with all Federal and State

regulations regarding the storage and management of chemicals. Spill management is addressed in Section 4.2.2.1 of the Final EIS. Specific mitigation measures would be implemented during construction and operation of the proposed Project (see Tables 2.2-8, 2.2-9, and 2.6-2 in Chapter 2 of the Final EIS) to minimize harm from the use of chemicals at the proposed plant. Please refer to Responses to Comments in Sections 1.2 above regarding the impact of mercury in the air and water from the proposed Project. Please refer to Section 4.1 of the Final EIS for a discussion of reductions of SO₂ air emissions if the proposed plant is constructed.

Comment I-21d from Terry J. Makepeace: “Once our environment is damaged, we will not be able to recover from this and it will have a very bad effect on the life of the people, animals, and other life in this area.”

Response: The impacts of the proposed Project are addressed in Chapter 4 of the Final EIS and summarized in Table 2.6-1.

Comment I-25a from Carol A. Overland: “Attached please find report addressing the costs of pollution, which should be addressed in the EIS, and here’s the link:

<http://www.healthobservatory.org/library.cfm?refid=88337>”

Response: Western also found the 20-page report prepared by the Minnesota Center for Environmental Advocacy, “The Price of Pollution, Cost Estimates of Environment-Related Childhood Disease in Minnesota” at the following link:

http://www.mncenter.org/minnesota_center_for_envi/files/EnvironmentalCostsMCEA-IATP.pdf

The report discusses the relationship of environmental factors (such as air pollutants, drinking water contaminants, and use of chemicals) as contributors to childhood diseases such as asthma, developmental problems, birth defects, neurobehavioral disorders, and some types of cancer, due to exposure to chemicals such as benzene, lead, mercury, dioxins, polychlorinated biphenyls (PCBs), and other chemicals in plasticizers, pesticides, and solvents. The report cites an estimate of the total costs of environmentally attributable childhood diseases in the State of Minnesota as high as \$1.89 billion per year, with \$1.223 billion attributable to lead poisoning. Western will take this report into consideration in the decision to allow the proposed Project to interconnect with Western’s transmission system.

Public health impacts associated with emissions from operating the existing and proposed plants are discussed in Section 4.7.2.1. of the Final EIS (see Operations Impacts under the Public Health and Safety subheading). Through the use of various types of emission controls for NO_x and SO₂, there would be no increase in NO_x or SO₂ emissions from the site as a result of the operation of the proposed Big Stone II plant. Detailed information about the emission controls for NO_x, SO₂ and other types of emissions are discussed in Section 4.1.2.1 of the Final EIS under the subheading Plant Emissions and Air Quality Impacts Assessment. Table 4.1-2 provides a summary of the Project emissions for both the existing and proposed plants. Particulate emissions from the proposed Project would be controlled with a conventional jet-pulse fabric filter (baghouse) followed by a WFGD system. Although particulate matter would increase, the air dispersion modeling shows there would be no exceedances of the PSD increment or the NAAQS for PM₁₀ and PM_{2.5} with operation of the existing and proposed Big Stone II plant. The commitment of the Co-owners of the proposed Big Stone II Project is to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (which is less than half of the actual mercury emissions from the existing plant in 2004 of 189.6 lb). Even with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement

Agreement, compliance with the conditions of the air permit for the proposed plant, and compliance with NAAQS, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment. Additional discussion regarding public health impacts and their associated costs may be found in Sections 1.1.9 and 1.1.10 for CO₂; Sections 1.2.3 and 1.2.5 for mercury; Sections 1.3.3, 1.3.4, and 1.3.6 for other air emissions; and in Section 7.1.1 above.

Additionally, a comment from the CDC, stated, “the power plant project will [be] constructed and operated in full compliance with all Federal and state regulations. We understand that both the South Dakota DENR and the Minnesota DNR will issue the necessary environmental permits and will be conducting appropriate monitoring activities to ensure compliance. If the proposed mitigation measures are followed, there should be very minimal effect on human health.”

Comment FL-4f from Timothy DenHerder-Thomas: “The draft Environmental Impact Statement assumes that the federal Clean Air Mercury Rule will not be changed or delayed due to legal challenges, which could significantly increase the costs of Big Stone through higher pollution standards, even without the considerations of the hidden health and environmental impacts of the mercury itself.”

Response: Since the issuance of the Draft EIS, several developments have occurred with regard to the CAMR. In summary, a mandate was issued by the Court on March 14, 2008, formally overturning the CAMR. Thus, the CAMR no longer exists and the regulation of mercury emissions from coal-fired EGUs now falls under the requirements of Section 112, MACT standards. There are no MACT standards in place at the current time, and the timeframe for rule development is currently unknown. However, with the commitment of the Co-owners to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant, compliance with future requirements should be achieved. See Section 4.1.1 of the Final EIS for more detailed information.

Comment PH3-4b from Katie Laughlin: “The Draft EIS should have thoroughly analyzed the cost of Big Stone II associated with increased healthcare from air pollution and environmental decline from acid rain, mercury contamination, and the loss of rare habitats and species.”

Response: For public health issues, please see the Response to Comments in Section 7.1.1, above. Refer to Section 4.1.2.1 of the Final EIS for a discussion of acid deposition. As noted in the Final EIS, there will be no increase in NO_x or SO₂ emissions as a result of the proposed Project. Therefore, there will be no increase in acid deposition to area water bodies. Refer to Response to Comments in Section 1.2 for mercury issues and Response to Comments in Sections 4.1 and 4.4 for discussion of habitat loss and impacts to special status species. Also refer to Sections 1.1.10, 1.2.5, and 1.3.6, above, and Section 17.1, below.

Comment SFL-66b from Carmine Profant: “The negative impact on public health and wildlife is certain in this project. Despite mercury controls, the first few years of Big Stone II's operation would put out quantities of mercury that will stay in Minnesota's water systems for years to come.”

Response: Public health impacts associated with emissions from operating the existing and proposed Big Stone II plants are discussed in Section 4.7.2.1 of the Final EIS (see Operation Impacts under the Public Health and Safety subheading). Please see the Responses to Comments above for Section 4.6 regarding impacts to wildlife and Section 7.1.1 regarding impacts to public health. Additional information about mercury impacts to surface water resources has been included in Section 4.2.2.1 of the Final EIS (see Airborne Contaminant Concerns under the Surface Water subheading) as well as the Mercury Response Paper (Response Paper A, Volume II). There would be an impact to water

resources because the existing and proposed plants would continue to emit mercury. However, the impacts to water resources would be reduced when compared to any impacts caused by emissions from the existing plant. This is because the total amount of mercury emissions would not only be reduced by 57 percent, but also because the types of mercury that would be available to enter surface waters would also be reduced.

7.2 Hazardous Materials and Waste Management

Comment S-2b from SDPUC: “In Section 4.8.2.3 – Hazardous Materials and Waste Management, there is no mention of exposure of employees at the adjacent ethanol plant to hazardous substances and wastes that will be present at the proposed Big Stone II Power Plant.”

Response: Additional consideration for personnel at the adjacent ethanol plant has been added in Section 4.7.2.1 of the Final EIS.

Comment I-18b from Daniel and Ruth Krause: “Radioactive waste. Burning coal concentrates all waste. How much radioactive material is in the ash and how is it handled? How much radioactive waste is emitted into the atmosphere? I could not find reference to radioactive waste in the Draft EIS.”

Response: Additional text on radionuclide emissions from the existing and proposed plants are discussed in Section 4.1.2.1 of the Final EIS under the subheading Radionuclide Emissions from the Existing and Proposed Plants. Bottom ash and flyash generated by combustion of coal at the proposed Big Stone II plant would be collected and disposed at the existing, on-site landfill. Alternatively, some ash may be used beneficially (e.g., for soil stabilization, structural fill, or for use in concrete). Therefore, the low levels of coal-related radionuclides in the coal ash are not considered an issue for the proposed Big Stone II Project.

Comment I-21a from Terry J. Makepeace: “I am writing to express my concerns about the proposed new power plant in Big Stone South Dakota. Even if there are safeguards to control the amount of harmful pollutants that are released into the atmosphere, I feel that this second plant would double what is already being released. I do not believe that any amount of mercury, sulfur, and other harmful chemicals that are released into the environment is good for anyone.”

Response: Refer to Section 4.1.2.1 of the Final EIS for discussion of air emissions controls. The chemicals that would likely be used at the proposed plant for water treatment and other plant uses are provided in the Final EIS at Table 2.2-2, which lists the materials, quantities, delivery frequencies and delivery methods of the chemicals. Some of the chemicals and materials are considered hazardous substances and, as such, require appropriate handling and storage equipment and associated documentation. The proposed plant would be required to comply with all Federal and state regulations regarding the storage and management of chemicals. Spill management is addressed in Section 4.2.2.1 of the Final EIS.

8.0 Visual Resources

Comment I-20w from Gil Lanners: “What does this power line do for the value of the land? Nothing, in fact it devaluates the price of the land tremendously. The cosmetic picture would be an eyesore, no one would put up their home near the power line or even near the structures.”

Response: The visual concern of the transmission lines to segments of the public cannot be avoided. Indirectly, the presence of transmission lines may impact property values due to visual impacts. However, the proposed corridors are located primarily on lands where proposed Project facilities

(e.g., transmission line structures and conductor, ROW and access roads) and activities may be visible but not dominate the landscape. The Co-owners have committed to reducing visual impacts to sensitive travel and recreation corridors such as highway and trail crossings by placing new structures at the maximum feasible distance from the crossings, within limits of structure design. Additionally, the structure types would be uniform to the extent practical.

9.0 Noise

No comments were received relating to noise.

10.0 Social and Economic Values and Environmental Justice

10.1 Social and Economic Values

10.1.1 Social Values

Comment Number	Name	Comment Summary
DEIS Comments		
O-1ar	CWA	“How will Big Stone II's carbon dioxide emissions contribute to global warming and what will be the economic and social impacts of this contribution?”
I-1b	Lori Askelin	“It doesn't look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of carbon dioxide, and the significant social costs.”
I-23e	Stacy Miller	“Given the gravity of global warming and mercury pollution, WAPA should prepare a revised EIS that objectively estimates the full cost of operating Big Stone II, including social costs, environmental impacts, and the likelihood of a carbon credit system being established during its service lifetime. Only when these costs are assessed can a fair and objective comparison be made to the costs and impacts of alternative technologies.”
I-28e	Roy Smith	“. . .social costs are significant: a recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from this plant will contribute significantly to these illnesses.”
I-36a	Joe Erjavec, et al	“It is our belief that the WAPA's Environmental Impact Statement (EIS) fails to provide full analysis of the social, environmental and financial costs of the proposed Big Stone II coal fired power plant.”
FL-1a	CWA Form Letter	“Since the proposed plant is expected to operate for at least forty years, the true consequences of its pollution potential must be examined. The draft Environmental Impact Statement did not show conclusively that building a new coal plant is really less costly, in health, environmental, social, cultural, and economic terms, than alternatives to develop renewable resources.”

Comment Number	Name	Comment Summary
FL-1f	CWA Form Letter	“ . . . The Environmental Impact Statement did not address the contribution that the proposed coal plant’s mercury pollution will have on the health of women, children, and anyone who fishes for food. The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”
FL-4d	CWA Form Letter Timothy DenHerder Thomas	“The draft Environmental Impact Statement did not show conclusively that building a new coal plant is in the long run really less costly, in health, environmental, social, cultural, and economic terms, than alternatives to develop renewable resources.”
FL-8c	Sierra Club Form Letter	The commenter expressed concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.
SDEIS Comments		
No comments received.		

Response: The commenters expressed concern for the impacts and costs of climate change, mercury pollution, and other health consequences on society. Please refer to the Responses to Comments in Section 7.1.1, above, for a general analysis of public health impacts associated with emissions of atmospheric pollutants from the proposed plant. Please see Responses to Comments in Section 1.1, above for discussion of climate change issues. Also, refer to Section 4.1.2.1 in the Final EIS under the subheading Greenhouse Gas Emissions from Existing and Proposed Plants. Western has provided additional discussion in the Mercury Response Paper (Response Paper A, Volume II) and other air pollutants (see Section 1.3, above). Also refer to Section 17.1, above for a discussion under True Costs of the Project.

10.1.2 Economic Impacts from Loss of Wildlife and Vegetation

Comment Number	Name	Comment Summary
DEIS Comments		
O-1x	CWA	The commenter expressed concern for the short-term vegetative impact and potential long-term impact (habitat loss) due to the issues associated with revegetation and the effects on sensitive species.
O-1aa	CWA	CWA believes the Draft EIS should have estimated the economic effect proposed Big Stone II will have on state parks, scientific and natural areas due to wildlife and vegetation loss.
SDEIS Comments		
No comments received.		

Response: Impacts to vegetation and wildlife are discussed in Section 4.4.2.1 of the EIS. Implementation of the proposed Project would eliminate a large portion of the vegetation and wetland losses associated with constructing the 450-acre water storage pond. Based on the impact analysis, there would be no significant impacts to vegetation or wildlife from constructing and operating the proposed Project. Impacts to wildlife would be short-term due to the increased human activity;

however, areas surrounding the proposed plant site could readily absorb the few wildlife that would relocate. The primary vegetation loss from constructing the transmission lines and groundwater system is to agricultural land, and landowners would be compensated for easements. Constructing and implementing the proposed Project would not have any direct economic impacts due to loss of vegetation or wildlife.

10.1.3 Land Values

Comment I-20w from Gil Lanners: “What does this power line do for the value of the land? Nothing, in fact it devaluates the price of land tremendously. The cosmetic picture would be an eyesore, no one would put up their home near the power line or even near the structures.”

Response: The impact of transmission lines on property values is difficult to measure as a variety of factors come into play. These factors include the market conditions, personal preference, the proximity of the lines to the property, the size of the lines and towers, the view of the lines from the property, the appearance of the landscaping around the easement, and the topography of the surrounding area. Studies have shown that when negative impacts are evident, they are slight and may affect the property values from 1 percent to 10 percent. In weak market conditions the impacts are more likely to be observed than in a strong market where the negative effects are negligible (Pitts, 2007).

Comment PH3-1d from Dick Unger: Commenter expressed a concern that mercury impacts would cut the property values around Brainerd Lake.

Response: Please see Response to Comments in Section 1.2.1, above. There is no evidence to suggest that the reduced level of mercury emissions that would occur due to construction and operation of the proposed plant would have any negative effects on property values, lakes, or health, nor would it negatively affect other regions.

10.1.4 Regional Economics

Comment I-20x from Gil Lanners: “Wouldn’t this inhibit rural development in out state Minnesota? Even putting a little air strip would be out of the question. Are you not putting out state Minnesota at a disadvantage?”

Response: The EIS analysis does not indicate that development would be inhibited in rural portions of Minnesota, nor did the analysis reveal any disadvantages imposed on any part of Minnesota by the proposed Project.

Comment I-31d from Brynan Thornton: “And there is lots more better ideas on energy so why do we need Big Stone II when a clean energy development Plan can create more than 200,000 new jobs across a 10-state Midwest regions by 2020, when Big Stone II could only create 625 jobs. So we are also helping the economy as well as the environment and cleaner lives.”

Response: Please refer to Section 1.2 of the Final EIS for the discussion of the needs by the individual Co-owners and their customers. Western believes that the Co-owners have demonstrated a need for the proposed Project in the near term, citing the use of a reliable baseload generation technology to meet the additional regional power requirements of the five Co-owners. Refer to Section 2.5 of the Final EIS for a discussion of renewable energy. In summary, the Co-owners’ power generation and technology studies determined that the proposed pulverized-coal super-critical boiler technology was the only alternative that meets the Co-owners needs and objectives. A discussion of power generation technology alternatives considered but eliminated may be found in Section 2.5.1 of the Final EIS.

Comment I-32g, h from Richard Unger: “Minnesota faces no shortage of energy. Our farmers are ready to produce it with wind, hydrogen and biomass. Why should we buy our energy from another state which has no protections for pollution rather than from ourselves? Our farmers are as deserving of the business as the electric distributors who want to control power production as well.”

Response: Please refer to Section 1.2 of the Final EIS for the discussion of the needs by the individual Co-owners and their customers. Rural landowners, such as farmers, are afforded opportunities to lease their lands to developers of wind projects. The proposed transmission lines of the proposed Project would create additional opportunity for wind generation projects, by providing additional transmission capacity. However, wind generation would not provide reliable baseload generation, such as that provided by the proposed Project. Also see the Wind and Renewable Energy Response Paper (Response Paper B, Volume II).

Comment FL-6a from Julie Sabin: “Obviously I'm using a pre-written message, but before you decide to read or ignore it, consider this. I'm not a tree hugger or a green freak. I'm a business woman. I'm a capitalist. I cannot see the economic sense in building a coal facility. The future is elsewhere. Get with the program, please. We need you making good decisions.”

Response: Your comment has been noted.

Comment SI-6e from Susan Granger: “With a 50-year lifespan, the Big Stone II plant has the potential to adversely impact environmental quality and economic growth in west central and southwestern Minnesota for decades and decades.”

Response: The EIS analysis does not indicate that economic growth would be inhibited in rural portions of Minnesota, nor did the analysis reveal any disadvantages imposed on any part of Minnesota by the proposed Project.

Comment SPH-3c from Mary Jo Stueve: “Clean Water Action also has concerns that Otter Tail currently with all the water permits it has, which total approximately 28,000-acre-feet per 25 year, according to their own estimate, is actually 15,000-acre feet more than what they say they need in the project design. Nancy mentioned earlier that the Supplemental Draft EIS, and this is the time to take into account different populations or impacts that might come about with the changes, and since Otter Tail has received the permits, and just this last summer, we also realize it could be, this groundwater permit, groundwater draw could be detrimental to a whole other economic opportunity and development in the region, because of the ethanol plant and the expansion use, which also takes water. And can Big Stone Lake, this groundwater draw, sustain coal plant number one, and coal plant number two, co-ed ethanol plant, and we know Otter Tail has in its own interest, and wisely, perhaps, to its business credit, secured rights to cut off water use to the ethanol plant in times of drought.”

Response: Please see the Responses to Comments at Section 2.1.2, above. The SDDENR is responsible for managing South Dakota’s water resources for public and private use through its Water Rights Program. A water appropriation permit has been issued to the Co-owners by the South Dakota Water Management Board in the interest of public policy, and thus water appropriations by the proposed Project are in conformance with South Dakota laws. The Co-owners’ water use plan, whether for surface water or groundwater, is not wasteful of the water resources, and would be careful to avoid using more water than is required for operations. The Water Management Board, in issuing the permits for water withdrawal, have determined that the proposed water use would not be damaging for the intended purpose. Therefore, water resources have not been over-committed for the proposed Project, and future options for other economic opportunities are not compromised. Refer to Section 4.2.2.1 of the Final EIS for a detailed discussion of water use by the proposed plant.

Comment SPH-3d from Mary Jo Stueve: “So our concern would be what would this mean for the local economy and the local impacts, also. And Clean Water Action sees this water use important and needing more study and analysis, what's for the public good, not only now, but in the future for those who live here.”

Response: Please see the response above for Comment SPH-3c.

10.1.5 Costs of Coal/Gasoline for Coal Transport

Comment FL-8c from Sierra Club: “Cost – The DEIS does not consider the full range of costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of carbon dioxide, and the significant social costs. A recent report from IATP and MCEA found that every year Minnesota alone spends \$303 million on neurobehavioral disorders, and \$30.6 million on asthma in Minnesotan children. Mercury and particulate matter from coal plant emissions contribute significantly to these illnesses.”

Response: Please refer to Responses to Comments at Section 7.1 above for a discussion of health impacts associated with the proposed plant. Refer to the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants in Section 4.1.2.1 of the Final EIS for an expanded discussion of GHG emissions, climate change, future regulation of CO₂, and discussion of transportation-related GHG emissions associated with coal plants. This same section also contains a discussion of GHG life-cycles and an estimate of the GHG life-cycle cost for the proposed Big Stone II plant. With respect to public health costs USEPA’s emission regulations and emission standards for mercury and particulates emissions were designed to protect the public health and were developed with the consideration of public health costs. Permits issued for Big Stone II include specific emission control requirements for particulates (and other regulated pollutants) and compliance with such permits will protect the health and welfare of the public. In regard to the portion of the comment referencing the cost of coal and gasoline for its transport, a historical delivered coal price graph supplied by the Co-owners (OTP, 2009) shows that delivered coal prices to the existing Big Stone plant declined from 1990 to 1997 and then mostly increased through 2007. With respect to future coal prices, according to EIA’s Annual Energy Outlook 2009 (EIA, 2009), Wyoming Powder River Basin sub-bituminous coal prices are projected to increase on average by less than 1 percent annually between 2008 and 2030. The same report shows that diesel fuel prices for the transportation sector increased between 2006 and 2008. Diesel prices are projected by the EIA to decrease over 29 percent in 2009 and decrease again in 2010. EIA projects diesel prices for the transportation sector to increase on average by 1.4 percent annually from 2007 to 2030.

10.1.6 Economic Impacts to Recreation/Tourism

Comment Number	Name	Comment Summary
DEIS Comments		
I-32f	Richard Unger	“People will not want to vacation where the environment is such that even the fish are full of poison. Once we get the mercury we cannot get rid of it. It will not flush downstream.”
FL-4g	CWA Form Letter Timothy DenHerder-Thomas	“Mercury pollution is a serious problem for anyone who eats fish, in addition to the wildlife (especially birds) that make living in Minnesota attractive and support a strong tourism and outdoor recreation industry, providing over 300,000 jobs in Minnesota alone.”
SDEIS Comments		
No comments received.		

Response: Western has expanded Section 4.6.2.1 of the Final EIS (see Recreation subheading). Also see Section 4.4.2.1 of the Final EIS (Fisheries subheading). In summary, Big Stone Lake and its fisheries are an important recreation/tourism attraction in both Minnesota and South Dakota. The Big Stone Lake Restoration Project has improved the fisheries of the lake (USEPA, 2002b). The proposed Big Stone II power plant would operate within the same withdrawal restrictions as the existing plant. Therefore, the increase in water withdrawals associated with the proposed plant would not impact the improved fisheries achieved by the Big Stone Lake Restoration Project and would not impact their long-term goal of increased recreation.

Also, please refer to the Responses to Comments at Section 1.2 above for a discussion of mercury issues. The combined plants would continue to emit mercury (although at a decreased rate), and mercury emissions from the proposed plant (as well as mercury emissions from any and all sources) would still bioaccumulate in fish and could affect those desiring to participate in tourism and recreation of the area. However, the reduced rate of bioaccumulation, when considering MPCA information (MPCA, 2007), suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation. Any improvements in mercury concentrations in fish would enhance to the tourism and outdoor recreation industries. For additional details regarding mercury, refer to Section 4.1.2.1 of the Final EIS and the Mercury Response Paper (Response Paper A, Volume II).

10.1.7 Economic Impacts to Region due to Water Use

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SPH-3c	Public Hearing Milbank, SD Mary Jo Stueve	“Clean Water Action also has concerns that Otter Tail currently with all the water permits it has, which total approximately 28,000-acre-feet per 25 year, according to their own estimate, is actually 15,000-acre feet more than what they say they need in the project design. Nancy mentioned earlier that the Supplemental Draft EIS, and this is the time to take into account different populations or impacts that might come about with the changes, and since Otter Tail has received the permits, and just this last summer, we also realize it could be, this groundwater permit, groundwater draw could be detrimental to a whole other economic opportunity and development in the region, because of the ethanol plant and the expansion use, which also takes water. And can Big Stone Lake, this groundwater draw, sustain coal plant number one, and coal plant number two, co-ed ethanol plant, and we know Otter Tail has in its own interest, and wisely, perhaps, to its business credit, secured rights to cut off water use to the ethanol plant in times of drought.”
SPH-3d	Public Hearing Milbank, SD Mary Jo Stueve	“So our concern would be what would this mean for the local economy and the local impacts, also. And Clean Water Action sees this water use important and needing more study and analysis, what's for the public good, not only now, but in the future for those who live here.”

Comment Number	Name	Comment Summary
SFL-32b	Sierra Club Form Letter for SDEIS	“The vast quantities of water that would be required from groundwater and Big Stone Lake for operating Big Stone II are unacceptable. Tapping this water resource would affect the agricultural community, tourism and recreation, wildlife, and the very water people in the area drink.”

Response: Please refer to Responses to Comments in Section 2.1.4, above.

10.2 Environmental Justice

10.2.1 Health and Safety of Native Americans (General)

Comment T-1c from SWO: “Air Quality will be impacted and will most likely be detrimental to the health & safety of tribal members.”

Response: Even with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, compliance with the conditions of the air permit for the proposed plant, and compliance with NAAQS, the existing and proposed plants would still have air emissions (e.g., SO₂ would decrease, NO_x emissions would not increase, and particulate emissions would increase). These air emissions may affect the general public, as well as tribal members. However, the emissions would not exceed thresholds established by the State and USEPA for protection of human health and the environment. The combined plants would continue to emit mercury (although at a decreased rate), and mercury emissions from the proposed plant (as well as mercury emissions from any and all sources) would still bioaccumulate in fish and could affect those who eat fish and those concerned with neurological issues attributed to mercury. However, the reduced rate of bioaccumulation, when considering MPCA information (MPCA, 2007), suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time.

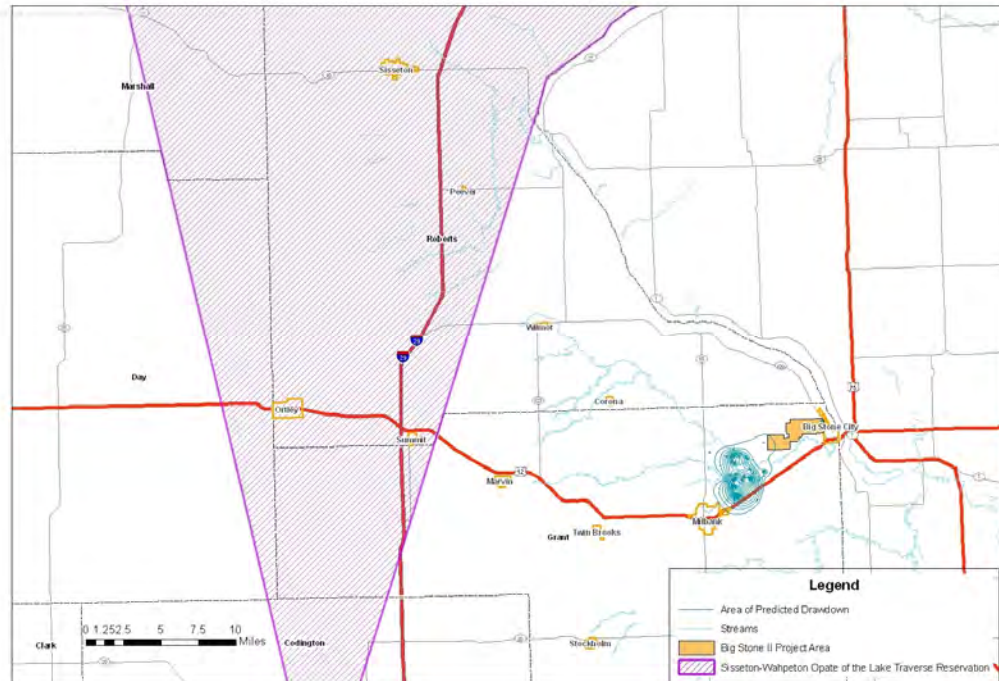
Comment T-1g from SWO: “There are many roots, berries, medicinal plants & herbs that could become contaminated due to the increased source of air pollution; as well as water, which is considered the source of all Life, considered most Sacred to the traditional lifeways of our people.”

Response: In addition to being addressed under Air Quality impacts in Section 4.1.2.1 of the Final EIS, the impacts of mercury emissions on vegetation is discussed in Section 4.4.2.1 under “Air Emissions.” This update addresses effects to traditional lifeways of Native Americans, such as the potential impacts to plant species collected or known for their cultural and/or medicinal ethnobotanical properties. If the proposed Big Stone II plant is constructed (and after implementation of emissions controls), mercury emissions from both plants would be less than the emissions from the existing plant. Although the combined plants would continue to emit mercury, the decrease in mercury emissions would result in reduced impacts to vegetation communities in the area. Although the combined plants would continue to emit mercury, the decrease in mercury emissions would result in reduced impacts to vegetation communities in the area.

10.2.2 Environmental Effects on Population of the Lake Traverse Reservation

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
ST-1am	SWO	“If the Reservation is completely within the defined airshed for the proposed project, why did the DEIS not address the potential for disproportionately high adverse environmental effects on the minority population of the Reservation? The spirit and intent of CEQ’s environmental justice guidelines were not followed in this case.”
SPH-1b	Public Hearing Milbank, SD Myrna Thompson	“I would like to say that the tribe is very concerned and still does oppose the project, because we have no information on long-term environmental impacts over time, as well as the health impacts to our -- not only our people, the human factor, as well as the vegetation and the water, the air quality.”

Response: The figure below shows the location of the Lake Traverse Indian Reservation of the Sisseton-Wahpeton Oyate (approximately 23 miles west of the proposed Big Stone II plant) in western Grant and Roberts counties. The figure shows the area of maximum drawdown expected during pumping of the Veblen Aquifer (also demonstrated in Figure 4.2-2 of the Final EIS). Also refer to the “Groundwater” discussion (“Groundwater Pumping and Production Impacts” subheading) in Section 4.2.2.1 of the Final EIS. The figures and discussion indicate that no impacts would occur to aquifer units at the Lake Traverse Indian Reservation. Refer also to the “Wetland/Riparian Areas” discussion (“Well Operations” subheading) in Section 4.4.2.1 of the Final EIS, which indicates that no impacts to wetlands or other surface waters would occur at the Lake Traverse Indian Reservation as a result of groundwater pumping. Also, see the Response to Comment T-1c (addressing air quality effects), in Section 10.2.1, above. Finally, the Final EIS has been updated consistent with CEQ’s environmental justice guidelines. Except for the uncertainties in determining the effects associated with mercury emissions noted above (see Comment T-1c), there would be no unique environmental effects on the Lake Traverse Indian Reservation from construction and operation of the proposed Big Stone II plant.



11.0 Cumulative Impacts

11.1 General Comments Related to Cumulative Impacts

Comment ST-1ap from SWO: “The Sisseton Wahpeton Oyate does not agree that the proposed Big Stone II project would not be expected to result in significant cumulative impacts to biological resources. The Co-owners do not address the cumulative effects of methylmercury accumulation over time in aquatic ecosystems. The bioaccumulation of methylmercury in game fish inhabiting South Dakota lakes and streams is an important human health issue but is not addressed. Additionally, the Co-owners do not adequately address ambient mercury or methylmercury in nearby surface water bodies and is especially silent on South Dakota waterbodies.”

Response: As discussed in Section 4.1.2.1, the commitment of the Co-owners of the proposed Big Stone II Project is to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (a decrease of approximately 57 percent), which would still contribute mercury to the environment. If the proposed Big Stone II plant is constructed (and after implementation of emissions controls), mercury emissions from both plants would be less than the emissions from the existing plant. The combined plants would continue to emit mercury (although at a decreased rate). Mercury emissions from the proposed plant (as well as mercury emissions from any and all sources) would still bioaccumulate in fish and could affect those who eat fish and those concerned with neurological issues attributed to mercury. According to information from the MPCA, declines in mercury emission and deposition should result in reduced mercury concentrations in fish (MPCA, 2007). The reduced rate of bioaccumulation, when considering the MPCA information, suggests that the lower mercury emissions from the existing and proposed plant could contribute to lower mercury concentrations in fish over time. Any such resulting effect of lower mercury concentrations in fish over time would likely affect

all surrounding lakes that are impacted by emissions from the Big Stone site, including lakes on the Lake Traverse Reservation. However, as described in the Mercury Emissions from the Existing and Proposed Plants subsection in Section 4.1.2.1 and also in the Mercury Response Paper (Response Paper A, Volume II) without the transport, deposition, and transformation information, it is not possible to reasonably identify public health impacts related to mercury emissions from the proposed plant. For additional details on the cumulative impacts of mercury, please refer to the Air Quality subheading in Section 4.11.4 of the Final EIS and the Mercury Response Paper (Response Paper A, Volume II).

11.2 Cumulative Impacts on Fish and Wildlife

Comment Number	Name	Comment Summary
DEIS Comments		
F-2k	USFWS	“There should be expanded discussion of cumulative, interrelated and/or interdependent impacts to fish and wildlife resources.”
F-3j	USDOJ	“We recommend an expanded discussion of cumulative, interrelated and/or interdependent impacts to fish and wildlife resources.”
SDEIS Comments		
ST-1ap	SWO	“The Sisseton Wahpeton Oyate does not agree that the proposed Big Stone II project would not be expected to result in significant cumulative impacts to biological resources. The Co-owners do not address the cumulative effects of methylmercury accumulation over time in aquatic ecosystems. The bioaccumulation of methylmercury in game fish inhabiting South Dakota lakes and streams is an important human health issue but is not addressed.”

Response: In general, cumulative impacts are the impacts caused when the proposed Project impacts are added to other impacts to a specific resource by other sources. Under NEPA, Western is required to consider the cumulative impacts of the proposed Project as it does direct and indirect impacts to specific resource groups. Regarding the cumulative impacts of the proposed Project when viewed in light of other power plants within the geographical range of Big Stone II, Western has analyzed the potential impacts to fish and wildlife in Section 4.11.4 of the Final EIS. Additional discussion was provided under the Biological Resources subheading, which described impacts to fish and wildlife due to groundwater pumping. In summary, the potential reduction of groundwater input to the flow of the Whetstone River, both from the proposed Project and continued existing uses of groundwater, would have a negligible effect for the reasonably foreseeable future on fisheries, aquatic wildlife, and special status species in the area. For upland wildlife, no significant cumulative impacts are expected from the proposed Big Stone II Project, when added to past, present, and reasonably foreseeable future actions.

11.3 Cumulative Impacts on Climate Change

Comment Number	Name	Comment Summary
DEIS Comments		
O-3f	Joint Commenters	“The EIS should address the cumulative impact on the climate of the proposed project and other similar plants.”
O-3ag	Joint Commenters	The commenters do not feel the cumulative effects of proposed Big Stone II were discussed sufficiently in the EIS based on NEPA and CEQ regulations. The argument by the proposed Project Co-owners that proposed Big Stone II will amount to just a fraction of global anthropogenic emissions was felt inadequate by the commenter.
SDEIS Comments		
SF-1f	USEPA	The commenter recommends the Final EIS include the following: Comparison of annual projected GHG emissions from the proposed Project to annual emissions from other existing and reasonably foreseeable projects; and a comparison of annual GHG emissions at a regional, national, and global scale.

Response: The commenters expressed general concern that the Draft EIS did not sufficiently address the cumulative impact on climate change of GHG emissions from the proposed Big Stone II plant. In general, cumulative impacts are the impacts caused when the proposed Project impacts are added to other impacts to a specific resource by other sources. Under NEPA, Western is required to consider the cumulative impacts of the proposed Project as it does direct and indirect impacts to specific resource groups. Regarding the cumulative impacts of the proposed Project when viewed in light of other power plants within the geographical range of Big Stone II, Western has analyzed the potential impacts to climate in Section 4.11 of the Final EIS. Western provided other GHG analyses in sections Section 3.1.3 (under the subheading Greenhouse Gas Emissions and Climate Change) and in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS. Western completed the additional analyses under the guidance of the DOE NEPA Lessons Learned Quarterly Report (DOE, 2007) to ensure that the Final EIS properly addressed GHGs, as they relate to the proposed Project.

Cumulative impacts are impacts that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. It is reasonable to conclude that since the proposed Big Stone II unit would be more efficient than other coal-fired units in the region and would emit less CO₂ per kW-hr of electricity leaving the plant site (not considering the mitigation requirements of the Settlement Agreement,) the unit would displace other less efficient units in the supply stack during low-load periods, resulting in a decrease in emissions of CO₂ per kW-hr of electricity generated. For additional discussion of the cumulative impacts of CO₂, please see Section 4.11.4 of the Final EIS under the Air Quality subheading.

11.4 Cumulative Impacts of Mercury

Please refer to Section 1.2.19, Cumulative Impacts of Mercury for Western’s response.

11.5 Cumulative Impacts of Water Use

Comment SO-1ar from CWA: “The risks of cumulative impacts from new large appropriations such as this increase the potential for water resource management problems emerging for which the two states have no agreement on how we will manage them.”

Response: In general, cumulative impacts are the impacts caused when the proposed Project impacts are added to other impacts to a specific resource by other sources. Under NEPA, Western is required to consider the cumulative impacts of the proposed Project as it does direct and indirect impacts to specific resource groups.

Regarding the cumulative impacts of the proposed Project when viewed in light of other power projects within the geographical range of the proposed Big Stone II Project, Western has updated the analysis of the cumulative impacts to include groundwater resources of water use in Section 4.11.4 of the Final EIS. A subheading under Surface Water Resources, Floodplains, and Groundwater was added to discuss surface water use and the Veblen Aquifer and to note the known status of future groundwater appropriation projects pending within or near the groundwater areas. The existing Big Stone plant operates with a South Dakota water appropriation permit that allows withdrawal of up to 8,000 afy from Big Stone Lake. Operation of the existing and proposed Big Stone II plants would result in periodic reduced water levels (on average, a decrease of about 0.15 foot) within Big Stone Lake and reduced flows (reduced less than 50 cfs) downstream from the lake. The reach that could be affected would be the approximate 10-mile section from the Big Stone Dam downstream to Highway 75 Dam. Based on the lake modeling for the proposed Big Stone II Project, flow increases are anticipated to occur more frequently than flow decreases. This would provide beneficial effects on downstream water resources and associated habitats near the proposed Project area. At present, there are no reasonably foreseeable future projects that would require withdrawals from Big Stone Lake; therefore, additional cumulative impacts to the lake or downstream flows are not anticipated. In accordance with the Settlement Agreement with the MnDOC (see Appendix K, Volume III), the Co-owners will provide SDDENR and MnDNR with data used to evaluate (1) the effect on Big Stone Lake from extended groundwater withdrawal and (2) the effect on the Minnesota River from extended surface withdrawals from Big Stone Lake. In addition, the Co-owners would perform tests on the groundwater supply to evaluate well production and impacts relative to the modeling conducted pursuant to the Co-owners’ Water Permit No 6846-3.

12.0 Alternatives

12.1 Proposed Plant Site

Comment Number	Name	Comment Summary
DEIS Comments		
O-1a	CWA	The commenter does not feel Western adequately analyzed the alternatives to coal-based electricity but rather summarized the site selection process instead of analyzing the sufficiency of it.

Comment Number	Name	Comment Summary
O-1c	CWA	The commenter feels Western should further analyze alternatives for proposed plant locations and electric power technologies regardless of jurisdiction. It was suggested that a supplemental EIS be provided to do so.
O-2l	Sierra Club	In the opinion of the commenter, the site selection process was not adequate and was poorly explained in the Draft EIS. As a result, the public had little say in the placement of proposed Big Stone II.
I-26b	Elsie Perrine	“My husband and I live in the shadow of coal fired Big Stone I plant and the pollution it sends out. Isn’t that enough? Why a 2 nd coal fired plant so close?”
FL-8a	Sierra Club Form Letter	The commenter does not feel the Draft EIS provided adequate analysis of alternatives to proposed Big Stone II.
FL-12a	Sierra Club Form Letter Tony Prokott	“Much could be done to shift peak demand to nonpeak hours, as well as encouraging a more decentralized power system where delivery losses are minimized. It also fails to examine alternative plant sites and technology.”
SDEIS Comments		
SI-17m	Dave Staub	“Otherwise, build the coal plant in Fergus Falls.”

Response: The commenters expressed concerns about the alternatives analysis conducted for the Draft EIS related to the location of the proposed Big Stone II power plant.

In summary, the Co-owners examined and evaluated 38 alternative sites in accordance with prudent site selection procedures and rationale including consideration of environmental impacts and site development, interconnection, and permitting requirements. Their siting studies used a scoring technique to quantify the relative differences among the site selection criteria for the alternative sites, which is commonly used to provide the basis for ranking and selection.

The ranking criteria and scoring values along with weights were developed and evaluated by a Co-owner team of environmental and engineering personnel as explained in the supporting documents to Appendix B1 of Volume III of the Final EIS. The scoring evaluation included sensitivity analysis of the weighting of the criteria.

This siting analysis was included in the overall application for an Energy Conversion Facility Permit submitted to the SDPUC in July 2005. SDPUC considered this information along with other information and approved the application on July 21, 2006. See Appendix B1 and Section 2.5.3 of the Final EIS (Power Plant Location Alternatives Eliminated).

12.2 Transmission Corridors/Routes

12.2.1 Corridor or Route Preference

Comment Number	Name	Comment Summary
DEIS Comments		
F-1a	EPA	“The DEIS does not identify either as the preferred alternative.”

Comment Number	Name	Comment Summary
F-2a	USFWS	The commenter states that for the proposed Morris route, should FAA regulations prohibit construction of the alternative route that was previously recommended, the commenter is willing to explore the option of an expanded right-of-way across the Twin Lakes Waterfowl Production Area.
F-2d	USFWS	“For the corridor extending to Willmar, the Service prefers the W-15/W-16 route as it requires the least amount of transmission line and would avoid all the WPA’s and easements in Kandiyohi County by a minimum of 0.5 miles.”
F-3b	USDOJ	The commenter states that for the proposed Morris route, should FAA regulations prohibit construction of the alternative route that was previously recommended, the commenter is willing to explore the option of an expanded right-of-way across the Twin Lakes Waterfowl Production Area. Same as Comment F-2a.
F-3e	USDOJ	“For the corridor extending to Willmar, the Service prefers the W-15/W-16 route as it requires the least amount of transmission line and would avoid all the WPA’s and easements in Kandiyohi County by a minimum of 0.5 miles.” Same as Comment F-2d.
L-1a	YMSWCD	“The SWCD does not object to the project. However, we feel that it would be best to stay adjacent to the original route. We have a huge concern with the alternative route along County Road 3 east of St. Leo. There are sixteen permanent easements located along this stretch. . . . These easements total 800.3 acres. These permanent easements require vegetative cover to be established in these areas. We are concerned about the destruction of these vegetated areas. If these areas are distributed than [disturbed then] an amendment will be needed to the landowner's conservation plan and the area will need to be reseeded at the landowner's expense.”
I-20p	Gil Lanners	“If it evolves that an overhead line will be built. I strongly believe that the alternate route from Canby to Granite Falls would be the best choice. It would avoid the wildlife areas and problems mentioned in the above paragraphs. And if it was build [built] in the highway #3 right of way, the structures would physically not interfere with farming operations. And there would be fewer agricultural acres involved in the electronic interference.”
I-20y	Gil Lanners	“In closing, I realize that I will not and cannot stop this power line, nor do I want to stop the progress. But I feel that all people use electricity and that we should all bear the burdens associated with this. I have taken my turn supporting the current structures. Should it not be someone else's turn to support the future electrical infrastructures?”
I-20z	Gil Lanners	“I would personally like to see the power line be constructed in the county road #3 right of way, east of St. Leo. The proposed alternative route should have the power line settings be in the county road ditch, where the setting would not bother anyone, verses in prime farmland.”
PH3-9d	Public Hearing Granite Falls, MN Gary Johnson	“Also in moving the line down there, at the last public meeting we held earlier this spring, the majority of the concerns were, were mercury and carbon dioxide and some of the constituents that we have down there didn't get a chance to voice their concerns.”
SDEIS Comments		
No comments received.		

Response: Commenters expressed concerns and preferences for selection of the final transmission corridors and the routes within those corridors. The states of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. The SDPUC selected a centerline for the South Dakota portion of the lines as part of the January 16, 2007 Decision and Order Approving Stipulation and Granting Permit to Construct Transmission Facilities. The locations of structures within the South Dakota portion have not been determined. Design of facilities would begin after all route permits have been issued. The MnPUC authorized the transmission line route for the Minnesota portion of the proposed Project on January 15, 2009, by approving the Co-owners' preferred route: Alternative A (Corridor A and Corridor C). The MnPUC issued their final written order granting the Certificate of Need and the Route Permit on March 17, 2009. The Co-owners would identify a transmission line centerline and acquire an easement from the landowners for the transmission ROW within the designated route approved by the MnPUC. None of the transmission lines would be placed over residences. The proposed corridors are located primarily on lands where proposed Project facilities (e.g., transmission line structures and conductor, ROW, and access roads) and activities may be visible but not dominate the landscape.

12.2.2 Areas to Avoid

Comment Number	Name	Comment Summary
DEIS Comments		
F-2b	USFWS	The commenter stated that any future proposed Project modifications to the transmissions lines should not enter the Big Stone National Wildlife Refuge since it is extremely unlikely that the USFWS would be able to issue a new ROW across Federal lands.
F-2c	USFWS	The commenter discussed previously with proposed Project planners that if a route crosses USFWS-administered wetland easements, poles cannot be placed within any wetlands covered by the terms of the easement.
F-2e	USFWS	The commenter suggested that the Canby and Willmar transmission line routes should avoid all WPA and habitat easements as it is unlikely the Service would issue a new ROW across Federal land where no ROW previously existed.
F-2f	USFWS	The commenter stated the transmission line should avoid crossing native prairie remnants as fragmentation and damage can be minimized by routing the line only along the exterior, rather than the interior, of the grasslands.
F-3c	USDOJ	The commenter stated that any future proposed Project modifications to the transmissions lines should not enter the Big Stone National Wildlife Refuge since it is extremely unlikely that the USFWS would be able to issue a new ROW across Federal lands. Same as Comment F-2b.
F-3d	USDOJ	The commenter discussed previously with proposed Project planners that if a route crosses USFWS-administered wetland easements, poles cannot be placed within any wetlands covered by the terms of the easement. Same as Comment F-2c.
F-3f	USDOJ	The commenter suggested that the Canby and Willmar transmission line routes should avoid all WPA and habitat easements as it is unlikely the Service would issue a new ROW across Federal land where no ROW previously existed. Same as Comment F-2e.

Comment Number	Name	Comment Summary
F-3g	USDOJ	The commenter stated the transmission line should avoid crossing native prairie remnants as fragmentation and damage can be minimized by routing the line only along the exterior, rather than the interior, of the grasslands. Same as Comment F-2f.
L-1a	YMSWCD	“The SWCD does not object to the project. However, we feel that it would be best to stay adjacent to the original route. We have a huge concern with the alternative route along County Road 3 east of St. Leo. There are sixteen permanent easements located along this stretch. . . . These easements total 800.3 acres. These permanent easements require vegetative cover to be established in these areas. We are concerned about the destruction of these vegetated areas. If these areas are distributed than [disturbed then] an amendment will be needed to the landowner's conservation plan and the area will need to be reseeded at the landowner's expense.”
B-3i	Rose Creek Anglers	“It appears to me that the Big Stone plant is attempting to transmit their electricity into Minnesota without a reasonable plan for the future. We make strides in solving a problem with some great initiatives and now we will be taking steps backwards to negate them. It is a silly sight to see a dog futilely chasing its tail, but this is precisely what we will be doing if we allow transmission lines from Big Stone II into our state.”
I-20f	Gil Lanners	“It is my hope that you relocate the updated line. I feel that after 50 years, the present property owners and renters have been exploited and have well paid their civic and public duties. Let someone else take a turn!”
I-20g	Gil Lanners	“The north and south boundaries are both county roads. Why couldn't the line be installed in the county road right of way? That would certainly be more user friendly to both you and the farmers. And, it would avoid sensitive wildlife areas, such as Lanners Lake.”
PH3-9b	Public Hearing Granite Falls, MN Gary Johnson	The alternative route [referring to Corridors C and C1] is in an area known as Spring Creek Road on County Road 3. Various programs have spent money along the road. The native grasses and tress have made it ideal wildlife habitat. Why disrupt land when there is already a line 3 miles north?
PH4-7e	Public Hearing Benson, MN Jim Falk	“I would be opposed to these transmission lines in the state that they are being proposed at this time.”
SDEIS Comments		
No comments received.		

Response: Commenters noted areas that should be avoided when the final transmission line route is selected in each corridor. The states of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. Structure placement would be prohibited within wetlands covered by USFWS administered wetland easements. Although structures can be placed on upland sites, some restrictions would apply if the upland site is a USFWS-administered grassland easement. The Co-owners plan to avoid wetlands to the extent practical (see SMM Bio-3 in Table 2.2-8 of the Final EIS) and would coordinate with the USFWS on the placement of structures within USFWS-administered grassland easements (i.e. if the Minnesota PUC grants a route that includes new ROW through these resources). Also, see the Response to Comment 12.2.1 above.

12.2.3 Transmission Design

Comment Number	Name	Comment Summary
DEIS Comments		
F-2g	USFWS	The commenter stated that on all routes the transmission line ROW and structural design should accommodate future restoration of drained wetlands that contain a segment of the line ROW.
F-2h	USFWS	“For all routes adjacent to or crossing likely bird concentration areas (e.g. large wetlands, riparian areas, lakes, and conservation lands), bird deflectors and/or other devices to minimize bird strikes should be incorporated in project design.”
F-2l	USFWS	The commenter recommended that bridges be included as standard practice rather than culverts and requests further clarification regarding the determination between appropriate structures at any particular site. Replacing culverts with bridges may be considered mitigation for some proposed Project-related impacts on riparian habitat.
F-3h	USDOJ	The commenter stated that on all routes, the transmission line ROW and structural design should accommodate future restoration of drained wetlands that contain a segment of the line ROW. Same as Comment F-2g.
I-20g	Gil Lanners	“The north and south boundaries are both county roads. Why couldn’t the line be installed in the county road right of way? That would certainly be more user friendly to both you and the farmers. And, it would avoid sensitive wildlife areas, such as Lanners Lake.”
I-20h	Gil Lanners	“If you insist on present location it would be fair and responsible that the line be buried and shielded irregardless [regardless] of cost.”
I-20i	Gil Lanners	“If you insist on the overhead line, please, get rid of the double pole structure and go to a single pole, set exactly on the property lines. The present structures are set about 8 to 10 feet south of the property lines, adding to the aggravation.”
SDEIS Comments		
No comments received.		

Response: The comments in this subcategory provided various suggestions regarding improvements to transmission line design. Western understands that agencies and individuals are actively restoring drained wetlands in the proposed Project area. Restorable wetlands greater than 10 acres in size are of particular interest to the USFWS. The presence of the transmission line does not preclude agencies or individuals from restoring a wetland underneath a transmission line. The Co-owners would work with the entity restoring the wetlands to address concerns, if such activities are to occur within the easement for the transmission line. Due to the narrow width of the watercourses within the transmission corridors, Western anticipates that the transmission lines would span the watercourses. Any work required in a stream would be addressed with the appropriate regulatory agency, including discussions on structures and actions that would be implemented to minimize impacts to streams.

Bird deflectors and/or other devices to minimize bird strikes would be incorporated in the proposed Project design. The transmission lines and substation modifications would be designed and built in accordance with ‘Suggested Practices for Raptor Protection on Power Lines: The State of the Art in

2006.” Bird deflectors would be installed in coordination with State and Federal resource management agencies.

The States of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. Therefore, the Final EIS evaluates the resources within three- to four-mile-wide corridors instead of specific routes. The SDPUC selected a centerline for the South Dakota portion of the lines as part of the January 16, 2007 Decision and Order Approving Stipulation and Granting Permit to Construct Transmission Facilities. The MnPUC authorized the transmission line route for the Minnesota portion of the proposed Project on January 15, 2009, by approving the Co-owners’ preferred route: Alternative A (Corridor A and Corridor C). The MnPUC issued their final written order granting the Certificate of Need and the Route Permit on March 17, 2009. The Co-owners would identify a transmission line centerline and acquire an easement from the landowners for the transmission ROW within the designated route approved by the MnPUC. Structure design and placement would be selected by the Co-owners to reduce potential conflicts with agricultural practices and to reduce the amount of land required for transmission lines. Details on the design on the transmission system may be found in Section 2.2.2 of the Final EIS.

12.2.4 More Detailed Information on Alternatives

Comment Number	Name	Comment Summary
DEIS Comments		
F-1y	USEPA	“The FEIS should discuss the proposed centerlines for each alternative and demonstrate how these centerlines either avoid or minimize impacts. For impacts that are not avoided, the applicant should provide at the very least a partial mitigation plan that explores available mitigation options.”
F-2j	USFWS	“A more detailed discussion regarding the need for Corridor C, a new transmission line in South Dakota, is necessary to explain why upgrade or improvements to existing transmission lines in Corridor C, Variation I, is not feasible.”
F-3i	USDOJ	“A more detailed discussion regarding the need for Corridor C, a new transmission line in South Dakota, is necessary to explain why upgrade or improvements to existing transmission lines in Corridor C, Variation I, is not feasible.” Same as Comment F-2j.
SDEIS Comments		
SF-1af	USEPA	“EPA recommends that the FEIS discuss the proposed centerlines for each alternative and demonstrate how these centerlines either avoid or minimize impacts. For impacts that are not avoided, the applicant should provide a partial mitigation plan that explores available mitigation options.” Same as Comment F-1y.

Response: The states of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. Therefore, the Final EIS evaluates the resources within three- to four-mile-wide corridors instead of specific routes. The SDPUC selected a centerline for the South Dakota portion of the lines as part of the January 16, 2007 Decision and Order Approving Stipulation and Granting Permit to Construct Transmission Facilities. The locations of structures within the South Dakota portion have not been determined. Design of facilities would begin after all route permits have been issued. The MnPUC authorized the

transmission line route for the Minnesota portion of the proposed Project on January 15, 2009, by approving the Co-owners' preferred route: Alternative A (Corridor A and Corridor C). The MnPUC issued their final written order granting the Certificate of Need and the Route Permit on March 17, 2009. The Co-owners would identify a transmission line centerline and acquire an easement from the landowners for the transmission ROW within the designated route approved by the MnPUC. Please refer to Table 2.2-8 which identifies the standard mitigation measures that apply to construction and operation of the transmission lines. Corridor C1 is feasible and is evaluated in the Final EIS.

12.2.5 Transmission Outlets for Renewable Energy Sources are Needed

Comment Number	Name	Comment Summary
DEIS Comments		
O-3o	Joint Commenters	The commenters stated that wind power has been shown to provide a consistent power source. Also, the commenters feel the need to have a fully dispatchable facility is unnecessary.
I-16d	Pete Kennedy	"Why do we need to build a power plant in the when Minnesota utilities are paying electrical wind generators to be idled because we do not have the transmission lines to transmit the power they generate (Meersman, StarTribune, 16Jun06)? The assessment of wind energy in the alternatives section of the draft EIS was at best minimal and at worst insulting. Wind was never seriously considered as an alternative to the Big Stone II project."
I-17d	Jeanne Koster	"Scheduling for wind certainly would require new agility and may require adjusting the dispatching culture. What would be the cost and feasibility of meeting such challenge?"
I-17e	Jeanne Koster	"Transmission will probably be greatest challenge. There should be credible projection of the cost of constructing, upgrading, and modifying transmission to accommodate [accommodate] wind? The cost would no doubt be considerable, but does it within a reasonable time frame amortise [amortize] so that wind cost converges with the cost of coal and then surpasses coal in economy in a meaningful way?"
PH1-2c	Public Hearing Big Stone City, SD Lanny Stricherz	"With more than a \$2 billion loan given to the DM&E railroad by the federal government and the fact that we know the Big Stone line is getting less than 40 percent of the coal that it needs to run on a full-run basis, it seems like this project is throwing money to the wind rather than to harnessing the wind for clean renewable non-fossil energy. That loan could have gone to put in transmission lines for the wind power which we so desperately need and also to create jobs and to keep our environment clean and safe for ourselves and future generations."
PH1-9b	Public Hearing Big Stone City, SD Lanny Stricherz letter	"With the more than \$2 billion dollar loan given to the DM&E railroad by the federal government and the fact that we know that the Big Stone line is getting less than 40 percent of the coal it needs to run on a full-run basis, it seems like this project is throwing money to the wind rather than to harnessing the wind for clean renewable nonfossil energy. That loan could have gone to put in transmission lines for the wind power which we so desperately need to create jobs, and to keep our environment clean and safe for ourselves and future generations."

Comment Number	Name	Comment Summary
PH3-2a	Public Hearing Granite Falls, MN Andrew Falk	“One of the things I would like to address certainly as an environmentalist is with respect to renewable energy and how that helps promote clean environment. And a lot of the things I've heard about this project are the transmission lines, and they're going to overbuild certain lines to make space for additional 800 to 1,000 MW of potential renewable, such as wind. And I hear this quite often.”
PH3-2b	Public Hearing Granite Falls, MN Andrew Falk	“But the question is, is it truthful in the way that it's presented, because the proposers of the plant do not control the transmission system? Rather, that's controlled by an entity called MISO, who oversees what is put into the grid and what load comes off the grid. And they have the ultimate authority to go and designate what sources are able to enter the grid and at what point in time. And it talks about that there is this additional transmission capacity, when, in fact, the MISO cue has thousands of megawatts in place, so any new renewable projects put into the cue currently are not going to be able to use this transmission. This transmission has been taken up by coal plants and other projects that are farther out, reaching out as far as 2015.”
PH3-2c	Public Hearing Granite Falls, MN Andrew Falk	“So I believe that the advertising, the marketing of this idea, that there is going to be space for renewables in conjunction with this coal plant is misleading. The thing is, is they might say there is potential for renewable generation to be put on the grid, but in reality, is just some form of generation. So I would like to address the fact that we really, if we want to promote renewables, we have to be fair and honest and truthful in the way that we're going to present we're going to have space for renewables on the grid. And I just haven't been very comfortable with the way that they promote that this is going to be concrete space available for renewables.”
PH4-7a	Public Hearing Benson, MN Jim Falk	“I'm just one of the 85 to 90 percent of the Minnesota residents who have expressed deep concerns about how we address the handling of renewable energy, how we get the renewable energy on our grid. The consumers, the Minnesota consumers, have overwhelmingly said we want renewable energy.”
SDEIS Comments		
SI-17f	David Staub	“... make it easier for everyone to invest in community wind. I would suggest the concept of a South Dakota Wind Investment Fund. . . Individuals and non-profit groups, government entities . . . across the state could invest. All wind projects in South Dakota would be required to obtain at least a certain percentage of the capital from the Investment Fund, as fund assets grow. I would suggest that people in South Dakota would trust the wind (which always blows) as much as Wall Street for their investments . . .”
SI-17n	David Staub	“Develop Smart Grid to utilize Distributive Wind resources and the reliability issues that are of concern.”
SI-17o	David Staub	“Build distributive wind of 10 to 100 MW all across the WAPA transmission system, inter-connecting many ‘multi-point’ sources of production. The aggregation from the foothills of the Rockies to Iowa will provide a base-load of electrons as well as peaking in-put to the integrated system. . . . This system has capacity since the Missouri River hydroelectric is presently producing about 50% of average. Ten years ago it was at 150% of average and the coal plants utilizing the transmission were throttled back.”

Comment Number	Name	Comment Summary
SI-17p	David Staub	“Logically, this indicates that WAPA has capacity for multi-point wind production. Hydro and Wind generation have potential to complement each other for base load production because of the sequential production across the aggregated foot-print.”
SI-17q	David Staub	“Since the WAPA footprint is identical to the Rural Electrics and many Native American Tribes, both entities could become the owners of this distributive system, essentially self-financing this incremental development process by borrowing capital from members or a new entity of a ‘South Dakota Wind Investment Fund (all states could do the same), where rural and city people could invest in the fund. Risk issues would be spread across each state through this fund. Since conception, Rural Electric Cooperatives have been “one-armed” monopolies. Now is the time to grow the opposite arm, the renewable energy production arm, using the successful democratic and grassroots model of co-ops. The co-op members would economically benefit, rural development would result and ultimately electricity costs would be lower.”
SI-17r	David Staub	“. . . Distributive wind, smart grid, local to regional capital investment, REC metamorphosis into energy production, incremental growth, etc. will give coal based energy the 10 to 20 years to research and develop the CO ₂ neutral industry that will be required around the world.”
SI-18e	Lanny Stricherz	“As I drive to Minneapolis, I constantly see new wind towers going up and new transmission poles going up. We already have the poles here to tie the wind power to the hydroelectric power that we formerly produced from the Missouri River Dams.”

Response: Commenters expressed the concern that transmission system improvements being proposed for the Big Stone II should be used to support wind energy and other renewable energy developments. These comments has been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project. In response to the above comments, additional information on the combination of renewable, such as wind and other resources, is provided in the Wind and Renewable Energy Response Paper (Response Paper B, Volume II).

12.2.6 Other Transmission Comments

Comment Number	Name	Comment Summary
DEIS Comments		
F-1a	USEPA	“The DEIS does not identify either as the preferred alternative.”
F-2i	USFWS	Address potential adverse impact on habitat and wildlife from long-term maintenance issues associated with transmission line ROWs.
I-20o	Gil Lanners	“If you consider this loss of agricultural revenue for generations to come, it is academic that power lines should be buried when crossing prime agricultural land. Power companies will argue that is not feasible. I highly dispute their rational. They only see their side of the situation. Also, the power companies have means of recouping their expenditures, farmers do not.”

Comment Number	Name	Comment Summary
PH3-9c	Public Hearing Granite Falls, MN Gary Johnson	“Also, in moving the line down there, at the last public meeting we held earlier this spring, the majority of the concerns were, were mercury and carbon dioxide and some of the constituents that we have down there didn't get a chance to voice their concerns.” [referring to Corridors C and C1].
SDEIS Comments		
No comments received.		

Response: The States of South Dakota and Minnesota have jurisdiction over determining the specific routes within the proposed corridors under their permitting processes. Therefore, the Final EIS evaluates the resources within three- to four-mile-wide corridors instead of specific routes. The SDPUC selected a centerline for the South Dakota portion of the lines as part of the January 16, 2007 Decision and Order Approving Stipulation and Granting Permit to Construct Transmission Facilities. The MnPUC authorized the transmission line route for the Minnesota portion of the proposed Project on January 15, 2009, by approving the Co-owners’ preferred route: Alternative A (Corridor A and Corridor C). The MnPUC issued their final written order granting the Certificate of Need and the Route Permit on March 17, 2009. The Co-owners would identify a transmission line centerline and acquire an easement from the landowners for the transmission ROW within the designated route approved by the MnPUC. SMMs and BMPs are in place to address potential adverse impacts of maintenance within the ROWs. Also refer to the Responses to Comments at Sections 6.1.1, 6.2.1, and 6.2.3, above.

12.3 Generation/Technology Alternatives

12.3.1 General Comments about Alternatives to Coal-Based Generation

Comment Number	Name	Comment Summary
DEIS Comments		
O-3i	Joint Commenters	The commenters declared that the Draft EIS fails to assess any reasonable alternatives to meet the purpose of providing power at a reasonable cost.
O-3j	Joint Commenters	The commenters stated that because the Minnesota EIS is assessing reasonable alternatives for proposed power plant locations and power generation technologies, it is reasonable to expect the same from the federal Draft EIS.
O-3r	Joint Commenters	The commenters feel that Western did not act and think independently in the analysis and relied too heavily on the analysis by the proposed Project proposers.

Comment Number	Name	Comment Summary
O-4d	MnRES	“The draft EIS nowhere analyzes such alternative technologies as wind power, instead opting -- in direct violation of both the spirit and the letter of NEPA - to passively accept the Co-Owners' assertion that a polluting, 600-megawatt, coal-fired power plant with a projected average annual output of 4.7 million tons of CO ₂ is the necessary means of power production to fill an asserted but unproven need for additional generation. But ‘an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative ... would accomplish the goals of the agency's action, and the EIS would become a foreordained formality.’ [Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991), cert. denied, 502 U.S. 994,112 S. Ct. 616 (1991).]”
I-4a	Keith C. Davison	“Otter Tail should be focusing on alternative sources of power, not engaging in construction of coal fired plants. Big Stone II will send more pollutants, including mercury, into the atmosphere.”
I-14a	Glenn Joplin	“I understand the need for more electric power. My hope and request is that you will investigate thoroughly all the alternatives and select those that are the most environmentally friendly.”
I-17m	Jeanne Koster	“I'm so glad there's the prospect now of some good analysis of that. When you talk to the people who will do it, emphasize to them that the generation (and to a certain extent even the transmission and dispatch) alternatives can be gradually implemented. The process can be much more gradual (manageable in smaller steps) and forgiving than the process involved in putting all eggs in one big honking coal plant.”
I-19g	Richard Kroger	“Let’s get with it in the EIS and develop some real alternatives for evaluation.”
I-21e	Terry J. Makepeace	“I hope that other sources of energy will be looked into that are safer for the people and quality of life for this area.”
I-23a	Stacy Miller	“Clearly, the intent of the laws requiring an environmental impact statement is to protect the public interest. An EIS is meant to ensure that an applicant is diligent in considering several methods for meeting demand not simply the easiest or business as usual choice.”
I-23b	Stacy Miller	“WAPA's Draft Environmental Impact Statement for the proposed Big Stone II plant fails to demonstrate that coal is the best option for meeting the needs of its customers. There are alternative technologies and strategies that merit consideration and full analysis. These analyses should be provided in a revised EIS and objectively compared against the proposed plan.”
I-28b	Roy Smith	“Alternatives - Alternatives that would reduce the environmental impacts have not been analyzed, which contradicts the National Environmental Policy Act (NEPA) and Section 404 of the Clean Water Act.”
PH3-7b	Dolores Miller	“Western Area Power Administration, WAPA, has not drafted an objective EIS that is based on an understanding of environmental consequences. Rather the Draft EIS appears to be heavily influenced by Big Stone's Co-owners. Most of the two-paragraph discussion of wind energy as an alternative to coal-based power repeats verbatim applicant's exhibit 24-A, Page 2-2. There is no indication that the Draft EIS represents a good faith attempt to examine alternatives to coal-based power. Rather it seems that WAPA relied on one-sided information from the applicant. WAPA should not assist Big Stone in eliminating renewable energy alternatives until all feasible options have been given a thorough evaluation.”

Comment Number	Name	Comment Summary
SDEIS Comments		
SI-13c	Tom Neiman	“Why not natural gas?”
SI-22a	Clay Hesser	“How long will be it be before everyone realizes that we cannot continue on with coal-fired power plants. It has to be decided today - not 25 or 50 years from now when it's too late. If we don't stop the use of coal now and go to natural resources such as wind. Please consider this very carefully.”
SI-23a	John Sens	“It is deplorable that another large, polluting coal plant is on the table in the Supplemental Draft Environmental Impact [Environmental Impact] Statement. We need to be progressing away from new coal plants and focusing on new technologies, both renewable and nonrenewable.”
SI-23b	John Sens	“Building a new coal plant is a step backwards, as it will be bad for the health of the area, it will pollute, and it contributes to global warming. Why should we use this technology when newer technologies that will be cheaper in the long run are available.”
SI-24b	Aleksandra Stancevic	“There are good reasons to believe that investment in non-polluting, clean, renewable energy sources will be subsidized in the coming years. Minnesota should be a leader in pro-environment measures, not a follower. I ask that the Big Stone II project be removed from consideration until it is powered by more sustainable energy sources.”
SFL-46a	Sierra Club Form Letter for SDEIS Liz Keeler	“I would like other options considered so that in the long run MN has a balance of energy options and we never find ourselves too closely tied to one type of energy as we are now tied to oil.”
SFL-66a	Carmine Profant	“The issue of global warming caused by excessive carbon emissions should be our primary consideration as we try to make wise and sustainable decisions on what types of energy sources to build and use. Building another coal-fired power plant moves us further in the wrong direction, altering Minnesota’s natural resources and having a negative impact on our climate, ecosystems, species and human life itself.”

Response: The commenters expressed concern that Western did not adequately examine power generation alternatives, such as renewable energy, and instead relied too heavily on the analysis conducted by the Co-owners. Numerous comments were received requesting that Western address alternatives to the Co-owners’ proposal to provide baseload generation from coal-fired generation, including the following comments that are specifically addressed in Volume II to the Final EIS: (1) Western should address DSM as an alternative to coal-fired generation; (2) Western should evaluate renewable energy alternatives to the Co-owners’ generation plan, including wind, solar, and biomass; and (3) Western should evaluate Integrated Gasification Combined Cycle (IGCC) generation with CCS and wind in combination with coal or CCGT.

Western considered the generation alternatives suggested to the Co-owners’ generation plans and has determined that the EIS will not fully analyze them. For a discussion of the interrelated reasons why Western did not fully analyze generation alternatives, please refer to Section 2.5.1 of the Final EIS.

Nevertheless, considering the strong interest expressed by the public regarding alternative generation technologies, Western has provided information below on the reasonableness of the alternative generation alternatives as it relates to the Co-owners’ needs for baseload generation. This information also gives perspective to the environmental effects of the proposed Project. Supplemental information

regarding renewable energy resources and DSM are presented in greater detail in the Wind and Renewable Energy Response and DSM papers (see Response Papers B and C, Volume II of the Final EIS).

12.3.2 Wind is a Better Option

Comment Number	Name	Comment Summary
DEIS Comments		
O-1ag	CWA	“What are the environmental and economic benefits that the Big Stone partners would achieve by investing in wind energy?”
O-1ah	CWA	“When consequences to the environment and human health are considered, is coal-based energy really, a better choice than wind power?”
O-1am	CWA	“Will these responses be more cost effective than investing in wind energy from the outset?”
O-1aq	CWA	“Will these responses be more cost effective than investing in wind energy from the outset?”
O-3n	Joint Commenters	The commenters feel the arguments used against wind power as a coal-fired power substitute were based on dated, inaccurate information and should have been further analyzed.
O-3o	Joint Commenters	The commenters stated that wind power has been shown to provide a consistent power source. Also, the commenters feel the need to have a fully dispatchable facility is unnecessary.
O-3p	Joint Commenters	The commenters felt the economic analysis was critically biased against wind based alternatives due to the focus of the analyses and the specific data used.
O-3q	Joint Commenters	The commenters discussed the “next best” resource scenarios which they feel were inadequate analyzed, instead it depended almost exclusively on coal-fired and natural gas-fired generation. Wind, at a minimum, significantly reduces fuel price and environmental risks.
O-3u	Joint Commenters	“Commenters strongly disagree that the Project proponents have shown need for a new baseload resource that level of sought-after power can be obtained more cheaply by following a cleaner technology path. Moreover, building predominantly wind-based alternatives would result even greater economic development benefits to the region.”
O-3v	Joint Commenters	The commenters discussed the absence of analysis into the potential future regulation of carbon dioxide and how it would affect the economic feasibility of the proposed Project and incorrectly eliminate the consideration of wind.
O-3x	Joint Commenters	The commenters discussed a wind feasibility study and compared it to the proposed Big Stone II project. Using different assumptions for future carbon costs and production costs for wind, commenters’ analysis shows that wind power may be a viable option which the Agency has an obligation to discuss in their EIS.
I-9d	Sergio Gaitan	“Why is it so difficult to use those prevailing winds to generate clean renewable wind power instead of having them be the winds that carry tons of pollutants 24-7 for the next 50 to 100 years? We would like to be able to turn our electrical air conditioning units in the summer knowing that our comfort does not come at the expense of increased global warming or adverse health consequences.”

Comment Number	Name	Comment Summary
PH1-4d	Public Hearing Big Stone City, SD Delores Miller	“Why can't they work hand in hand with the wind so that the two companies can join together as one and give us what we need and protect our environment and the health of our children?”
PH2-3d	Public Hearing Morris, MN Earl Hauge	“I know the wind doesn't always blow. But these big wind turbines are connected to the electrical grid. So if it is not blowing in South Dakota, you can be sure it's blowing in North Dakota, or Minnesota, or Iowa, or Wisconsin. I am not an expert, but I can read and I can listen. And if the environmental experts say 20 percent of our electricity should be generated from the wind, why is it even a consideration to build a coal plant when we are generating less than two percent of our electricity from the wind at this point? South Dakota is the Saudi Arabia of wind. They can produce it cheaper than perhaps any other state in our country. Since the ridge west of Big Stone has enough wind to produce twice as much electricity as Big Stone II will ever produce, let us use the wind. Not one of us wants to be a cause of global warming or to waste coal, which is a nonrenewable resource.”
PH3-10i	Public Hearing Granite Falls, MN Duane Ninneman	“Her message is in the wind.”
PH4-5h	Public Hearing Benson, MN Erin Jordahl Redlin	“Then if you looked at a wind-based alternative using midrange estimates for CO ₂ , Big Stone II would cost 28 to 72 more percent. So we just feel that these risks, these additional costs, have not been adequately addressed in the Environmental Impact Statement, and before a decision is made about interconnection, we think that they should be.”
PH4-7d	Public Hearing Benson, MN Jim Falk	“I think wind has huge potential, and I don't know that we're getting wind onto our grid, and I don't know that these transmission lines will actually benefit that in any way, shape, or form.”
SDEIS Comments		
SI-2c	Margaret Bitz	“There are other more efficient ways to develop energy, such as wind energy.”
SI-8c	Joe Makepeace	“You have an abundant amount of wind to use in the western part of Minnesota and wind energy is a safe and effective alternative to coal power.”
SI-17o	Dave Staub	“Build distributive wind of 10 to 100 MW all across the WAPA transmission system, inter-connecting many “multi-point” sources of production. The aggregation from the foothills of the Rockies to Iowa will provide a base-load of electrons as well as peaking in-put to the integrated system. “The wind is always blowing multiple places across the 1000 miles of the WAPA foot-print (11,000 miles of high voltage transmission lines). This system has capacity since the Missouri River hydroelectric is presently producing about 50% of average. Ten years ago it was at 150% of average and the coal plants utilizing the transmission were throttled back.”
SI-17p	Dave Staub	“Logically, this indicates that WAPA has capacity for multi-point wind production. Hydro and Wind generation have potential to complement each other for base load production because of the sequential production across the aggregated foot-print.”

Comment Number	Name	Comment Summary
SI-18b	Lanny Stricherz	“Our Lt Governor addressed the wind conference held here in Sioux Falls on Nov 29 and 30. He said that we are already a net energy exporter. We are attempting to get wind power off the ground here and have a lot of things going on to facilitate doing that. There is no reason for us to pollute our water and air to provide energy for folks to the East of us, when we have so much wind power just waiting to be harnessed.”
SFL-5c	CWA Form Letter for SDEIS Bill Blonigan	“Spend our money on Wind and other Renewable sources. If the Big Stone II owners can create their own water they should be able to use that water for a plant. Just lay off the public water entrusted to us for us future generations of humanity.”
SFL-10a	CWA Form Letter for SDEIS Joe Duea	“I would much rather see investments in Wind or other alternatives to coal powered plants that would have a dramatically smaller impact on the environment.”
SFL-12a	CWA Form Letter for SDEIS Rhonda Feuerstein	“I think we need to look for other alternative to supply the energy needs of Minnesotana [Minnesota]. I would support wind power initiatives.”
SFL-12b	CWA Form Letter for SDEIS Rhonda Feuerstein	“As a resident of Minnesota, I do not support a coal powered plant to generate electricity. I could support a wind power or solar powered plant, though.”
SFL-25b	CWA Form Letter for SDEIS Mary Ellen Proulx	“Let us invest in wind energy!”
SFL-30a	CWA Form Letter for SDEIS Richard Tester	“I also think that the Big Stone II coal burning plant should not be built. We do not need any more fossil fuel plants like this. Why not just harness more wind energy and send that trough the new transmission lines?”
SFL-43a	Sierra Club Form Letter for SDEIS Kurt Indermaur	“Coal, with its attendant air pollution and mercury emissions, is not the best option for expanding power generation in our region. With cleaner alternatives increasingly available (wind, biomass), and the potential for us to lead the nation in renewable energy generation, expanding coal burning just does not make sense.”
SFL-44a	Sierra Club Form Letter for SDEIS Terry Iverson	“We don't need this new facility. It's just going to be a big eye sore in the near future when/with alternative energy resources (solar, wind) growing and becoming a bigger and better option for America's energy needs.”
SFL-45a	Sierra Club Form Letter for SDEIS Susan Johnson	“Minnesota needs to become a leader in wind and solar energy, not more polluting plants. People want to be able to eat the fish they catch. Tourism is a big industry in MN, let us work harder to clean up our lakes not pollute them. There is more than enough wind in our great state to provide much needed energy.”
SFL-52a	Sierra Club Form Letter for SDEIS Julie Nester	“Coal is not the energy source of the future. We should be developing wind and solar.”
SFL-62a	Sierra Club Form Letter for SDEIS Shirley Johnson	“In an area of the state with an abundance of potential for wind energy, let's not increase the problems associated with coal.”

Response: Comments in the subcategory advocate the use of wind energy rather than the proposed coal-fired generation power plant. Based on these comments, the discussion of the wind alternative in Section 2.5.1.2 of the Final EIS has been expanded. That section also has been updated to further explain the Co-owners’ conclusion that wind resources do not meet their needs for reliable baseload power generation and to provide a more exhaustive explanation of wind-generation alternative,

including its environmental impacts. While the public comments did not broach specific questions regarding the legal or regulatory requirements that are placed on the proposed Project’s Co-owners, such attributes affect the Co-owners’ decision-making process for new energy resource adoption and deserves further consideration. Consequently, information on the pertinent legal and regulatory requirements that are associated with renewable energy (e.g., wind) and the status of Co-owner compliance are provided in the Wind and Renewable Energy Response Paper (Response Paper B, Volume II).

12.3.3 Western Needs to Examine Wind as an Alternative in the EIS

Comment Number	Name	Comment Summary
DEIS Comments		
O-1b	CWA	The commenter believes that the alternatives involving renewable energy were not rigorously explored and objectively evaluated.
O-1d	CWA	The commenter thinks the environmental externalities such as increased health care needs, acid rain, mercury contamination, and the loss of rare species and habitats, were not taken into account when analyzing the cost of coal energy versus alternatives like wind power.
O-1f	CWA	The commenter does not think wind power and other renewable energy sources were considered adequately with the energy customer’s needs and objectives in mind but rather those of the Co-owners. CWA believes that all costs associated with wind power must be weighed against the public health and environmental costs associated with coal-based power.
O-1r	CWA	“The EIS should consider wind energy as a healthy alternative to coal-based energy that results in fewer deaths and illnesses caused by coal pollution.”
O-1ae	CWA	“What are the true costs of coal-based energy versus renewable energy (e.g. wind energy) including environmental externalities and risks to energy consumers?”
O-3j	Joint Commenters	The commenters stated that because the Minnesota EIS is assessing reasonable alternatives for proposed power plant locations and power generation technologies, it is reasonable to expect the same from Western’s Draft EIS.
O-3l	Joint Commenters	The commenters stated that the analysis performed on renewable energy was not performed in a complete and unbiased manner. In an analysis, six of the seven generation alternatives were coal-fired and the other was a natural gas-fired combined cycle.
I-3a	Alese Colehour	“Scientists, doctors, and everyday citizens have researched and observed the negative effects of fossil fuels on our health and environment. Why do we still consider putting more into the air, water, and subsequently our bodies! It is time to modernize and consider renewable energy sources for our future.”

Comment Number	Name	Comment Summary
I-17a	Jeanne Koster	“Wind Energy, combined with aggressively incentivized conservation, should be treated as a full dress generation alternative. Instead, wind is dismissed in fourteen lines and, in another section, the co owners essentially plead they've gone about as fer [far] as they kin [can] go with conservation. The dismissal of conservation needs to be defended with specifics by showing in detail how a more intensive conservation program is not a practical alternative. Wind should not be dismissed because it isn't 'dispatchable.' Not dispatchable is not the same as not reliable in any absolute sense. Recent wind integration studies suggest that the utilities involved may be able to manage integration of wind as up to 20% or better of their baseload without any new backup generation.”
I-21e	Terry J. Makepeace	“I hope that other sources of energy will be looked into that are safer for the people and quality of life for this area.”
I-22b	Ellen Mamer	“Please consider wind power as an alternative.”
I-27b	Elizabeth Smith	“I am not sure that the draft EIS adequately addressed alternative long term strategies for renewable energy.”
PH3-10i	Public Hearing Granite Falls, MN Duane Ninneman	“Her message is in the wind.”
FL-7a	CWA Form Letter – Arwen Wilder	“It would also serve us all well to do a comparative study of pollution, output and costs between this and windmill technology. Only then can you shut up the environmentalists. Otherwise we will keep being a thorn in your side.”
SDEIS Comments		
SFL-43a	Sierra Club Form Letter for SDEIS Kurt Indermaur	“Coal, with its attendant air pollution and mercury emissions, is not the best option for expanding power generation in our region. With cleaner alternatives increasingly available (wind, biomass), and the potential for us to lead the nation in renewable energy generation, expanding coal burning just does not make sense.”

Response: The comments in this subcategory question why wind was not addressed as an alternative in the EIS. Since the issuance of the Draft EIS and the Supplemental Draft EIS, Western has reexamined its alternatives analysis based on RUS’ withdrawal as a cooperating agency. Based on this examination, Western has determined that the EIS will not fully analyze wind alternatives for the reasons provided in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). In response to comments made in this section, a discussion on the wind-energy alternative has been provided in the Final EIS. This discussion is in Section 2.5.1, Power Generation Alternatives Eliminated of the Final EIS. Section 2.5.1.2 has been updated to provide a more exhaustive explanation of the wind-generation alternative, including its environmental impacts. Western’s response further focuses on the technical aspects of the wind alternative as addressed in the Wind and Renewable Energy Response Paper (Response Paper B, Volume II). Public health issues have been addressed in this comment response document above in Section 7, above.

12.3.4 Analysis of Wind and Other Renewable Energy Technologies

Comment Number	Name	Comment Summary
DEIS Comments		
T-1j	SWO	“Look at alternative renewable energy options, i.e., wind energy.”
O-1a	CWA	The commenter does not feel that Western adequately analyzed the alternatives to coal-based electricity but rather summarized the site selection process instead of analyzing the sufficiency of it.
O-1d	CWA	Commenter thinks that the environmental externalities such as increased health care needs, acid rain, mercury contamination, and the loss of rare species and habitats, were not taken into account when analyzing the cost of coal energy versus alternatives like wind power.
O-2m	Sierra Club	The commenter explained how the Draft EIS failed to adequately consider technology alternatives. Such absences which they felt should have been included are: wind + biomass + DSM, wind + IGCC + carbon capture technology, IGCC + carbon capture technology, and lignite coal with carbon capture. In addition, the commenter found the effect future carbon dioxide allowances would have on the price of coal generation a critical point of discussion which was not included.
O-3c	Joint Commenters	“A second reason to withdraw the current DEIS is its entirely inadequate analysis of alternatives to the Project, an analysis that conflicts with applicable National Environmental Policy Act (“NEPA”) regulations.”
O-3i	Joint Commenters	The commenters declared that the Draft EIS failed to assess any reasonable alternatives to meet the purpose of providing power at a reasonable cost.
O-3j	Joint Commenters	The commenters stated that because the Minnesota EIS is assessing reasonable alternatives for proposed power plant locations and power generation technologies, it is reasonable to expect the same from Western’s Draft EIS.
O-3k	Joint Commenters	The commenters expressed concern that the Draft EIS accepts alternative energy sources without independent analysis; the proposed Project utilities’ determination that a pulverized coal fired method is the only way to meet the power generation needs.
O-3r	Joint Commenters	The commenters feel Western did not act and think independently in the analysis and relied too heavily on the analysis by the proposed Project proposers.
O-3s	Joint Commenters	The commenters feel, based on other external economic investigations, that a wind-based alternative would almost certainly cost ratepayers less than the proposed Project and deserves to be discussed in the EIS.
O-4d	MnRES	“The draft EIS nowhere analyzes such alternative technologies as wind power, instead opting -- in direct violation of both the spirit and the letter of NEPA - to passively accept the Co-Owners' assertion that a polluting, 600-megawatt, coal-fired power plant with a projected average annual output of 4.7 million tons of CO ₂ is the necessary means of power production to fill an asserted but unproven need for additional generation. But ‘an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative ... would accomplish the goals of the agency's action, and the EIS would become a foreordained formality.’ [Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991), cert. denied, 502 U.S. 994,112 S. Ct. 616 (1991).]”

Comment Number	Name	Comment Summary
O-4f	MnRES	“Demand-side management (DSM) is one of the most widely-accepted, first-recourse, and cost –effective means of dealing with projected demand. To pass over, without exhaustive examination, both renewable technologies and DSM in favor of coal-fired power - especially in the face of an ever-growing body of evidence suggesting that climate change threatens regional and global meteorological stability, prospects for essential agriculture, public health (see item 3 below), and the very fabric of society and culture - is inexplicable.”
I-1a	Lori Askelin	“It doesn’t provide an adequate analysis of alternatives to Big Stone II, such as wind and solar development. These alternatives would reduce the environmental impacts and need to be analyzed more closely.”
I-2d	Lois Braun	“Finally, in an age of declining fossil fuel supplies it is imperative that we invest our resources in developing clean renewable energy systems, such as wind, solar, energy efficiency, and demand side power management. These alternatives have not been adequately examined in your DEIS. I suspect that if they had, you would find that there is no need to expand the Big Stone II coal plant.”
I-8d	Joe Foss	“I don’t believe the Draft Environmental Impact Statement addresses these concerns.”
I-9e	Sergio Gaitan	“ . . . once you fairly weigh in all the costs including the externalities such as the pollution and health effects as well as the future cost of coal, their subsidies, and their associated carbon taxes, that you will find clean wind power to be a far superior choice over the life-cycle of the technologies proposed. An adequate Environmental Impact Statement will necessarily by definition have to weigh the effects of the technologies on the health of the people, the fish and the ecosystems. We are ultimately the ones paying for these utility rates and environmental consequences. Besides wind power will create more full time jobs per MW of installed capacity than coal fired plants.”
I-14a	Glen Joplin	“I understand the need for more electric power. My hope and request is that you will investigate thoroughly all the alternatives and select those that are the most environmentally friendly.”
I-16d	Pete Kennedy	“Why do we need to build a power plant in the when Minnesota utilities are paying electrical wind generators to be idled because we do not have the transmission lines to transmit the power they generate (Meersman, StarTribune, 16Jun06)? The assessment of wind energy in the alternatives section of the draft EIS was at best minimal and at worst insulting. Wind was never seriously considered as an alternative to the Big Stone II project.”
I-19d	Richard Kroger	“Probably the biggest failure of your EIS is the lack of analysis of valid alternative to meet energy needs. Wind, solar, and conservation are the only valid sources of energy for our sustainable future.”
I-19g	Richard Kroger	“Let’s get with it in the EIS and develop some real alternatives for evaluation.”
I-23b	Stacy Miller	“WAPA's Draft Environmental Impact Statement for the proposed Big Stone II plant fails to demonstrate that coal is the best option for meeting the needs of its customers. There are alternative technologies and strategies that merit consideration and full analysis. These analyses should be provided in a revised EIS and objectively compared against the proposed plan.”

Comment Number	Name	Comment Summary
I-23d	Stacy Miller	“WAPA's failure to consider reasonable, technologically available power production options is counterproductive to the goals of reducing carbon intensity and sets a poor precedent for other proposed projects in the United States.”
I-23e	Stacy Miller	“Given the gravity of global warming and mercury pollution, WAPA should prepare a revised EIS that objectively estimates the full cost of operating Big Stone II, including social costs, environmental impacts, and the likelihood of a carbon credit system being established during its service lifetime. Only when these costs are assessed can a fair and objective comparison be made to the costs and impacts of alternative technologies.”
I-28b	Roy Smith	“Alternatives - Alternatives that would reduce the environmental impacts have not been analyzed, which contradicts the National Environmental Policy Act (NEPA) and Section 404 of the Clean Water Act.”
I-36d	Joe Erjavec, et al	“. . . No detailed analysis was provided for demand side management, wind, IGCC, or other environmentally favorable technologies. We request that WAPA be required to reevaluate and resubmit a comprehensive EIS that objectively considers alternatives to the propose, outdated technology.”
FL-1a	CWA Form Letter	“Since the proposed plant is expected to operate for at least forty years, the true consequences of its pollution potential must be examined. The draft Environmental Impact Statement did not show conclusively that building a new coal plant is really less costly, in health, environmental, social, cultural, and economic terms, than alternatives to develop renewable resources.”
FL-4d	CWA Form Letter Timothy DenHerder-Thomas	“The draft Environmental Impact Statement did not show conclusively that building a new coal plant is in the long run really less costly, in health, environmental, social, cultural, and economic terms, than alternatives to develop renewable resources.”
FL-8a	Sierra Club Form Letter	The commenter does not feel the Draft EIS provided adequate analysis of alternatives to proposed Big Stone II. such as wind and solar development, energy efficiency, and demand side management.
FL-8g	Sierra Club Form Letter	“The WAPA DEIS should reflect the extensive health and environmental damage Big Stone II will create, and propose alternatives to its construction.”
FL-12a	Sierra Club Form Letter Tony Prokott	“Much could be done to shift peak demand to nonpeak hours, as well as encouraging a more decentralized power system where delivery losses are minimized. It also fails to examine alternative plant sites and technology.”
FL-16a	Sierra Club Postcard	“Alternatives- The DEIS does not provide an adequate analysis of alternatives to Big Stone II, such as wind and solar development, energy efficiency, and demand side conservation. Right now Minnesota gets less than 2% of its power from our vast wind source, and over 65% from coal. The DEIS should include a full analysis of clean, renewable alternatives to Big Stone II.”
PH3-5g	Public Hearing Granite Falls, MN Duane Ninneman	“CURE has recently been convening people together from all sectors of the Upper Minnesota River Watershed to talk about new opportunities for renewable energy and how that development will lead to healthy landscape, local jobs, and new sources of long-term income for the landowners and farmers in our region.”
PH3-7b	Public Hearing Granite Falls, MN	“Western Area Power Administration, WAPA, has not drafted an objective EIS that is based on an understanding of environmental consequences.

Comment Number	Name	Comment Summary
	Delores Miller	Rather the Draft EIS appears to be heavily influenced by Big Stone's Co-owners. Most of the two-paragraph discussion of wind energy as an alternative to coal-based power repeats verbatim applicant's exhibit 24-A, Page 2-2. There is no indication that the Draft EIS represents a good faith attempt to examine alternatives to coal-based power. Rather it seems that WAPA relied on one-sided information from the applicant. WAPA should not assist Big Stone in eliminating renewable energy alternatives until all feasible options have been given a thorough evaluation."
PH3-7c	Public Hearing Granite Falls, MN Delores Miller	"There is a growing body of evidence that wind is reliable, will meet customers' needs as it is not prohibitively expensive. I am concerned that the Draft EIS did not present all sides of the energy debate."
PH3-10f	Public Hearing Granite Falls, MN Duane Ninneman	"CURE has recently been convening people together from all sectors of the Upper Minnesota River Watershed to talk about new opportunities for renewable energy and how that development will lead to healthy landscape, local jobs and new sources of long term income for the landowners and farmers of our region."
SDEIS Comments		
No comments received.		

Response: Commenters provided comments that questioned the adequacy of the alternative analysis in the Draft EIS, and requested additional analysis comparing renewable energy generation technologies to coal-fired generation. Western considered the generation alternatives suggested to the Co-owners' generation plans and has determined that the EIS will not fully analyze wind and other alternative renewable generation technologies for interrelated reasons discussed in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). Additionally, in response to the comments made in this section, more information on generation alternatives has been provided in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). That section includes a more detailed discussion of wind generation and wind generation in combination with other resources. For a more detailed discussion, also see the Wind and Renewable Energy Response Paper (Response Paper B, Volume II of the Final EIS).

12.3.5 EIS Needs to Examine Wind Combined with other Generation Technologies

Comment Number	Name	Comment Summary
DEIS Comments		
O-2m	Sierra Club	The commenter explained how the Draft EIS failed to adequately consider technology alternatives. Such absences which they felt should have been included are: wind + biomass + DSM, wind + IGCC + carbon capture technology, IGCC + carbon capture technology, and lignite coal with carbon capture. In addition, the commenter found the effect future carbon dioxide allowances would have on the price of coal generation a critical point of discussion which was not included.
O-3c	Joint Commenters	"A second reason to withdraw the current DEIS is its entirely inadequate analysis of alternatives to the Project, an analysis that conflicts with applicable National Environmental Policy Act ("NEPA") regulations."

Comment Number	Name	Comment Summary
O-3x	Joint Commenters	The commenters discussed in detail a wind feasibility study and compared it to the proposed Big Stone II project. Using different assumptions for future carbon costs and production costs for wind, it shows that wind power may be a viable option. The SDPUC proceedings have demonstrated that a wind-gas alternative is reasonable and should be discussed in the DEIS.
I-17a	Jeanne Koster	“Wind Energy, combined with aggressively incentivized conservation, should be treated as a full dress generation alternative. Instead, wind is dismissed in fourteen lines and, in another section, the co owners essentially plead they've gone about as far [far]as they kin [can] go with conservation. The dismissal of conservation needs to be defended with specifics by showing in detail how a more intensive conservation program is not a practical alternative. Wind should not be dismissed because it isn't 'dispatchable.' Not dispatchable is not the same as not reliable in any absolute sense. Recent wind integration studies suggest that the utilities involved may be able to manage integration of wind as up to 20% or better of their baseload without any new backup generation.”
I-17f	Jeanne Koster	“Please add a full alternative for the combination wind and aggressively incentivized conservation. Rather than being patched into the Final EIS, fairness to the public demands that this alternative be done in a SECOND DRAFT EIS.”
I-17l	Jeanne Koster	“Turning to Appendix B in the DEIS for BSII made me recall that I had, indeed, read it already (before the eye accident). All the specifics are about transmission line alternatives. Nothing about sources of power in any combo that might be alternatives to coal.”
I-17o	Jeanne Koster	“Tell them to do a real good analysis of the \$\$ realities of getting the 600 MW from coal vs from a mix of Nega-watts [Megawatts] and wind.”
I-26d	Elsie Perrine	“We have wind, plenty of wind and why not use it now – partner wind and a cleaner Big Stone I.”
I-30c	Gregory Stricherz	“The area that would be served by the new Big Stone power plant is one of the best places in the country to harness wind power—an infinitely renewable energy source. Ideally the needs of that area would be completely met with wind power. But if that is not the final decision, wind power should be part of the solution.”
FL-1b	CWA Form Letter	“The draft Environmental Impact Statement prepared for the proposal did not fully consider the alternative of using a combination of fossil and renewable fuels to meet the alleged needs of the Big Stone partners.”
SDEIS Comments		
SI-17p	Dave Staub	“Logically, this indicates that WAPA has capacity for multi-point wind production. Hydro and Wind generation have potential to complement each other for base load production because of the sequential production across the aggregated foot-print.”

Response: Commenters provided comments that pertained to the viability of using wind in combination with other generation technologies. In response to these comments, additional information on the combination of renewable, such as wind and other resources has been provided in the Wind and Renewable Energy Response Paper (Response Paper B, Volume II). Wind and other energy power generation alternatives are also discussed in Section 2.5.1 of the Final EIS

(Power Generation Alternatives Eliminated), including Wind Plus Combined Cycle Gas Turbine and Coal Plus Wind in sections 2.5.1.8 and 2.5.1.9, respectively.

12.3.6 Other Wind Comments

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SI-17n	Dave Staub	“Develop Smart Grid to utilize Distributive Wind resources and the reliability issues that are of concern.”
SI-17o	Dave Staub	“Build distributive wind of 10 to 100 MW all across the WAPA transmission system, inter-connecting many ‘multi-point’ sources of production. The aggregation from the foothills of the Rockies to Iowa will provide a base-load of electrons as well as peaking in-put to the integrated system. ‘The wind is always blowing multiple places across the 1000 miles of the WAPA foot-print (11,000 miles of high voltage transmission lines). This system has capacity since the Missouri River hydroelectric is presently producing about 50% of average. Ten years ago it was at 150% of average and the coal plants utilizing the transmission were throttled back.’ ”
SI-17q	Dave Staub	“Since the WAPA footprint is identical to the Rural Electrics and many Native American Tribes, both entities could become the owners of this distributive system, essentially self-financing this incremental development process by borrowing capital from members or a new entity of a “South Dakota Wind Investment Fund (all states could do the same), where rural and city people could invest in the fund. Risk issues would be spread across each state through this fund. Since conception, Rural Electric Cooperatives have been “one-armed” monopolies. Now is the time to grow the opposite arm, the renewable energy production arm, using the successful democratic and grassroots model of co-ops. The co-op members would economically benefit, rural development would result and ultimately electricity costs would be lower.”

Response: The Commenters provided comments that pertained to smart grid, distributed wind resources, and alternative wind financing. Smart grid and alternative approaches to financing would not sufficiently address the need for additional regional resources. Distributed wind resources would require the Co-owners to replace or augment Big Stone II with a large number of geographically dispersed wind turbines. This alternative requires a greater investment in transmission projects, precludes capturing available economies of scale that could be achieved by using higher voltage transmission lines, and increases the number of transmission lines required. As proposed in the comments, each distributive wind-energy facility would need to have separate and distinct transmission system interconnection. Each interconnection request would need to be addressed under Western’s Small Generator Interconnection Procedures, or comparable Midwest Independent System Operator (MISO) procedures, in order that the effects on the transmission system were appropriately addressed. Please refer to additional discussion of wind in Section 2.5.1.2 of the Final EIS and the Wind and Renewable Energy Response Paper (Response Paper B, Volume II).

12.3.7 Comments Promoting Renewable Energy and Conservation

Comment Number	Name	Comment Summary
DEIS Comments		
O-1d	CWA	It is thought that the environmental externalities such as increased health care needs, acid rain, mercury contamination, and the loss of rare species and habitats, were not taken into account when analyzing the cost of coal energy versus alternatives like wind power.
O-4c	MnRES	“Total CO ₂ emissions could be zero if the Big Stone Co-Owners had instead chosen to construct one or more renewable energy facilities – the most obvious option being windfarms, a proven technology for the geographic area in which the plant is sited: South Dakota hosts one of the greatest resources of wind on the face of the earth.”
B-3o	Rose Creek Anglers	“We need to take a new route of renewable resources such as wind and biomass.”
I-4a	Keith C. Davison	“Otter Tail should be focusing on alternative sources of power, not engaging in construction of coal fired plants. Big Stone II will send more pollutants, including mercury, into the atmosphere.”
I-6c	Jim Falk	“New technology in hydrogen storage, biomass fired generation, methane digesters, and many other alternatives are becoming a reality every day.”
I-6f	Jim Falk	“The transmission lines from the proposed project do not serve the wishes of 90% of Minnesota residents that want alternative energy. Therefore, I do not see that the project or the transmission lines warrant a Certificate of Need as the proposal is not consistent with the wishes of Minnesotans who embrace alternative energy and mercury free lakes and rivers where fish are safe to eat.”
I-7c	Wendell Falk	“Want clean and safe alternative energy.”
I-8c	Joe Foss	“I believe our energy needs can be met with greater use of wind/solar power on the supply side and efficiency/conservation of the demand side.”
I-8m	Joe Foss	“. . . I believe we have the technology to reduce our need to burn coal and to replace that with building renewable technologies that are clean and available locally like wind.”
I-8n	Joe Foss	“Greater energy efficiency can also reduce overall demand.”
I-8o	Joe Foss	“Building Big Stone II would distract us from investing in the cleaner technologies.”
I-9b	Sergio Gaitan	“Mostly when the proposed location is in the border of Minnesota with South Dakota; an area with such great and proven wind power potential. This is environmental injustice at its worst! And it flies in the face of the people that have to live with this old and dirty technology.”
I-11a	Merle Green	“I am very concerned that a polluting coal plant is being considered rather than a renewable energy source such as wind or solar that would reduce environmental impacts.”

Comment Number	Name	Comment Summary
I-12d	Thomas Hillenbrand	“Above all I think we here in South Dakota have to seriously consider the potential of wind energy. And in this area of the State, especially up here in the hill country around the Summit, SD area, wind is a constant and almost daily phenomenon. The Hyde County wind project with 27 wind generators produces enough energy for 14,000 homes at a cost of 5 cents per kilowatt. At least that is what the sign says. This absolutely clean and renewable energy that seriously needs to be tapped here in South Dakota.”
I-13c	Patrick Johnson	“I’d like to see wind power and biomass better emphasized as the valid alternatives they are becoming.”
I-15b	Scott Kelly	“Pursuing conservation, wind power, and other alternatives to meeting projected demand for electricity is much more consistent with the active, responsible stewardship of the environment that is our obligation to the generations that follow us.”
I-21c	Terry J. Makepeace	“I would like to see other safer sources of energy produced that would not have harmful effects on our environment and hope that this will be examined.”
I-24b	Becca Orrick	“This is an age when we need to move forwards towards looking at alternative energy sources. The more money we invest in alternative energy sources the more successful and effective those energy sources can become. We can not wait until the air is so polluted we have to wear face masks, we have to take action now to keep our beautiful Midwest beautiful and healthy for us and future generations.”
I-27c	Elizabeth Smith	“The real solution for states like South Dakota that are rich in wind resources is to encourage power companies to invest in renewable energy portfolios. The only way to do this is to refuse to approve building additional coal plants.”
I-29d	Gerald L. Steele	“It seems to me that these winds. . .could be harnessed to produce power rather than act as an exhaust system for the power plants themselves. We can provide cleaner air and more good paying jobs for. . .Minnesota and the Dakotas through wind energy. This is a renewable energy source where the use of more coal . . .need not be depleted to provide more electrical power. I believe that if we consider the long-range cost/benefit ratio, we will choose wind power over coal based power generation.”
I-29f	Gerald L. Steele	“Certainly wind power will not produce nitrogen oxides, sulfur dioxides, carbon monoxide, particulate matter, hydrochloric acid and most of all the mercury emissions that worry me most of all.”
I-29i	Gerald L. Steele	“I am saying that we can use electrical power from wind sources to do the chores we need done, to heat and light our homes, our farms and our factories.”
I-31c	Brynan Thornton	“We should use other cleaner ways to use energy, and for example wind power is clean and effective way to create energy.”
I-31d	Brynan Thornton	“A clean energy development plan can create more than 200,000 new jobs across a 10-state Midwest regions by 2020, when Big Stone II could only create 625 jobs, so we are also helping the economy as well as the environment. We will have cleaner air, cleaner environments and clearer lives.”
I-32g	Richard Unger	“Minnesota faces no shortage of energy. Our farmers are ready to produce it with wind, hydrogen and biomass.”

Comment Number	Name	Comment Summary
I-32h	Richard Unger	“Why should we buy our energy from another state which has no protections for pollution rather than from ourselves? Our farmers are as deserving of the business as the electric distributors who want to control power production as well.”
I-34a	Nancy Wilson	“Coal-burning power plants should now be abandoned in favor of renewable energy sources – particularly wind power in our state.”
FL-2a	CWA Form Letter Rodney Campbell	“‘Increasing clean’, I believe the commercial says. Yes increasing clean but never clean. Even with the new technology to capture pollutants before it reaches our children's air, we cannot just bury it and hope it will go away. Let's make a stand to our children's future. The economics will respond. We are America, we meet challenges. our history is clear. Be a leader that matters. I am concerned about the proposal to build a new coal plant in South Dakota, rather than investing in clean energy that supports local communities and is better for our health.”
FL-3a	CWA Form Letter Patience Caso	“I am appalled by the proposal to build a new coal plant in South Dakota, rather than investing in clean energy that supports local communities and is better for our health.”
FL-3b	CWA Form Letter Patience Caso	“We just passed legislation in Minnesota to reduce mercury. Why are you proposing to increase mercury pollution again. This is unacceptable, especially in an area of the state that has potential for wind power.”
FL-3c	CWA Form Letter Patience Caso	“Please consider dropping this proposal in favor of a renewable, environmentally friendly energy solution.”
FL-4a	CWA Form Letter Timothy DenHerder-Thomas	“I am concerned about the proposal to build a new coal plant in South Dakota right next to the Minnesota border and supplying [supplying] power to Minnesota citizens, rather than investing in clean energy that supports local communities and is better for our health. I find it disturbing that such a plant, whose production is destined largely for Minnesotas [Minnesota's] use, but has inadequate pollution controls to meet Minnesotas [Minnesota's] standards, would be sited just adjacent to the state to avoid this problem.”
FL-4b	CWA Form Letter Timothy DenHerder-Thomas	“When a vast resource of un utilized, economically stable, and environemntally [environmentally] beneficial wind power is located literally around the proposed site, I cannot believe that an accurate investigation of costs and banefits [benefits] has led to the conclusion that yet one more coal plant is the 'best' alternative.”
FL-4i	CWA Form Letter Timothy DenHerder-Thomas	“Alternatives like extensive wind power development, which are extremely” – incomplete message received.
FL-10c	Sierra Club Form Letter Lee Johnson	“... Western MN contains one of the best locations for wind power in the entire country what a backwards idea to expand coal fired generation, when we could shift our energy mix towards wind power!”
FL-11a	Sierra Club Form Letter Corrine Livesay	“We need to fund more wind power, and as Pres. Carter did, offer rebates to those who install energy saving alternatives at home. Then, we need to fund alternative energy research. We can't continue to contaminate our atmosphere!!!”

Comment Number	Name	Comment Summary
FL-16a	Sierra Club Postcard	“Alternatives- The DEIS does not provide an adequate analysis of alternatives to Big Stone II, such as wind and solar development, energy efficiency, and demand side conservation. Right now Minnesota gets less than 2% of its power from our vast wind source, and over 65% from coal. The DEIS should include a full analysis of clean, renewable alternatives to Big Stone II.”
PH1-2a	Public Hearing Big Stone City, SD Lanny Stricherz	Commenter read the editorial from the Sioux Falls Argus Leader, "Proposed plant offers opportunity to discuss future of power." Editorial Board, Argus Leader, June 13, 2006.
PH1-2c	Public Hearing Big Stone City, SD Lanny Stricherz	“With more than a \$2 billion loan given to the DM&E railroad by the federal government and the fact that we know the Big Stone line is getting less than 40 percent of the coal that it needs to run on a full-run basis, it seems like this project is throwing money to the wind rather than harnessing the wind for clean renewable non-fossil energy. That loan could have gone to put in transmission lines for the wind power which we so desperately need and also to create jobs and to keep our environment clean and safe for ourselves and future generations.”
PH1-2d	Public Hearing Big Stone City, SD Lanny Stricherz	“When you add in the fact that the city of Rochester, Minnesota, and Mayo Clinic are fighting to keep the DM&E from going right through the city, this whole situation makes less and less sense all the time. Granted the DM&E hauls and will haul more than coal, but that is their major product at the present.”
PH1-8b	Public Hearing Big Stone City, SD Carol Eastman Standing Eagle	“And so I want to make this statement for you people here. You know, this was a good place to live. It is our place. It's our place in this earth that we were put here for, and you know, to share this place. But you are ruining it. You have one plant here. That's enough. You should clean it up. You should do what you can with it and mix it with the wind energy and other stuff and, you know, for what's needed.”
PH1-9b	Public Hearing Big Stone City, SD Lanny Stricherz letter	“With the more than \$2 billion dollar loan given to the DM&E railroad by the federal government and the fact that we know that the Big Stone line is getting less than 40 percent of the coal it needs to run on a full-run basis, it seems like this project is throwing money to the wind rather than harnessing the wind for clean renewable nonfossil energy. That loan could have gone to put in transmission lines for the wind power which we so desperately need to create jobs, and to keep our environment clean and safe for ourselves and future generations.”
PH1-9c	Public Hearing Big Stone City, SD Lanny Stricherz letter	“When you add in the fact that the City of Rochester MN and Mayo Clinic are fighting to keep the DM&E from going right through the city, this whole situation makes less and less sense all the time. Granted the DM&E hauls and will haul more than coal, but that is their major product at the present.”
PH2-3b	Public Hearing Morris, MN Earl Hauge	“My electric bill is over \$20,000 a year. If it would cost a cent per kilowatt more to generate from the wind, I would say let's generate from the wind.”
PH2-3c	Public Hearing Morris, MN Earl Hauge	“I'll bet many of us here even donate money each year to humanitarian causes throughout the world. We want to make the world better. I don't think there is a person here who would vote to make global warming worse by building Big Stone II just to save \$20 on their electric bill. Instead we could build wind turbines in South Dakota and produce more electricity than Big Stone II.”

Comment Number	Name	Comment Summary
PH2-4b	Public Hearing Morris, MN Michelle Handlin	“And my second comment is to rural communities are needing an increase in renewable energy to fund life out here. Since less and less people are out here, we need like the renewable energy; wind, solar, biomass. One, two, three percent wind isn't enough to fund the future. We don't need just wind. We need coal, but we need more wind and biomass to offset what we've been doing.”
PH3-4e	Public Hearing Granite Falls, MN Katie Laughlin	“And because the region has such amazing renewable energy potential, the Draft EIS should have shown conclusively that building a new coal plant is really less costly in health, environmental, and economic terms than developing wind and biomass resources.”
PH3-5g	Public Hearing Granite Falls, MN Duane Ninneman	“CURE has recently been convening people together from all sectors of the Upper Minnesota River Watershed to talk about new opportunities for renewable energy and how that development will lead to healthy landscape, local jobs, and new sources of long-term income for the landowners and farmers in our region.”
PH3-5i	Public Hearing Granite Falls, MN Duane Ninneman	“We also maintain that by locking ourselves into coal generation, we could lock ourselves out of clean wind and biomass distributed power.”
PH3-7f	Public Hearing Granite Falls, MN Delores Miller	“Instead of increasing the mercury emission, I believe we need to use some of the renewable energy, and I think it's the responsibility of the power companies to see -- The customers are paying the bill and they're also paying the consequences if things aren't met properly.”
PH3-10f	Public Hearing Granite Falls, MN Duane Ninneman letter	“CURE has recently been convening people together from all sectors of the Upper Minnesota River Watershed to talk about new opportunities for renewable energy and how that development will lead to healthy landscape, local jobs and new sources of long term income for the landowners and farmers of our region.”
PH3-10h	Public Hearing Granite Falls, MN Duane Ninneman letter	“We also maintain that by locking ourselves into coal generation we could lock ourselves out of clean wind and biomass distributed power.”
PH3-10i	Public Hearing Granite Falls, MN Duane Ninneman letter	“Her message is in the wind.”
PH4-7a	Public Hearing Benson, MN Jim Falk	“I'm just one of the 85 to 90 percent of the Minnesota residents who have expressed deep concerns about how we address the handling of renewable energy, how we get the renewable energy on our grid. The consumers, the Minnesota consumers, have overwhelmingly said we want renewable energy.”
SDEIS Comments		
SI-2c	Margaret Bitz	“There are other more efficient ways to develop energy, such as wind energy.”
SI-5a	Chris Domeier	”There are better ways to manage our future electrical needs. It's time our society takes a serious look at sustainability, instead of more and more consumptive consumption. Improvements in energy efficiency in all devices that use electricity, and development of sustainable energy sources need to become the focus of this generation. If we allow continued growth of non-renewable energy sources, what's the likelihood the general public will start to take sustainability serious?”

Comment Number	Name	Comment Summary
SI-5b	Chris Domeier	“Remember in the 70s when environmental legislation [legislation] was going to bankrupt corporate America? Hmmm.... After many, many, many environmental laws, our economy has continued to grow. Is it possible, that the economic ‘boom’ that would result from Big Stone II, would actually be less than the long-term economic growth that would result from environmentally friendly energy use and development. And better yet, that revenue would more likely be spread out to more people, especially local tenants.”
SI-6f	Susan Granger	“It makes no sense to build such a big plant with such potential for significant environmental impacts (air quality, water quality, etc.) when we are not yet vigorously pursuing other options including conservation and renewable sources like wind.”
SI-8c	Joe Makepeace	“You have an abundant amount of wind to use in the western part of Minnesota and wind energy is a safe and effective alternative to coal power.”
SI-13d	Tom Neiman	“Better yet, why not be encouraging conservation to cut down on our energy needs?”
SI-14a	Traci Rasmussen-Myers	“Instead of promoting the increased usage of fossil fuels we need to be increasing our usage of alternative energies.”
SI-17c	David Staub	“If South Dakota is to ‘win with the wind’, the rural electric and municipal cooperatives need to develop and invest in new renewable energy production, in the model of distributive wind as well as wind farms.”
SI-17d	David Staub	“On a ‘level playing field’ across the energy spectrum, wind energy production will be the cheapest new electricity for the future, especially when tied to hydroelectric production and utilizing the present WAPA transmission grid.”
SI-17e	David Staub	“This new arm of the co-ops would include maintenance and repairs of turbines, control of production, and utilization of off-peak and demand control electricity in homes and businesses. This would be true economic development, both new energy for new business and industry and direct and indirect jobs for young South Dakotans, on and off the reservations.”
SI-17f	David Staub	“. . . make it easier for everyone to invest in community wind. I would suggest the concept of a South Dakota Wind Investment Fund . . . Individuals and non-profit groups, government entities . . . across the state could invest. All wind projects in South Dakota would be required to obtain at least a certain percentage of the capital from the Investment Fund, as fund assets grow. I would suggest that people in South Dakota would trust the wind (which always blows) as much as Wall Street for their investments. . .”
SI-17j	David Staub	“Decrease e-consumption by conserving and changing energy needs by designing and building residential and commercial buildings that have R-40 wall codes and other net CO ₂ of zero. It would be required by utilities to have retail price structures such as time of day and everyone on peak demand control. 40% of all energy used in the U.S. goes to heating and cooling residential and commercial structures. This is intolerable waste. There is no need to build more of the same and cosmetic rehab work on existing structures.”
SI-17k	David Staub	“In the five northeast counties of South Dakota circling Big Stone II there are superb wind resources of five to twenty times the capacity of the proposed coal plant. 50 to 100 MW of wind could be built incrementally per year ‘forever’.”

Comment Number	Name	Comment Summary
SI-17l	David Staub	“The coal consortium needs to engage publicly and openly the residents of Minnesota and South Dakota who inhale the by-products of burning coal to utilize the common wind resource.”
SI-17q	David Staub	“Since the WAPA footprint is identical to the Rural Electrics and many Native American Tribes, both entities could become the owners of this distributive system, essentially self-financing this incremental development process by borrowing capital from members or a new entity of a ‘South Dakota Wind Investment Fund (all states could do the same), where rural and city people could invest in the fund. Risk issues would be spread across each state through this fund. Since conception, Rural Electric Cooperatives have been ‘one-armed’ monopolies. Now is the time to grow the opposite arm, the renewable energy production arm, using the successful democratic and grassroots model of co-ops. The co-op members would economically benefit, rural development would result and ultimately electricity costs would be lower.”
SI-17r	David Staub	“Distributive wind, smart grid, local to regional capital investment, REC metamorphosis into energy production, incremental growth, etc. will give coal based energy the 10 to 20 years to research and develop the CO ₂ neutral industry that will be required around the world.”
SFL-4a	CWA Form Letter for SDEIS Robert Babin	“Coal, scrubbed and filtered, still is a dirty source of energy, there are much cleaner sources available, ones without all this ugliness and damage.”
SFL-5b	CWA Form Letter for SDEIS Bill Blonigan	“We have had since the 1970s to hook up more wind turbines and other renewable energy sources. Why pick the dirtiest method just because it is the cheapest?”
SFL-5c	CWA Form Letter for SDEIS Bill Blonigan	“Spend our money on Wind and other Renewable sources. If the Big Stone II owners can create their own water they should be able to use that water for a plant. Just lay off the public water entrusted to us for us future generations of humanity.”
SFL-8a	CWA Form Letter for SDEIS Eric Dobervich	“It is time to start finding alternative energy sources that do not pollute our water supply and leave the environment in the state that it was meant to be left in.”
SFL-10a	CWA Form Letter for SDEIS Joe Duea	“I would much rather see investments in Wind or other alternatives to coal powered plants that would have a dramatically smaller impact on the environment.”
SFL-12b	CWA Form Letter for SDEIS Rhonda Feuerstein	“As a resident of Minnesota, I do not support a coal powered plant to generate electricity. I could support a wind power or solar powered plant, though.”
SFL-21a	CWA Form Letter for SDEIS Rod Nordberg	“There are available, economically reasonable alternatives to coal power.”
SFL-28b	CWA Form Letter for SDEIS Dustin Simpson	“There are other types of power plants that could be built and there are more efficient ways to make energy. Otter Tail Power should have to explore other options. The state of Minnesota is supposed to be at the forefront of clean and renewable energy.”

Comment Number	Name	Comment Summary
SFL-32d	Sierra Club Form Letter	“. . . the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II’s operation would put out quantities of mercury that will stay in Minnesota’s water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”
SFL-41a	Sierra Club Form Letter for SDEIS Jeffrey Hazen	“Conserve! Conserve! Conserve! Innovate!!”
SFL-42a	Sierra Club Form Letter for SDEIS Mary Holm	“. . . Please open your eyes! Let's get on the GREEN bandwagon ASAP, so that we have a chance--A CHANCE!--to escape the direst catastrophes which global warming will bring! Environmental scientists are alarmed at how much faster the effects of global warming are occurring than they believed just months ago. The absolute necessity to stop carbon emissions is URGENT! URGENT! Do NOT allow this or any other coal plant to go forward!”
SFL-43a	Sierra Club Form Letter for SDEIS Kurt Indermaur	“Coal, with its attendant air pollution and mercury emissions, is not the best option for expanding power generation in our region. With cleaner alternatives increasingly available (wind, biomass), and the potential for us to lead the nation in renewable energy generation, expanding coal burning just does not make sense.”
SFL-44a	Sierra Club Form Letter for SDEIS Terry Iverson	“We don't need this new facility. It's just going to be a big eye sore in the near future when/with alternative energy resources (solar, wind) growing and becoming a bigger and better option for America's energy needs.”
SFL-45a	Sierra Club Form Letter for SDEIS Susan Johnson	“Minnesota needs to become a leader in wind and solar energy, not more polluting plants. People want to be able to eat the fish they catch. Tourism is a big industry in MN, let us work harder to clean up our lakes not pollute them. There is more than enough wind in our great state to provide much needed energy.”
SFL-46b	Sierra Club Form Letter for SDEIS Liz Keeler	“I am worried about the potentially harmful effects of coal outlined in this letter and I definitely want further consideration of cleaner energy types with less harmful environmental impacts put into play now.”
SFL-49a	Sierra Club Form Letter for SDEIS Corinne Livesay	“HARD TO BELIEVE THAT WITH THE REALITY OF GLOBAL WARMING, WE'RE STILL HARPING ON THIS. THERE ARE BENIGN ALTERNATIVES SO THE IDEA OF COAL COMES DOWN TO MONIED INTERESTS, NOT THE GOOD OF THE PLANET.”
SFL-51a	Sierra Club Form Letter for SDEIS Phyl Morello	“PLEASE GO TO OTHER GREENER WAYS OF ENERGY. COAL IS DIRTY.”
SFL-52a	Sierra Club Form Letter for SDEIS Julie Nester	“Coal is not the energy source of the future. We should be developing wind and solar.”
SFL-60a	Sierra Club Form Letter for SDEIS Katie Clower	“I oppose building new coal-fired power plants, particularly in an area of the country with so much potential for producing renewable energy. . . . We need to be promoting sustainable, clean, renewable energy; protection of wildlife habitat; concern for human and environmental health; reduction of global-warming pollutants; and an emphasis on energy efficiency and conservation.”

Comment Number	Name	Comment Summary
SFL-64b	Richard Newmark	“We should not invest further in coal plants when the opportunity for a clean, green economy is within our reach via conservation, biomass, and wind power.”

Response: Western received numerous comments expressing concern that wind was not adequately considered by the Co-owners as a source of electric generation. Several commenters noted that wind energy was clean energy with no GHG emissions. Commenters noted that wind energy would not require fuel to mine, fuel to transport or store, or water for cooling. Additionally, commenters noted that wind energy would not produce high levels of toxic wastes and pollution impacting public health. These comments have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project. Western has determined that the EIS will not fully analyze generating technology alternatives for interrelated reasons discussed in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). Additionally, the Final EIS has been expanded to include additional information on the wind alternative and renewables. This updated information is provided in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). Section 2.5.1.2 of the Final EIS has been expanded to include a discussion on Wind Reliability, Capacity Factor, and Capacity Value. The details of these activities are also provided in the Wind and Renewable Energy Response Paper (Response Paper B, Volume II). Refer to Section 2.5.1.10 of the Final EIS for a detailed discussion of DSM issues. Additional information on DSM may be found in the DSM Response Paper (Response Paper C, Volume II).

12.3.8 Demand Side Management

Comment Number	Name	Comment Summary
DEIS Comments		
O-1b	CWA	The commenter believes the alternatives involving renewable energy and demand side management were not rigorously explored and objectively evaluated.
O-2m	Sierra Club	The commenter explained how the Draft EIS failed to adequately consider technology alternatives. Such absences which they felt should have been included are: wind + biomass + DSM, wind + IGCC + carbon capture technology, IGCC + carbon capture technology, and lignite coal with carbon capture. In addition, the commenter found the effect future carbon dioxide allowances would have on the price of coal generation a critical point of discussion which was not included.
O-2o	Sierra Club	The commenter does not feel the Draft EIS complied with CEQ regulations by not adequately discussing the need for power. In their opinion, there was not satisfactory discussion on conservation, efficiency, or the reasonableness of the Co-owners demand estimates.
O-3i	Joint Commenters	The commenters declared that the Draft EIS failed to assess any reasonable alternatives to meet the purpose of providing power at a reasonable cost.
O-3m	Joint Commenters	“Neither did the Project proponents maximize their potential for cost-effective demand side management (‘DSM’).”

Comment Number	Name	Comment Summary
DEIS Comments		
O-3q	Joint Commenters	The commenters discussed the “next best” resource scenarios which were felt to be inadequate given the majority of the scenarios analyzed depended almost exclusively on coal-fired and natural gas-fired generation. .
O-3z	Joint Commenters	The Draft EIS discuss the option of IGCC technology but deemed it not commercially available. The commenters feel this was a baseless opinion and gave examples on the current commercial applications. The commenters feel if the market is considering IGCC, Western’s EIS should as well. The commenters feel that there is little evidence that the short-term forecasted need could not be fulfilled by DSM.
O-4e	MnRES	“The possibility that the asserted need based on projected demand growth might be obviated by aggressive conservation and efficiency programs is likewise nowhere explored in the DEIS, despite the NEPA requirement to address all such reasonable alternatives. It is simply dismissed with the undocumented assertion that ‘additional conservation measures through demand side management would be insufficient to meet the proposed project purpose and need,’ again passively accepting without examination the Co-Owners' claim on a potentially vital issue.”
O-4f	MnRES	“Demand-side management (DSM) is one of the most widely-accepted, first-recourse, and cost –effective means of dealing with projected demand. To pass over, without exhaustive examination, both renewable technologies and DSM in favor of coal-fired power - especially in the face of an ever-growing body of evidence suggesting that climate change threatens regional and global meteorological stability, prospects for essential agriculture, public health (see item 3 below), and the very fabric of society and culture - is inexplicable.”
I-8n	Joe Foss	“Greater energy efficiency can also reduce overall demand.”
I-17n	Jeanne Koster	“. . . part of the ‘supply’ can be Nega-watts, power ‘found’ as a result of aggressively incentivized conservation. There's room for MUCH more of that.”
I-17o	Jeanne Koster	“Tell them to do a real good analysis of the \$\$ realities of getting the 600 MW from coal vs from a mix of Nega-watts and wind.”
I-35b	Jessica Zupp	“I think that South Dakota would really be giving itself a bad name if, in the midst of the reinvigoration of renewable technologies, we chose to go back to coal. Coal has a bad rap for a reason. Perhaps there is a way we can use the new plant for clean coal research instead of dirty coal output. Wouldn't South Dakota be better off trying to develop renewable technologies? Can't we capture methane and turn it into fuel? There are plenty of cows in South Dakota and it is well-recognized that cows are a major source of methane. Is methane cleaner than coal? Or, the state government could give better tax incentives for renewable energy development. There are ethanol plants popping up all over Iowa. Why can't South Dakota follow its neighbors' leads?”
I-36d	Joe Erjavec, et al	No detailed analysis is provided for demand side management, wind, IGCC, or other environmentally favorable technologies. Request that Western reevaluate and resubmit a comprehensive EIS that objectively evaluates alternatives.

Comment Number	Name	Comment Summary
DEIS Comments		
I-36j	Joe Erjavec, et al	“We suspect that a full cost and impact analysis of the Big Stone II plant would demonstrate reasonable alternatives for meeting the power needs of WAPA’s customers. It is WAPA’s obligation to objectively and fully investigate options and to make these assessments available to the public.”
FL-1c	CWA Form Letter	“Renewable energy sources seemed to be quickly dismissed as alternatives to a coal plant, because these sources didn’t meet the “needs and objectives” of the utilities. More consideration should have been given to the needs and objectives of the customers of the utilities.”
FL-8a	Sierra Club Form Letter	Several commenters do not feel the Draft EIS provided adequate analysis of alternatives such as wind and solar development, energy efficiency, and demand side management to proposed Big Stone II.
FL-12a	Sierra Club Form Letter Tony Prokott	“Much could be done to shift peak demand to nonpeak hours, as well as encouraging a more decentralized power system where delivery losses are minimized. It also fails to examine alternative plant sites and technology.”
FL-16a	Sierra Club Postcard	“Alternatives- The DEIS does not provide an adequate analysis of alternatives to Big Stone II, such as wind and solar development, energy efficiency, and demand side conservation. Right now Minnesota gets less than 2% of its power from our vast wind source, and over 65% from coal. The DEIS should include a full analysis of clean, renewable alternatives to Big Stone II.”
PH3-1e	Public Hearing Granite Falls, MN Dick Unger	“I would also indicate the second slide that they showed us here, although it indicated renewable energies, such as wind and things, it also indicated on the list that this was never even studied. The only thing they essentially studied was fossil fuel. And I would be real concerned about the mercury.”
SDEIS Comments		
SI-17e	Dave Staub	“This new arm of the co-ops would include maintenance and repairs of turbines, control of production, and utilization of off-peak and demand control electricity in homes and businesses. This would be true economic development, both new energy for new business and industry and direct and indirect jobs for young South Dakotans, on and off the reservations.”

Response: Western received several comments noting limited consideration of DSM in the Draft EIS. Several comments implied that use of DSM could partially or fully offset the need for the proposed Big Stone II Project. Comments were broad in nature, requesting more analysis, without specifying the nature of such analysis. Western considered the DSM alternative (in addition various generation alternatives) to meet the Co-owners’ future supply needs and has determined that the EIS will not fully analyze it for interrelated reasons discussed in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). Additionally, to respond to the above comments, a detailed discussion of DSM issues has been provided in Section 2.5.1.10 of the Final EIS. Additional discussion on DSM may be found in the DSM Response Paper (Response Paper C, Volume II). The Co-owners have been pursuing DSM as a part of their respective integrated resource plan (IRP) and planning processes and they will be making financial investments in DSM. While the Co-owners will invest in DSM, the energy supply deficiencies cannot be fully offset by DSM. DSM represents the dynamic ability to reduce system loading for predetermined periods of time, but does not offer permanent solutions to replace baseload generation needs.

12.3.9 IGCC and Clean Coal Technologies

Comment Number	Name	Comment Summary
DEIS Comments		
O-1b	CWA	The commenter believes the alternatives involving renewable energy were not rigorously explored and objectively evaluated. Technologies eliminated from analysis include wind and solar energies, fluidized bed coal technology, IGCC, and DSM.
O-2m	Sierra Club	The commenter explained how the Draft EIS failed to adequately consider technology alternatives. Such absences which they felt should have been included are: wind + biomass + DSM, wind + IGCC + carbon capture technology, IGCC + carbon capture technology, and lignite coal with carbon capture. In addition, the commenter found the effect future carbon dioxide allowances would have on the price of coal generation a critical point of discussion which was not included.
O-3z	Joint Commenters	The Draft EIS discussed the option of IGCC technology but deemed it not commercially available. The commenters feel this was a baseless opinion and gave examples on the current commercial applications. The commenters feel if the market is considering IGCC, Western should as well in their EIS.
B-3n	Rose Creek Anglers	“We need to implement new technology to burn the coal that we are burning cleaner and more efficiently.”
I-26e	Elsie Perrine	“Why now-- in 5-10 years technology for a cleaner use of coal, like CG will be perfected. . . . Wait a few years and make Big Stone II a cleaner burning coal plant with IGCC process.”
I-35b	Jessica Zupp	“I think that South Dakota would really be giving itself a bad name if, in the midst of the reinvigoration of renewable technologies, we chose to go back to coal. Coal has a bad rap for a reason. Perhaps there is a way we can use the new plant for clean coal research instead of dirty coal output. Wouldn't South Dakota be better off trying to develop renewable technologies? Can't we capture methane and turn it into fuel? There are plenty of cows in South Dakota and it is well-recognized that cows are a major source of methane. Is methane cleaner than coal? Or, the state government could give better tax incentives for renewable energy development. There are ethanol plants popping up all over Iowa. Why can't South Dakota follow its neighbors' leads?”
I-36d	Joe Erjavec, et al	“. . . No detailed analysis was provided for demand side management, wind power, IGCC, and other more environmentally favorable technologies. . . . We request that WAPA be required to reevaluate and resubmit a comprehensive EIS that objectively considers alternatives to the proposed, outdated technology.”
SDEIS Comments		
SI-17s	Dave Staub	“Normally the cost of development should be included in the product price. Clean coal will cost more than “dirty coal”; the question is how much of the cost will be passed thru other hidden costs.”

Response: Western received comments noting a need to use a technology for cleaner burning coal, such as IGCC. Based on these comments, a discussion of IGCC has been provided in Section 2.5.1.6 of the Final EIS. This discussion provides the technical considerations of other coal fuel generation technologies (i.e., Atmospheric Circulating Fluidized Bed boilers and IGCC technologies). In

summary, gasification-based power generation is a relatively new technology (in the utility time frame) with a limited number of operating plants. For this reason, capital costs, operating and maintenance costs, environmental performance, and operating performance (i.e., reliability) for IGCC are not fully defined and demonstrated in contrast to conventional technologies such as pulverized-coal technology that is proposed for Big Stone II. The Co-owners have demonstrated a need for the proposed Project in the near term, citing the use of a reliable baseload generation technology to meet the additional regional power requirements of the Co-owners.

Other commenters suggested that sequestration of CO₂ emissions should have been considered. CCS has been addressed in Section 2.5.1.11 of the Final EIS. In summary, advances in CCS technology offer promising prospects as being part of the future solution regarding the control of GHGs that may be affecting climate change. However, there are no operating CCS technologies operating on full scale power projects in the U.S. Additionally, the Co-owners have agreed (for the first four year of operations) to offset 100 percent of the emissions of CO₂ from the proposed Big Stone II plant that are attributable to the generation of electricity for Minnesota consumers. Please refer to the subheading titled Greenhouse Gas Emissions from the Existing and Proposed Plants in Section 4.1.2.1 of the Final EIS for additional discussion.

12.4 No Action Alternative

Comment O-3aa from Joint Commenters: The “Joint Commenters” expressed concerns that Western did not consider an improved existing Big Stone plant with additional air pollution controls as the No Action Alternative. The “Joint Commenters” expressed that the No Action Alternative should include the existing Big Stone plant with enhanced air pollution controls, thus having less emissions than currently emitted. They felt that using an unimproved Big Stone plant as the No Action Alternative disguises the contribution of mercury emissions and ignores the more than doubling of South Dakota’s electric sector carbon dioxide emissions that Big Stone II would contribute. They recommended that a fairer comparison would be independently addressing the Big Stone II plants’ air emissions independently from the existing Big Stone plant, not taking into account the reductions in the existing Big Stone plant’s emissions from emission control equipment that is proposed to be shared by both plants.

Response: Your comment has been noted. Since Western does not have jurisdiction over the operation of the existing Big Stone plant, including additional air quality controls, it would not be appropriate for Western to address the operation of existing Big Stone plant under the No Action Alternative. As written, the No-Action Alternative contemplates three likely scenarios should Western and the USACE deny their respective applications from the Co-owners. If the proposed plant is not constructed, the existing plant would continue to operate under its current air permit. There are no requirements to add any additional pollution controls at the existing plant. Specific concerns about air emissions are provided in the Responses to Comments on air quality, Section 1 of this Volume, and in the Final EIS, Section 4.1. The description of the No Action Alternative has been updated to reflect alternate baseload-generation options if Western decides to deny the interconnection request. Please refer to Section 2.4 of the Final EIS for a revised discussion of the No Action Alternative.

12.5 Cooling Technology Comments

Comment SO-1j from CWA: “Applicants failed to assess or provide cost/benefit comparison of going with a dry cooling system versus water-cooling, advocated for expressly in recent science, policy and advanced technology literature as the prudent measure to take, not only for new plants but also for retrofitting old ones.”

Response: Refer to Section 2.5.2.2 of the Final EIS, Alternative 4: Dry Cooling with Groundwater Back-Up Water Supply, and Appendix B2 (Volume III) for the evaluation and selection of wet cooling versus dry cooling. In summary, the dry cooling option was shown to have \$65 million more in capital costs than the wet cooling alternative. In addition, the air pollutant emissions were demonstrated to be higher for the dry cooling alternative, as compared to the wet cooling alternative, due to decreased efficiency. Based on this information, the dry cooling alternative was eliminated from full analysis in the EIS.

13.0 Fossil Fuel Use

13.1 Coal Supply

Comment Number	Name	Comment Summary
DEIS Comments		
O-1ac	CWA	The commenter expressed concern about the proposed Big Stone’s coal supply. In particular, the availability and transportation options of the sub-bituminous Power River Basin Coal and the economic risk this poses to the consumers.
O-1ad	CWA	CWA feels the risks associated with proposed Big Stone II are unacceptable in light of the availability of wind energy and, therefore, the EIS should discuss how coal-based power presents supply power problems may be mitigated or eliminated by renewable energy use.
O-1ba	CWA	“How will Big Stone handle its ongoing coal supply problems?”
O-1bb	CWA	“How will Big Stone minimize the coal supply-related economic risks to its energy consumers?”
PH1-2d	Public Hearing Big Stone City, SD Lanny Stricherz	“When you add in the fact that the city of Rochester, Minnesota, and Mayo Clinic are fighting to keep the DM&E from going right through the city, this whole situation makes less and less sense all the time. Granted the DM&E hauls and will haul more than coal, but that is their major product at the present.”
PH1-4b	Public Hearing Big Stone City, SD Delores Miller	“Another comment I have is on the coal supply. South Dakota and Minnesota don't have coal. It all has to be brought in by rail. And the railroads are having a hard time keeping up with the demand, because of the demand for electricity. So in conjunction with that, I mean, we need our coal plants.”

Comment Number	Name	Comment Summary
PH3-7a	Public Hearing Granite Falls, MN Delores Miller	“Much of the environmental impact data in the Draft EIS assumes that Big Stone II will burn sub-bituminous Power River Basin Coal, two-and-a-half to three [million] tons per year. However, it has come to the public’s attention that the coal supply at Big Stone has been dwindling. Will Big Stone be able to find enough trains to buy or lease to carry coal to Big Stone I and II? How will business relations with Burlington Northern Santa Fe affect Big Stone II’s ability to meet its objective of reliably meeting customer baseload energy and demand requirements? These supply issues pose substantial risks and costs to the Co-owners of Big Stone II. Was this taken into account when the needs and objectives of the Co-owners were assessed and renewable energy options were eliminated? I am concerned that coal-based power presents supply problems that could be mitigated or eliminated by the use of renewable energy.”
SDEIS Comments		
No comments received.		

Response: Western received comments about the proposed Project’s ability to obtain enough coal delivered via the railroad to be able to operate the proposed plant. Several comments related to either the Burlington North Santa Fe line or the DM&E proposed rail project, while other commenters questioned the economic risk to energy consumers. The Burlington Northern Santa Fe Railroad has undertaken a significant capital expansion program to increase coal deliveries and improve reliability. In addition, the Co-owners for the existing plant have leased a third train, which would increase reliability for the existing plant by 50 percent and have increased stockpiling for the summer months (Reference: Decision of the Public Utilities Commission of the State of South Dakota, dated July 21, 2006: Finding of Fact No. 158, “Final Decision and Order; Notice of Entry, EL05-022”). Prior to the beginning of operations of the proposed Big Stone II plant, the Co-owners would enter into binding agreements with coal suppliers to insure an adequate supply of coal for the Project. The Co-owners do not anticipate any issues with respect to coal availability or deliverability to the proposed Big Stone II plant. Also, please refer to the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants in Section 4.1.2.1 of the Final EIS for an expanded discussion of GHG emissions, climate change, future regulation of CO₂, and discussion of transportation related GHG emissions associated with coal plants. The Co-owners do not anticipate having any problems related to coal supply or transportation of the coal to the proposed Project. U.S. subbituminous coal reserves were estimated to be over 97 billion tons as of January 1, 2007 (EIA, 2006), and production was estimated to be approximately 531 million tons (EIA, 2007a). Therefore, the U.S. supply of subbituminous coal as of January 2007 was more than 180 years. See also Section 13.2, below.

13.2 Impacts Related to Coal Extraction and Transportation

Comment Number	Name	Comment Summary
DEIS Comments		
B-3l	Rose Creek Anglers	“We have seen incredible advances recently in energy technology. Hybrid cars are becoming quite common, plug-in hybrids will be available in the near future and fuel cell buses are used in some cities. The automotive industry has learned that energy efficiency is the future. Why do we want to commit ourselves to inefficient old technology, especially technology that creates so many environmental problems, by expanding the use of coal?”
O-1af	CWA	“What will be the environmental impacts associated with Big Stone II from coal mining and transportation, surface reclamation, disposal of ash and other wastes, and future land-use requirements?”
O-4q	MnRES	“. . . the DEIS makes no mention of the regional economic impact of the ever-increasing cost of coal (e.g., Powder River Basin coal has more than doubled in price over the last year) - nor of the ever-increasing cost of moving it, by rail, from the mine to the power plant.”
I-22e	Ellen Mamer	“How clean will the extraction and burning of coal be for Big Stone II?”
I-30a	Gregory Stricherz	“Coal-mining companies have become less concerned with the natural beauty of our land. They seek to extract the coal at the cheapest cost possible, resulting in severely marred landscape. And severely marred human life.”
PH3-4c	Public Hearing Granite Falls, MN Katie Laughlin	“The Draft EIS should have also discussed externalities associated with coal mining, surface reclamation, disposal of ash and other waste. Big Stone II will produce 300,000 to 350,000 cubic yards of ash wastes yearly. And future land use requirements, Big Stone II will require about 95 acres for ash disposal alone.”
SDEIS Comments		
No comments received.		

Response: The commenters expressed concerns about the potential environmental impacts attributed to the extraction, transportation, and waste disposal of coal required for proposed Project. Mining impacts are addressed by individual mines as part of their permitting and licensing requirements. As an example of an analysis of the environmental impacts of coal mining, see the South Powder River Basin Coal Final EIS (USDOJ, 2003) at the following USDOJ Bureau of Land Management web site: http://www.blm.gov/wy/st/en/info/NEPA/cfodocs/south_prb_coal.html. Refer to Section 4.1.2.1 of the Final EIS (under the Big Stone II Plant Site and Groundwater Areas subheading) for a discussion of the air pollution equipment that would be used to control emissions from burning coal. For a discussion of fly ash disposal, see Section 2.2.1.6 of the Final EIS (under the Materials Handling and Waste Management subheading). Additionally, refer to the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants in Section 4.1.2.1 of the Final EIS for a discussion of GHG life cycles and an estimate of the GHG life cycle cost for the proposed Big Stone II plant.

13.3 Concerns about Coal Use

Comment Number	Name	Comment Summary
DEIS Comments		
B-3c	Rose Creek Anglers	“My engineering background advises me to completely analyze the effects of this proposed expansion. It is very important that a number of questions are thoroughly addressed before proceeding with an expansion of coal utilization.”
B-3m	Rose Creek Anglers	“The time is now to change the path on which we are traveling. We need to reduce our dependency on fossil fuels, especially on the worst polluting of all coal.”
I-8a	Joe Foss	“I am writing today to express my opposition to the proposed Big Stone II Expansion. I believe building more coal plants is a bad choice for our future.”
I-13b	Patrick Johnson	“I fundamentally disagree with perpetuating our dependance [dependence] on such an environmentally corrosive form of energy production like coal.”
I-26a	Elsie Perrine	“Why coal, why now?”
I-31b	Brynan Thornton	“There’s enough coal burning factories already. About 75% of the energy we use is coal burning energy.”
FL-4c	CWA Form Letter - Timothy DenHerder-Thomas	“We are looking at a decision that will effect [affect] my future, and that of future generations for decades to come as (in its current support of another coal plant at Big Stone) a major contributor to fossil fuel dependence and global warming.”
PH1-2e	Public Hearing Big Stone City, SD Lanny Stricherz	“The state of South Dakota appears to be taking its marching orders from the federal government, Bush administration. . . The current Bush administration . . . all having ties to the oil industry and the power industry are, again, pushing use of fossil fuels and nuclear. The state of South Dakota seems to be following along with the administration’s suggestion simply because both are Republicans and not using the common sense that young and forward-looking folks should be using to bring our energy consumption into the 21st Century, not taking us back to the 19th Century.”
PH1-9d	Public Hearing Big Stone City, SD Lanny Stricherz letter	Same as PH1-2e.
SDEIS Comments		
SI-13b	Tom Neiman	“Having just visited a Excel’s Riverside coal plant, I don’t understand why you would want another coal plant.”
SI-16b	Beth Rogers	“I am against more coal burning.”
SI-17a	Dave Staub	“It does take time to collect thoughts on paper of what is the concern of many residents like myself in the vacinity [vicinity] of Big Stone II. There is a lot of concern about giving up wind rights to outside corporations and financial markets as well as air quality and water rights to the heavy hand of the coal industry, especially in a time of awakening to the alarming rate of rise of CO ₂ and global warming.”
SI-21c	John Harkness	“Coal is not the way to go.”

Comment Number	Name	Comment Summary
SI-23b	John Sens	“Building a new coal plant is a step backwards, as it will be bad for the health of the area, it will pollute, and it contributes to global warming. Why should we use this technology when newer technologies that will be cheaper in the long run are available.”
SI-24a	Aleksandra Stancevic	“While coal is being offered as an abundant source of power, it remains to be a fossil fuel. It exploits the ground in its retrieval, it pollutes the air in its production.”
SFL-30a	CWA Form Letter for SDEIS Richard Tester	“I also think that the Big Stone II coal burning plant should not be built. We do not need any more fossil fuel plants like this. Why not just harness more wind energy and send that through the new transmission lines?”
SFL-59a	Lois Braun	“First, coal burning contributes to global warming.”

Response: The commenters provided a variety of comments, expressing general concern for the use of coal and the proposed plan to build a coal-fired power plant. Commenters were specifically concerned with such factors as the dependence on fossil fuels such as coal, coal as a contributor to global warming, and the health effects of coal use. These comments have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone Project.

Coal is one of the most abundant fossil resources in the U.S. Further, the proposed plant’s use of super-critical technology makes it highly efficient and minimizes its use of coal. It also minimizes its emissions of CO₂, SO₂, mercury, and other pollutants. Finally, GHG control technologies for coal plants are under development and will be available in the foreseeable future. Refer to Section 2.2.1.6 of the Final EIS for issues regarding ash management. In addition refer to the Response to Comments at Section 17.3, below.

14.0 Project Need

14.1 Co-Owners’ Needs

Comment Number	Name	Comment Summary
DEIS Comments		
O-2o	Sierra Club	The commenter does not feel the Draft EIS complied with CEQ regulations due to lack of adequate discussion of the need for power. In their opinion, there is not satisfactory discussion on conservation, efficiency, or the reasonableness of the Co-owners demand estimates.
O-3k	Joint Commenters	The commenters expressed concern that the general approach of the Draft EIS on the topic of alternative energy sources is to accept without independent analysis; the Co-owners determination that a pulverized coal-fired method is the only way to meet the power generation needs.
O-3u	Joint Commenters	“Commenters strongly disagree that the Project proponents have shown need for a new baseload resource, that level of sought-after power can be obtained more cheaply by following a cleaner technology path. Moreover, building predominantly wind-based alternatives would result even greater economic development benefits to the region.”

Comment Number	Name	Comment Summary
O-3z	Joint Commenters	The Draft EIS discussed the option of IGCC technology but deemed it not commercially available. The commenters feel this is a baseless opinion and gave examples on the current commercial applications. The commenters feel if the market is considering IGCC, Western should as well in their EIS.
I-12b	Thomas Hillenbrand	“Bringing another coal plant will be detrimental to health and safety to local people while people in other states will benefit from electricity generated. SD does not need any more plants for its own needs.”
I-16a	Pete Kennedy	“The 2005 MAPP Load and Capability study (MAPP, 2005) is flawed in that it is a study conducted by power generating companies to assess the needs of the customers in their area. Power companies are in the business to sell energy, not conserve it. What their customer’s anticipated energy needs are is prejudiced by what they have to sell.”
I-16b	Pete Kennedy	“Big Stone I already does not run at full capacity.”
I-16e	Pete Kennedy	“Because the project proposers have not shown a clear need for the project, the project is not required and ultimately an EIS is not required.”
I-17c	Jeanne Koster	“Should the baseload at issue be considered as the pooled existing baseload of the seven co owners?”
I-26b	Elsie Perrine	“My husband and I live in the shadow of coal fired Big Stone I plant and the pollution it sends out. Isn’t that enough? Why a 2 nd coal fired plant so close?”
I-26f	Elsie Perrine	“Reconsider and make Big Stone II wait a few years for a cleaner process.”
I-36c	Joe Erjavec, et al	“. . . an objective analysis regarding the need for additional baseload power is in order since the generation mix in the service area is approx. 70-75% coal already.”
FL-1b	CWA Form Letter	“The draft Environmental Impact Statement prepared for the proposal did not fully consider the alternative of using a combination of fossil and renewable fuels to meet the alleged needs of the Big Stone partners.”
PH1-1a	Public Hearing Big Stone City, SD Ron Louks	“My comment is that the proposal for the project here is the transmission lines are going through Minnesota, basically. But my question is, we've got about 600 that's available to us now that we're not even using. Xcel Energy in St. Paul paid \$14.5 million to unplug the wind turbines south of Marshall on it. And my question is, when they did this study, that they're going to need more energy. Was this in the proposal or not? And Xcel Energy says they can't -- don't have any transmission lines.”
PH1-1b	Public Hearing Big Stone City, SD Ron Louks	“So my question is, these partners that are going to build this one, maybe they should take up a collection and have a transmission line put in there so we had that power to use, and then see what we need for energy here. Probably maybe 2030 or 2040 we may need something. I don't think we need nothing now. We can use what sources we've got.”
PH2-2b	Public Hearing Morris, MN Allen Wold	“Some of the questions I have is, how big is the present power plant? How much increase are we looking at? It says 600 MW, but I don't know how big the first one is.”
PH2-2c	Public Hearing Morris, MN Allen Wold	“There was a projection up there on how much power would be used that we would have a deficit in 2011. I'm assuming that in 1975, or before the first power plant came on line, there was also projection for power usage. How accurate were they? How local is all the power? How far do we send it out? Looks like Willmar is like the farthest end of the earth from here.”

Comment Number	Name	Comment Summary
PH4-6b	Public Hearing Benson, MN Andrew Falk	“And I want to talk about the economic impact of this, because, obviously, people are for-profit companies. There is a reason why they're doing this: Just to make money. And that's fine. We live in a capital society. But one of the things that I want to talk about is that this plant is being oversized. It's being overbuilt for a market not specifically for western Minnesota. A lot of this power is going to be sent to the Twin Cities, farther markets.”
SDEIS Comments		
No comments received.		

Response: The commenters provided comments questioning whether the proposed power plant was even needed by the Co-owners and challenging the analysis performed used to determine the power needs of the area. Western has updated Figure 1.2-1 (Section 1.2.1 of the Final EIS), which illustrates the forecast energy needs through 2016. Additionally, the Co-owners have provided an updated discussion of their power requirements in Section 1.2.2 of the Final EIS. In summary, the proposed Project includes producing 600 MW of baseload power and interconnecting the power to the regional electric grid. The proposed Project is needed to meet the additional regional power requirements of the five Co-owners. The Co-owners are members of the Mid-Continent Area Power Pool (MAPP), an association of electric utilities and other electric industry participants who have interests in the Upper Midwest electrical industry. MAPP, as a regional transmission group, facilitates open access of the transmission system and generation reserve sharing. MAPP prepares an annual load and capability study that compiles each member’s current capacities, load forecasts, and planned capacity from new facilities. The MAPP capacity forecast, which includes the proposed 600 MW (net) Big Stone II plant, as well as planned generation projects of other utilities, indicates that utilities within the MAPP region are forecasted to become capacity deficit beginning in 2010 (see Figure 1.2-1). Therefore, assuming the commercial operation date of July 2015 for the proposed Project, the summer peak load demand is projected to remain in deficit after the addition of the proposed plant. Western believes that the Co-owners have demonstrated a need for the proposed Project in the near term, citing the use of a reliable baseload- generation technology to meet the additional regional power requirements of the five Co-owners. Additional details regarding regional power requirements, market factors affecting demand, and the power requirements of the Co-owners may be found in Chapter 1 of the Final EIS.

14.2 Export versus Local Power Market

Comment Number	Name	Comment Summary
DEIS Comments		
I-16a	Pete Kennedy	“The 2005 MAPP Load and Capability study (MAPP, 2005) is flawed in that it is a study conducted by power generating companies to assess the needs of the customers in their area. Power companies are in the business to sell energy, not conserve it. What their customer’s anticipated energy needs are is prejudiced by what they have to sell.”
I-16c	Pete Kennedy	“It looks like Big Stone II is being built to supply energy out side of the area that will be environmental affected.”
PH2-2c	Public Hearing Morris, MN Allen Wold	“There was a projection up there on how much power would be used that we would have a deficit in 2011. I'm assuming that in 1975, or before the first power plant came on line, there was also projection for power usage. How accurate were they? How local is all the power? How far do we send it out? Looks like Willmar is like the farthest end of the earth from here.”

Comment Number	Name	Comment Summary
PH2-2d	Public Hearing Morris, MN Allen Wold	“And then, are you on a national power grid so that in times of surplus electricity here, can we sell to Phoenix or Texas or someplace?”
PH3-2d	Public Hearing Granite Falls, MN Andrew Falk	“Another thing I would like to address is with this plant, we talk about building it for our community, for the rural community, when, in fact, over 50 percent of this overbuild is going to be designed for the Twin Cities and farther export markets from our usage here. We don't use that much electricity in the area. It's designed specifically to being sent and exported to other markets. So we're forced to live with the environmental impacts here while other consumers supposedly are reaping cheap electricity benefits and not having to deal with the environmental consequences.”
PH4-6b	Public Hearing Benson, MN Andrew Falk	“And I want to talk about the economic impact of this, because, obviously, people are for-profit companies. There is a reason why they're doing this: Just to make money. And that's fine. We live in a capital society. But one of the things that I want to talk about is that this plant is being oversized. It's being overbuilt for a market not specifically for western Minnesota. A lot of this power is going to be sent to the Twin Cities, farther markets.”
SDEIS Comments		
No comments received.		

Response: Comments pertained to the issue that electric energy being generated by proposed Big Stone II would be exported out of the region. The proposed Big Stone II plant would be built to meet the baseload needs of each of the Co-owners. The following summarizes the areas served by the Co-owners.

Central Minnesota Municipal Power Agency (CMMPA): All of CMMPA’s electric members customers are located in Minnesota. Therefore, all of CMMPA’s share of the proposed Big Stone II is expected to be used in Minnesota by its member systems.

Heartland Consumers Power District (HCPD): Approximately 67 percent of HCPD’s electric customers are located in Minnesota. Therefore, approximately 67 percent of HCPD’s share of the proposed Big Stone II is expected to be used in Minnesota. Nearly all of the remaining customers (33 percent) are located in South Dakota.

MDU: MDU serves electric customers that are located in South Dakota, North Dakota, Montana, and Wyoming.

Missouri River Energy Services (MRES): MRES is comprised of 57 member electric systems. Approximately 55 percent of MRES’ electric customers are located in Minnesota. Therefore, approximately 55 percent of MRES’ share of the proposed Big Stone II is expected to be used in Minnesota. Its remaining customers are located in South Dakota, North Dakota, and Iowa.

OTP: OTP serves approximately 423 communities, located in Minnesota, South Dakota and North Dakota. OTP’s share of Big Stone II energy would be allocated as follows: Minnesota 52 percent, North Dakota 38 percent, and South Dakota 10 percent.

In summary, approximately 46 percent of the energy from the proposed Big Stone II plant would serve customers that are located in Minnesota. The Twin Cities of Minneapolis and St. Paul are not served by any of the Co-owners. The remaining energy would be primarily distributed among South Dakota (13 percent) and North Dakota (30 percent). The following table summarizes the planned use of electric energy from the proposed Big Stone II plant by the Co-owners.

Percentage Allocation of Co-owners' Proposed Share of Big Stone II Energy by State

Co-Owner	Minnesota (Percent)	South Dakota (Percent)	North Dakota (Percent)	Other States (Percent)
CMMPA	100	0	0	0
HCPD	67	33	0	0
MDU	0	5	65	30
OTP	52	10	38	0
MRES	59	24	5	12
Combined ^a	46	13	30	11

^a Weighted averages, based on Co-owners' capacity shares from Table 1.4-1 of the Final EIS.

Source: (Uggerud, 2007), (Morlock, 2007), (Davis, 2007), (Knofczynski, 2007), (Schumacher, 2007)

As discussed in Section 1.2.1 of the Final EIS, the Co-owners are members of the MAPP, an association of electric utilities and other electric industry participants who have interests in the Upper Midwest electrical industry. MAPP prepares an annual load and capability study that compiles each member's current capacities, load forecasts, and planned capacity from new facilities. The resulting generating capacity and reserves forecasts include current capacity as well as planned generation projects. Refer to Figure 1.2-1 in Chapter 1 of the Final EIS for a description of the capacity forecast from 2007 through 2016 for summer peak load conditions (MAPP, 2007). The MAPP capacity forecast includes the proposed 600 MW (net) Big Stone II plant as well as planned generation projects of other utilities. The figure indicates that utilities within the MAPP region are forecasted to become capacity deficit beginning in 2010. Therefore, assuming the commercial operation date of July 2015 for the proposed Project, the summer peak load demand is projected to remain in deficit after the addition of the proposed plant.

Since the proposed Big Stone II power plant would be a baseload plant, surplus power would be sold on the open market during times when the power is not being utilized by the Co-owners' customers, primarily during off-peak periods. Even with occasional sales to the open market, the primary purpose of the proposed plant is to meet the needs of the Co-owners' customers. Western has considered input received during the public scoping process and public comments and believes the region is facing a capacity deficit, and that the proposed Big Stone II plant is required to meet the Co-owners' needs and objectives in numerous small and rural communities in Minnesota, South Dakota, and North Dakota.

14.3 Comments Offered on Need for Project

Comment Number	Name	Comment Summary
I-14a	Glenn Joplin	"I understand the need for more electric power. My hope and request is that you will investigate thoroughly all the alternatives and select those that are the most environmentally friendly."
I-23a	Stacy Miller	"Clearly, the intent of the laws requiring an environmental impact statement is to protect the public interest. An EIS is meant to ensure that an applicant is diligent in considering several methods for meeting demand not simply the easiest or business as usual choice."
I-29h	Gerald L. Steele	"I am not saying to deny the population from the electrical power."
I-32g	Richard Unger	"Minnesota faces no shortage of energy. Our farmers are ready to produce it with wind, hydrogen and biomass."
PH4-6b	Public Hearing Benson, MN Andrew Falk	"And I want to talk about the economic impact of this, because, obviously, people are for-profit companies. There is a reason why they're doing this: Just to make money. And that's fine. We live in a capital society. But one of the things that I want to talk about is that this plant is being oversized. It's being overbuilt for a market not specifically for western Minnesota. A lot of this power is going to be sent to the Twin Cities, farther markets."
SDEIS Comments		
No comments received.		

Response: These comments have been noted and will be taken into account by Western in making a decision on whether or not to grant interconnections for the proposed Big Stone II Project.

15.0 Coordination with Other Processes

Comment Number	Name	Comment Summary
DEIS Comments		
F-1n	USEPA	In interest of elimination and duplication, the commenter suggested Western consider joint preparation of the Final EIS with the State of Minnesota, consistent with NEPA regulations
O-2n	Sierra Club	Minnesota has its own version of NEPA which requires the preparation of an EIS by a state agency. In the Minnesota EIS for proposed Big Stone II, many alternative proposed plant sites and power technologies were analyzed. It is the opinion of the commenter that in order for Western to comply with CEQ regulations, the Final EIS must be submitted in coordination with the Minnesota EIS.
O-3h	Joint Commenters	The commenter noted that because the EIS has been developed after the hearing before the SDPUC, this allows the commenter to present certain information for the EIS process that they presented before the SDPUC.

Comment Number	Name	Comment Summary
O-3j	Joint Commenters	The commenter stated that because the Minnesota EIS is assessing reasonable alternatives for proposed power plant locations and power generation technologies, it is reasonable to expect the same from Western's Draft EIS.
O-3ap	Joint Commenters	The commenter indicated the need for Western to incorporate the analysis of the MDNR regarding the proposed Project's impact on water supply and quality into the EIS.
PH1-7a	Public Hearing Big Stone City, SD Mary Jo Stueve	"Last September 13, 2005, there was a public hearing. A request was made at that time to have the Environmental Impact Statement that was going to be done, and it was not done statewide because they did not want to duplicate the process. So it was handed over to WAPA, NEPA, to do this."
SDEIS Comments		
No comments received.		

Response: Commenters requested that Western prepare a joint EIS with the MnDOC and incorporate the results of reasonable alternatives analysis from the SDPUC and Minnesota proceedings. Prior to and during scoping for the EIS, Western representatives had discussions with the MnDOC and the SDPUC about the EIS process and invited the each agency to participate in the EIS process as cooperating agencies. A representative from the MnDOC participated in Western's EIS scoping process and attended the scoping meetings. Although the MnDOC and SDPUC did not formally accept Western's invitation to participate as cooperating agencies, Western provided an administrative review version of the Draft EIS to the MnDOC and the SDPUC. The SDPUC used the administrative Draft EIS during its proceedings.

Western staff participated in the Minnesota and South Dakota permit proceedings as outlined in Section 1.4 of the Final EIS. Even though the MnDOC and SDPUC did not formally participate in the EIS process, Western incorporated the results of the analyses completed for the Minnesota and South Dakota permitting processes to ensure consistency and to eliminate duplication between the Federal and state processes. The Final EIS has been updated to reflect the latest permit proceedings (see Section 1.4).

16.0 Scoping Comments

Comment Number	Name	Comment Summary
DEIS Comments		
O-3e	Joint Commenters	"On or about 8/29,2005, these Joint Commenters submitted comments concerning the necessary scope of the EIS for the Project. Those scoping comments, which are incorporated herein by reference, have been ignored by WAPA in the preparation of the DEIS." Specifically, see O-3f and O-3g.
O-3f	Joint Commenters	"The EIS should address the cumulative impact on the climate of the proposed project and other similar plants."

Comment Number	Name	Comment Summary
O-3g	Joint Commenters	“The EIS should examine various combinations of alternatives that utilize the outstanding wind power potential in the geographic area of the proposed Project, including along the transmission corridor and within the service territories of the Big Stone II Co-owners and their customers.”
SDEIS Comments		
No comments received.		

Response: Western has revisited the scope of the EIS and in the response to Comment O-3f from the Joint Commenters, Western has updated the discussion of cumulative impact on global climate change under the Air Quality subheading in Cumulative Impacts, Section 4.11. In the response to Comment O-3g from the Joint Commenters and other similar comments, Western has provided additional discussion on wind-generation alternatives. Refer to Section 2.5.1.2 in the Final EIS and the Wind and Renewable Energy Response Paper (Response Paper B, Volume II).

17.0 External Factors

17.1 True Cost of the Project

Comment Number	Name	Comment Summary
DEIS Comments		
O-1d	CWA	The commenter thinks that the environmental externalities such as increased health care needs, acid rain, mercury contamination, and the loss of rare species and habitats, were not taken into account when analyzing the cost of coal energy versus alternatives like wind power .
O-3ah	Joint Commenters	The commenters expressed concern over the environmental damage proposed Big Stone II may cause over its lifetime. Due to the analysis of the potential future changes of carbon at different rates, the commenters deemed the environmental damage to be enormous.
O-3am	Joint Commenters	The commenters discuss the projected annual environmental damage cost associated with proposed Big Stone II’s mercury emissions.
O-4r	MnRES	“The railroads are currently playing hardball with the regional power industry, to the point of holding shipments of coal below levels desired by power generators, with the intent of increasing charges for shipment as contracts once unfavorable to rail are renegotiated. What are the economic implications of this situation for the power companies and their ratepayers, and thus for the regional economy?”
O-4s	MnRES	“... externalities related to any and all other ‘backside’ health impacts are simply ignored. A rather conservative estimate using established externalities values for new coal-fired power plants would suggest that a billion-dollar coal-plant project - even when fitted with modern pollution controls - is, over the probable half-century lifetime of the plant, likely to impose an additional dollar cost on society of at least half again that much via the health-impairing, often lethal impact of fine particulates and other pollutants (see e.g. Abt Associates, 2002; Burtraw & Toman, 1997) - even if one were shortsighted enough to set aside the extraordinary costs, and risks, to public health stemming from carbon dioxide emissions and global warming.”

Comment Number	Name	Comment Summary
B-3p	Rose Creek Anglers	“We need to put the health of our children ahead of an energy source which is cheap to produce in the short run but tremendously expensive in the long run when we have the wisdom to consider all the truly expensive external costs associated with its production.”
I-1b	Lori Askelin	“It doesn’t look at the costs related to future operation and expansion of a coal plant, including the rising cost of coal and gasoline for its transport, the likelihood of future regulation of carbon dioxide, and the significant social costs.”
I-9e	Sergio Gaitan	“ . . . once you fairly weigh in all the costs including the externalities such as the pollution and health effects as well as the future cost of coal, their subsidies, and their associated carbon taxes, that you will find clean wind power to be a far superior choice over the life-cycle of the technologies proposed. An adequate Environmental Impact Statement will necessarily by definition have to weigh the effects of the technologies on the health of the people, the fish and the ecosystems. We are ultimately the ones paying for these utility rates and environmental consequences. Besides wind power will create more full time jobs per MW of installed capacity than coal fired plants.”
I-11b	Merle Green	“The financial cost of using coal is increasing as are its health and environmental costs. Mercury and other matter from coal plant emissions contribute significantly nervous system and respiratory problems.”
I-36b	Joe Erjavec, et al	“Big Stone II construction would result in excessive mercury emissions, contributions to global warming from carbon dioxide emissions, and higher than projected costs associated with its operation. WAPA should withdraw the current EIS and do a full analysis of these and other costs associated with the proposed project.”
FL-1a	CWA Form Letter	“Since the proposed plant is expected to operate for at least forty years, the true consequences of its pollution potential must be examined. The draft Environmental Impact Statement did not show conclusively that building a new coal plant is really less costly, in health, environmental, social, cultural, and economic terms, than alternatives to develop renewable resources.”
FL-4d	CWA Form Letter – Timothy DenHerder-Thomas	“The draft Environmental Impact Statement did not show conclusively that building a new coal plant is in the long run really less costly, in health, environmental, social, cultural, and economic terms, than alternatives to develop renewable resources.”
FL-4e	CWA Form Letter – Timothy DenHerder-Thomas	“Further the societal benefits of a locally based non polluting source of energy are primarily discounted: a common practice in fossil energy development, while the negative externalities [externalities] of toxic pollution and carbon emissions have been underestimated.”
FL-8c	Sierra Club Form Letter	The commenter expressed concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.
PH3-4a	Public Hearing Granite Falls, MN Katie Laughlin	“The true costs of coal energy and renewable energy, such as wind power must be fully analyzed and compared. The Draft EIS should have examined the true costs of energy by taking into account the environmental externalities created by generating electric power.”
PH3-4b	Public Hearing Granite Falls, MN Katie Laughlin	“The Draft EIS should have thoroughly analyzed the cost of Big Stone II associated with increased healthcare from air pollution and environmental decline from acid rain, mercury contamination, and the loss of rare habitats and species.”

Comment Number	Name	Comment Summary
PH3-4d	Public Hearing Granite Falls, MN Katie Laughlin	“Encouraging coal energy based primarily on inaccurate market prices leads to economic inefficiency and impacts public health and social welfare. I am concerned that in the Draft EIS, the costs of coal-based energy did not adequately reflect health and environmental impacts. Since Big Stone II is expected to operate for at least forty years, the true consequences of its pollution must be examined.”
PH3-4e	Public Hearing Granite Falls, MN Katie Laughlin	And because the region has such amazing renewable energy potential, the Draft EIS should have shown conclusively that building a new coal plant is really less costly in health, environmental, and economic terms than developing wind and biomass resources.
PH3-4f	Public Hearing Granite Falls, MN Katie Laughlin	“The cost to energy consumers and the general public must be addressed in obtaining an accurate cost estimate for coal-based energy.”
SDEIS Comments		
SI-18a	Lanny Stricherz	“Big Stone I is currently short of power quite often because of a lack of coal. When I lived up in Sisseton, SD in a HUD highrise, our generator had to go on in the cold of the winter and the heat of the summer because Otter Tail was unable to provide the electricity we needed.”
SI-23c	John Sens	“A new coal plant will be more expensive over the long run, especially as society moves more towards businesses absorbing te [the] costs of their industry. How much of an advantage will coal have when the power companies have to pay for the mercury pollution the plants cause? For the health damages? Not much.”

Response: The comments above address various indirect effects (often referred to as “externalities” in the comments) of the proposed Project, as they relate to the “true costs” of coal energy. The indirect effects and their associated costs discussed by the comments included impacts related to health, mercury contamination, acid rain, loss of species habitat, economic impacts, transportation costs of fuels, cultural and societal impacts, and renewable energy.

Impacts on public health and the environment that are not fully taken into account in decisions to generate electricity, nor paid for by utility customers, are generally termed externalities. Externalities associated with electric generation are typically classified into four categories: air pollutants (NO_x, SO₂, particulates and heavy metals), GHGs (CO₂, methane, and chlorofluorocarbons), water use and water quality, and land use values. Valuing externalities is difficult, because impacts vary depending on different population densities and social infrastructures and is complicated by the absence of Federal, State, and local environmental laws that relate to all aspects of the electric industry.

The U. S. Department of Energy’s Energy Information Administration (EIA) and other organizations, such as the Oak Ridge National Laboratory, have explored the quantification of externality costs associated with electricity generation.

In the 1990’s, the EIA released several publications reviewing the status of State public utility commissions handling of externality costs. The EIA found that in 1995 six states were calculating the estimated costs of air pollution and using that data in their decision-making processes related to construction of generation resources. The EIA concluded that the more the externality values used by public utility commissions reflect the real cost of damages caused by a generation facility’s emissions, the more efficient and fair the approach. It also maintained that a primary determinant of the

externality cost is the sensitivity of the location exposed to a particular emission (EIA, 2005). Another EIA publication reviewed utility commission treatment of externalities in three of the seven states that had specific monetary values for air emissions from power plants at the time at the study. This report concluded that, “The requirement to incorporate externalities in the resource planning process had negligible impacts on the planned resource mix of the utilities in each of the three States.” (EIA, 2005b)

In 2001, Oak Ridge National Laboratory estimated the externality costs associated with NO_x, SO₂, and particulate emissions, as well as CO₂ emissions that a coal plant built in South Carolina. The conclusion was that externality costs are non-trivial; however, they are not large enough that it would impact the fuel choices of electricity providers. (ORNL, 2001)

Several Minnesota statutes have been enacted that require the MnPUC to establish environmental cost values. The Co-owners that are under the jurisdiction of the MnPUC have included these externality costs in their resource planning analysis, which is publicly available.

Contrary to Minnesota’s position on using externality estimates in making resource decisions, several states, including North Dakota, have statutorily prohibited the use of externality values in resource planning. The State of South Dakota has not made a ruling either requiring or prohibiting externality costs in the analysis of resources.

One commenter referenced two studies related to health costs of particulates and other pollutants. A 2002 report by Abt Associates estimated the number of adverse health effects attributed to eight electric utility systems. A 1997 Resources for the Future discussion paper by Burtaw and Toman predicted that reductions in GHGs could have added benefits of decreasing other emissions that have deleterious impacts on human health. Western acknowledges these papers, the first attempting to assess the health impact of fine particulates and the second related to the benefits of reducing air pollutants. However, without access to the details of each study and a thorough review by experts, including assumption and methodology details, it would be impossible to determine the validity of these studies.

The commenters’ concerns are primarily addressed within Volume II in Section 1 (Air Quality), Section 2 (Water Resources), Section 4 (Biological Resources), Section 7 (public health issues), Section 10 (socioeconomic issues), Section 12.3 (generation alternatives), and Section 17 (External Factors). Also see the three Response Papers (attached in Volume II) that Western prepared to address items of general concern to the public, including the Mercury Response Paper (Response Paper A); the Wind and Renewable Energy Response Paper (Response Paper B, Volume II); and the Demand Side Management Response Paper (Response Paper C). Finally, significantly new discussion has been provided on GHG and climate change in Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS.

17.2 Comparison of Cost with Renewable Energy Sources

Comment Number	Name	Comment Summary
DEIS Comments		
PH1-9b	Public Hearing Big Stone City, SD Lanny Stricherz letter	“With the more than \$2 billion dollar loan given to the DM&E railroad by the federal government and the fact that we know that the Big Stone line is getting less than 40 percent of the coal it needs to run on a full-run basis, it seems like this project is throwing money to the wind rather than to harnessing the wind for clean renewable nonfossil energy. That loan could have gone to put in transmission lines for the wind power which we so desperately need to create jobs, and to keep our environment clean and safe for ourselves and future generations.” “
PH3-7a	Public Hearing Granite Falls, MN Delores Miller	“Much of the environmental impact data in the Draft EIS assumes that Big Stone II will burn sub-bituminous Power River Basin Coal, two-and-a-half to three tons per year. However, it has come to the public's attention that the coal supply at Big Stone has been dwindling. Will Big Stone be able to find enough trains to buy or lease to carry coal to Big Stone I and II? How will business relations with Burlington Northern Santa Fe affect Big Stone II's ability to meet its objective of reliably meeting customer baseload energy and demand requirements? These supply issues pose substantial risks and costs to the Co-owners of Big Stone II. Was this taken into account when the needs and objectives of the Co-owners were assessed and renewable energy options were eliminated? I am concerned that coal-based power presents supply problems that could be mitigated or eliminated by the use of renewable energy.”
O-1ae	CWA	“What are the true costs of coal-based energy versus renewable energy (e.g. wind energy) including environmental externalities and risks to energy consumers?”
SDEIS Comments		
No comments received.		

Response: The comments express concern that renewables were not appropriately considered by the Co-owners. Western considered the generation alternatives suggested to the Co-owners’ generation plans and has determined that the EIS will not fully analyze them for interrelated reasons discussed in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated). However, a discussion of power generation technology alternatives is presented in Section 2.2.1.3 and Section 2.5.1 of the Final EIS. Information on renewable energy alternatives may be found in Section 2.5.1 of the Final EIS (Power Generation Alternatives Eliminated) and in the Wind and Renewable Energy Response Paper (Response Paper B, Volume II) of the EIS.

17.3 Impacts due to the Use of Coal

Comment Number	Name	Comment Summary
DEIS Comments		
O-1e	CWA	“The EIS should also discuss externalities associated with coal mining and transportation, surface reclamation, disposal of ash and other wastes, and future land-use requirements.”
O-1af	CWA	“What will be the environmental impacts associated with Big Stone II from coal mining and transportation, surface reclamation, disposal of ash and other wastes, and future land-use requirements?”
O-4q	MnRES	“. . . the DEIS makes no mention of the regional economic impact of the ever-increasing cost of coal (e.g., Powder River Basin coal has more than doubled in price over the last year) - nor of the ever-increasing cost of moving it, by rail, from the mine to the power plant.”
I-19i	Richard Kroger	“The calculation must also include the CO ₂ emitted by the trains transporting its coal from Wyoming and Montana to Bigstone [Big Stone] II.”
I-29e	Gerald L. Steele	“When I consider the air and water pollution, which coal produces, I am thinking of the energy that it takes to mine the coal, transport the coal and then burn the coal to produce the electricity.”
PH1-4b	Public Hearing Big Stone City, SD Delores Miller	“Another comment I have is on the coal supply. South Dakota and Minnesota don't have coal. It all has to be brought in by rail. And the railroads are having a hard time keeping up with the demand, because of the demand for electricity. So in conjunction with that, I mean, we need our coal plants.”
PH1-9b	Public Hearing Big Stone City, SD Lanny Stricherz letter	“With the more than \$2 billion dollar loan given to the DM&E railroad by the federal government and the fact that we know that the Big Stone line is getting less than 40 percent of the coal it needs to run on a full-run basis, it seems like this project is throwing money to the wind rather than to harnessing the wind for clean renewable nonfossil energy. That loan could have gone to put in transmission lines for the wind power which we so desperately need to create jobs, and to keep our environment clean and safe for ourselves and future generations.”
PH2-4a	Public Hearing Morris, MN Michelle Handlin	“Currently, the Environmental Impact Statement doesn't have the impact on the environment, including the mining and the transportation increasing. And my question is, will this be addressed in the final report since that is part of -- it should be part of the Environment Impact Statement? Will there be an increase in mining, and an increase in transportation getting that coal to the plant?”
PH3-4c	Public Hearing Granite Falls, MN Katie Laughlin	“The Draft EIS should have also discussed externalities associated with coal mining, surface reclamation, disposal of ash and other waste. Big Stone II will produce 300,000 to 350,000 cubic yards of ash wastes yearly. And future land use requirements, Big Stone II will require about 95 acres for ash disposal alone.”

Comment Number	Name	Comment Summary
PH3-7a	Public Hearing Granite Falls, MN Delores Miller	“Much of the environmental impact data in the Draft EIS assumes that Big Stone II will burn sub-bituminous Power River Basin Coal, two-and-a-half to three tons per year. However, it has come to the public's attention that the coal supply at Big Stone has been dwindling. Will Big Stone be able to find enough trains to buy or lease to carry coal to Big Stone I and II? How will business relations with Burlington Northern Santa Fe affect Big Stone II's ability to meet its objective of reliably meeting customer baseload energy and demand requirements? These supply issues pose substantial risks and costs to the Co-owners of Big Stone II. Was this taken into account when the needs and objectives of the Co-owners were assessed and renewable energy options were eliminated? I am concerned that coal-based power presents supply problems that could be mitigated or eliminated by the use of renewable energy.
PH4-1d	Public Hearing Benson, MN Cesia Kearns	“I'm also aware that there have been challenges recently based on the delivery of the coal to the plant, and I'm not certain that the coal can be adequately delivered to the site, the plant that they propose right now. And initially we foresee the rising cost of fossil fuels. We know that coal prices are rising. We also know that gasoline is rising, which can affect the delivery of coal, and we can only see prices going up on that, I would guess. So that's a concern for me.”
PH4-6i	Public Hearing Benson, MN Andrew Falk	“Coal has gone up in price. Fossil fuels have become more expensive. If the carbon taxes and this green credit or the tags are enforced, the prices to the plant and the consumers are going to increase by a significant margin.”
O-1ac	CWA	The commenter expresses concern towards proposed Big Stone's coal supply issues. In particular, the availability and transportation options of the sub-bituminous Power River Basin Coal and the economic risk this poses the consumers.
O-1ba	CWA	“How will Big Stone handle its ongoing coal supply problems?”
O-1bb	CWA	“How will Big Stone minimize the coal supply-related economic risks to its energy consumers?”
SDEIS Comments		
SI-18a	Lanny Stricherz	“Big Stone I is currently short of power quite often because of a lack of coal. When I lived up in Sisseton, SD in a HUD highrise, our generator had to go on in the cold of the winter and the heat of the summer because Otter Tail was unable to provide the electricity we needed.”

Response: The commenters provided a variety of comments expressing general concern for the need for additional consideration of the impact the coal supply has as it relates to the proposed Project. Commenters were specifically concerned with such factors as the recent increase in the delivered cost of coal, the ability to deliver enough coal to meet the demands of the proposed plant, and the environmental impact of coal mining, transportation, surface reclamation, disposal of ash and other wastes, and land use requirements. Please refer to Section 13.2 of the Response to Comments above and to Section 2.2.1.6 of the Final EIS for issues regarding ash management. In summary, ash generated by Big Stone II that is not used beneficially (e.g., for soil stabilization, structural fill, or for use in concrete) would be disposed at the existing on-site landfill. Based on anticipated ash characteristics, the existing Big Stone plant landfill (including contiguous expansion areas that are currently permitted) would accommodate approximately 10 years of disposal before a new landfill would be required. A new landfill would be subject to Federal, state, and local permitting requirements. It is likely that any new landfill would also be constructed on the plant property, or on

nearby property acquired by the Co-owners. Project cost analysis associated with decommissioning (such as surface reclamation) were beyond the scope of the EIS. As noted in Section 2.2.1.10 of the Final EIS, Project decommissioning would take place following the expected lifespan of the Project (estimated at 30 to 50 years), unless an alternative use for the plant were to be identified. Decommissioning would adhere to Federal, state and local regulations in place at the time of decommissioning.

Analyses that study the future cost of coal or the environmental impact of coal mining, transportation, surface reclamation, disposal of ash and other wastes, and land use requirements as they relate to the proposed Project have not been performed. Analyses such as these would require making assumptions about factors that are very uncertain. For example, the supply and demand of coal and the associated impact on coal prices depends on many factors including production costs, productivity, fuel costs, and economic health of other countries, etc. All of these factors are highly uncertain and could vary wide, producing a wide range of results. Therefore, such analysis would not be beneficial. However, mining impacts are addressed by individual mines as part of their permitting and licensing requirements. As an example of an analysis of the environmental impacts of coal mining, see the South Powder River Basin Coal Final EIS (USDOJ, 2003) at the following USDOJ Bureau of Land Management web site: http://www.blm.gov/wy/st/en/info/NEPA/cfdocs/south_prb_coal.html.

17.4 Potential for Future CO₂ Regulation

Comment Number	Name	Comment Summary
DEIS Comments		
I-9e	Sergio Gaitan	“ . . . once you fairly weigh in all the costs including the externalities such as the pollution and health effects as well as the future cost of coal, their subsidies, and their associated carbon taxes, that you will find clean wind power to be a far superior choice over the life-cycle of the technologies proposed. An adequate Environmental Impact Statement will necessarily by definition have to weigh the effects of the technologies on the health of the people, the fish and the ecosystems. We are ultimately the ones paying for these utility rates and environmental consequences. Besides wind power will create more full time jobs per MW of installed capacity than coal fired plants.”
FL-8c	Sierra Club Form Letter	The commenter indicated concern that the Draft EIS did not consider the full range costs related to future operation and expansion of a coal plant.
FL-12b	Sierra Club Form Letter Tony Prokott	“The economic orthodox acceptance of externalization of costs is illegitimate and in effect sociopathic. Public policy is long overdue for taking these costs on the basis of the precautionary principle.”
PH4-6i	Public Hearing Benson, MN Andrew Falk	“Coal has gone up in price. Fossil fuels have become more expensive. If the carbon taxes and this green credit or the tags are enforced, the prices to the plant and the consumers are going to increase by a significant margin.”
SDEIS Comments		
No comments received.		

Response: The commenters provided a variety of comments, expressing general concern for the need for additional consideration of the impact of anticipated future CO₂ regulations. Commenters were specifically concerned with the cost of complying with anticipated future CO₂ regulations that may be faced by the Co-owners and ultimately by ratepayers. Based on the above comments, Western

provided additional GHG discussion and analyses in Section 3.1.1 (under the subheading Greenhouse Gas Emissions and Climate Change) and Section 4.1.2.1 (under the subheading Greenhouse Gas Emissions from the Existing and Proposed Plants) of the Final EIS. U.S. efforts to regulate GHGs are lagging behind international efforts, but legislative activity in the U.S. has been picking up over the last couple of years. Efforts by states and many market participants are underway, while actions at the Federal level are somewhat further behind. More than half of the U.S. and many Canadian provinces have either set their own reduction targets or have joined regional initiatives focused on reducing GHGs. Most states do not have regulations in place, but many are developing them. Further, many states have already joined regional initiatives that are developing regulations to curb GHG emissions.

Despite the recent efforts to regulate GHGs in the U.S., there is still much uncertainty as to the form that regulations will take; thus, Western did not attempt to estimate the future costs associated with anticipated future GHG regulations. The accuracy of such analyses would be questionable due to having to rely on incomplete or unavailable information such as undefined GHG regulations, unknown allowance prices, a lack of good data on technology developments and performances, and unknown future revenue streams, etc. Moreover, models to predict regional or local impacts utilizing global CO₂ emissions and atmospheric data do not exist. Also see the Response to Comments in Section 1.1.16, above.

Under “Finding of Fact No. 199” from the Energy Conversion Facility Permit approved July 21, 2006, by the SDPUC, the Co-owners are required to keep the SDPUC informed of developments relative the proposed Project involving CO₂, including an annual report beginning in 2008. Such report shall review any Federal or State action taken to regulate CO₂, how the proposed plant plans to act to come into compliance with those regulations, the expected costs of the compliance efforts, and the estimated effect of such compliance on rate-payers. In the event that emissions of CO₂ are regulated within the life expectancy of the Project, the Co-owners would operate the proposed Project in compliance with the regulatory requirements.

18.0 Support of Project

Comment Number	Name	Comment Summary
DEIS Comments		
B-2a	MRES	<p>“As evidence of that support, a number of MRES member communities have taken the added step of expressing their support of the Big Stone II project formally. At this time, as part of our comments, we submit the enclosed copies of Resolutions of Support passed by fourteen MRES member communities in the state of Minnesota. These Resolutions of Support are formal indications of the backing that the Big Stone II Project has from the communities that will ultimately benefit from it. The Resolutions provided here are from the Minnesota communities of Alexandria, Benson, Breckenridge, Detroit Lakes, Jackson, Lakefield, Luverne, Marshall, Madison, Melrose, Ortonville, Sauk Centre, Wadena, and Worthington. MRES is pleased to have the continued support of its member communities. Because the electric demands of cities such as these continue to grow, MRES has joined the participants in the Big Stone II Plant and Transmission Project. This project will bring MRES members reliable, cost-effective baseload power to meet future power needs in an environmentally sound manner.”</p>

Comment Number	Name	Comment Summary
B-3a	Rose Creek Anglers	“On June 3, 2006, I had the pleasure of touring the Big Stone Power Plant. There is no doubt that company officials at Otter Tail Power have calculated a number of options to meet the energy needs of its customers. All of the questions asked while touring the plant confirmed this. As company management stated, even though electricity demands are not growing as fast as in previous decades, more generating capacity will be needed in the future.”
I-33a	Judith Webster	“It is time to realize that we need all the energy help we can get or, forget the future. Coal, like it or not is a necessary component in Minnesota's energy present and future [future]. Reality dictates this. Minnesota is a net energy user. Not a producer. We do not have these energy resources. We are in big trouble. . . We do have wind and a bit of solar potential. So, like it or not wind and coal will play a big part of the future here. If we want to retain our current population base and standard of living there is simply no other choice.”
PH3-9a	Public Hearing Granite Falls, MN Gary Johnson, member of Yellow Medicine County Board	“The concerns we came across after viewing it with our planning and zoning officer, and myself even looking at some of the different locations and that, there were positives of it. They got to address the moving of the Canby substation, which is in the floodplain now, and I understand it's going to be moved out of the floodplain, if this transmission line goes through.”
PH3-9e	Public Hearing Granite Falls, MN Gary Johnson, member of Yellow Medicine County Board	“. . . The only other thing on the positive side of it again is, I do believe if we don't increase the size of this transmission line, you're not going to be able to dispose of your wind-generated power, and those wind-generated powers right now are coming right up to Yellow Medicine County's line, right up to Canby almost. And the five counties and 6WRD Regional Development Commission are in the process right now of forming a committee and reviewing what the generating power and any other fossil fuels can do for us.”
PH4-3a	Public Hearing Benson, MN Rob Wolfington, City Manager of Benson	“Resolution of support was passed on March the 27th, 2006, by the Benson City Council.”
PH4-10a	Public Hearing Benson, MN City Council	“NOW, THEREFORE, BE IT RESOLVED, that the City of Benson fully supports the Big Stone II Project generation and transmission facilities, and BE IT FURTHER RESOLVED, the City urges all state and federal regulators to support the BSP II project based on the base load energy needs of the City and the region, the environmental considerations being shown by the project, the potential for future resource development created by the additional transmission capacity proposed by the project and the cost stability and system reliability BSP II would bring to the area.” Approved by the Benson City Council on March 27, 2006.
SDEIS Comments		
SI-1a	Scott Bauer	“Hurry up and get this thing built. The demand for electricity must be huge. I am getting controlled more this year than last. I am behind this plant all the way. Hope everything goes well, the cost will only get worse the longer it takes for all of these meetings and notices.”
SI-9a	Duane Markus	“Ask these people if they want light by candlelight – no AC – no fans for their furnace and to heat & cook with wood.”

Comment Number	Name	Comment Summary
SI-11a	Carson McIntyre	“As a sportsman and outdoorsmen I do appreciate the outdoors very much. Many claim that this project would compromise the outdoors, but I have seen plenty of these powerplants and various other projects like this and it seems to me if they are done well they are not a bad thing. Please continue to work hard to make these projects both a valuable asset to our way of life and power needs while using common sense to avoid damaging your surroundings.”
SFL-33a	Sierra Club Form Letter for SDEIS Terry Brueske	“... I am for transmission lines because they are needed to transport electricity for the increasing number of wind turbines across Minnesota.”

Response: The comments have been noted and will be taken into account by Western in deciding whether or not to grant the interconnections for the proposed Project.

19.0 Requests for the EIS to be Reissued

Comment Number	Name	Comment Summary
DEIS Comments		
O-3a	Joint Commenters	The commenter, for a number of reasons, believed Western should withdraw the Draft EIS for proposed Big Stone II and re-issue a revised draft environmental review document.
O-3b	Joint Commenters	The commenter expressed concern regarding the validity and impartial nature of the capital cost estimates for the Project.
O-3ab	Joint Commenters	The commenter stated the Draft EIS failed to adequately consider the environmental impacts of proposed Big Stone II.
O-3at	Joint Commenters	“In a re-issued DEIS, WAPA should examine the impacts that MDNR raised regarding the Project in its June 30, 2006, correspondence to the South Dakota regulators, and analyze available mitigation measures.”
O-3au	Joint Commenters	The commenter requested Western withdraw the Draft EIS for the proposed Big Stone II Project and reissue a revised draft document. At a minimum, the commenter believes Western must include in the revision the concerns of escalated costs and evaluate the alternatives further.
O-4a	MnRES	“We find the DEIS seriously and surprisingly deficient on the indicated points. It is disappointing that WAPA would submit a document that clearly fails to meet the requirements both of NEPA, and of practical foresight and good sense. We urge WAPA in the strongest terms to withdraw this EIS, producing in its place a supplemental EIS that fully addresses the issues cited.”
I-17k	Jeanne Koster	“Fairness requires a second draft of the EIS for Big Stone II, one which includes wind/conservation as a generation alternative to the proposed 600 MW coal plant. The original draft's inadequate treatment of mercury impacts and regulatory reality must be made more complete and more specific, including the suggestions offered above.”
I-19a	Richard Kroger	“I have worked on EIS’s and written sections several times, but this EIS is grossly inadequate . . .”

Comment Number	Name	Comment Summary
I-27e	Elizabeth Smith	“... companies proposing to build the Big Stone Lake plant should be required to go back to the drawing board to file a more complete EIS that incorporates responses to these issues. The unintended secondary consequences of additional coal fired plants in South Dakota are unacceptable.”
I-36a	Joe Erjavec, et al	“It is our belief that the WAPA’s Environmental Impact Statement (EIS) fails to provide full analysis of the social, environmental and financial costs of the proposed Big Stone II coal fired power plant.”
I-36i	Joe Erjavec, et al	“To maintain confidence in the process, an EIS must demonstrate that the proposed technology is clearly in the public’s interest. The current EIS as submitted by WAPA fails utterly in this mission.”
SDEIS Comments		
No comments received.		

Response: A number of commenters requested that the Draft EIS be reissued. Western has considered these requests, and in response to Executive Order (EO) to expedite the environmental reviews for energy-related projects (EO 13212, Actions to Expedite Energy-Related Projects, dated May 18, 2001), has instead addressed the concerns expressed in these requests in a Supplemental Draft EIS and this Final EIS. All the concerns expressed in these comments will be taken into account by Western in deciding whether or not to grant the interconnections for the proposed Project.

20.0 Corrections to Report

Comment F-1o and SF-1v from USEPA: “Page 3-4, Figure 3.1-1: The key for the diagram is not correct. The “Percent of Time” label should read ‘Velocity’ with units such as ‘meters/sec’ or possibly ‘miles/hour.’”

Response: The label “Percent of Time” is incorrect. Figure 3.1-1 in the Final EIS has been modified. Additionally, clarification has been added to the figure regarding how to read the windrose diagram.

Comment F-2x from USFWS: On page 3.4-40 of the Administrative Draft EIS, the USFWS noted that “...the description of palustrine and lacustrine wetlands are reversed...”

Response: The appropriate correction has been made in Section 3.4.3.5 of the Final EIS.

Comment F-2z from USFWS: On page 3.4-1 of the Administrative Draft EIS, the USFWS noted that, “The word “Waterfowl” should be exchanged for “Wildlife” in the term “Wildlife Production Area.”

Response: The correction has been made in Section 3.4.1 of the Final EIS. Additional text has also been added describing the legislation which provided funding for WPAs.

Comment F-3m from USDO: “On page 3-92 in Table 3.7-4, the word “Wildlife” in the phrase “Wildlife Production Area” should be replaced with “Waterfowl”; clarification should be provided if this section refers to anything other than USFWS WPAs.”

Response: The appropriate correction has been made to the table (changed to Table 3.6-4 in the Final EIS), as well as other clarification in Section 3.6.3.1 of the Final EIS.

Comment S-2a from SDPUC: The SDPUC requested that in Table 1.4-1, the term “Energy Conversion Facility Transmission Line Permit” be changed to “Energy Facility – Large Transmission Facility Permit.”

Response: Change has been made to the table, redesignated as Table 1.5-1.

Comment S-2c from SDPUC: The SDPUC noted that, “In Section 4.9.1 in the fourth bullet point under Identification of Issues, the State in which Granite Falls is located is Minnesota, not South Dakota.”

Response: A correction has been made.

Comment B-1g from OTP: OTP has provided miscellaneous suggested edits to the Draft EIS.

Response: Western has considered OTP’s suggested edits and has incorporated edits into the Final EIS where appropriate.

Comment SF-1ah from USEPA: The USEPA commented that on “*Page 4-10 and 4-11 of the SDEIS (October 2007)*: The following sentence is included: “According to the report, assuming average annual withdrawals of 4700 af/yr, an average annual recharge rate of 0.34 inches would balance withdrawals of 10,000 af/yr for the proposed plants.” On page 4-8 of the SDEIS, the same report (SDDENR, 2007b) is referenced and it is stated that an average recharge rate of 0.34 inches would balance an annual withdrawal of 4700 af. There is an inconsistency in these statements. Please clarify this inconsistency in the FEIS.”

Response: The USEPA noted an error in the Supplemental Draft EIS. The Final EIS has been corrected, indicating that an average recharge rate of 0.34 inches would balance an annual withdrawal of 4,700 af.

Comment SF-2g from USDO: “Section ES.3.3, Changes to Plant Water Use, page ES-3; and Section 2.2.3, Changes to Plant Water Use, top of page 2-7: Both sections state that the total water consumption for the two plants is about 13,000 acre-feet per year. It also is stated that during periods of extreme drought, when ground water is the only source of water supply, that 10,000 acre-feet of ground water would be pumped. The text should reconcile this discrepancy by explaining that the additional 3,000 acre-feet would be taken from water in storage in the on-site cooling pond as stated on Page 4-10.”

Response: Please refer to the Responses to Comments at Section 2.1.1, above.

Comment SF-2h from USDO: “Section 3.2.4, Surface Water, page 3-4, third paragraph (continuing onto the top of page 3-6); and Section 4.2.4.1, Revised Proposed Action, Effects on the Whetstone River, page 4-16: The source of the statements about streamflow characteristics of the Whetstone River should be provided. The conclusions concerning mean monthly discharge are inconsistent with streamflow statistics for the Whetstone River near Big Stone City, SD (USGS gaging station number 05291000). The USGS has been collecting streamflow data at this site since 1931 and the available statistics for this station indicate that the mean of monthly discharge for March and April is nearly twice that as the means of monthly discharge for May, June, and July. Also, note that the mean of monthly discharge at this station for January and February is 6.7 and 15 cfs, respectively. The streamflow statistics for this gaging site are available on the Internet at:

http://waterdata.usgs.gov/nwis/monthly/?referred_module=sw&site_no=05291000&por_05291000_8=900123,00060,8,1910-04,2006-09&format=html_table&date_format=YYYY-MM-DD&rdb_compression=file&submitted_form=parameter_selection list. Questions concerning this

comment can be directed to Lloyd Woosley, Chief of the USGS Environmental Affairs Program, at (703) 648-5028 or at lwoosley@usgs.gov.”

Response: See Response to Comments at Section 2.4, above.

Comment ST-1am from SWO: “Both the DEIS and SDEIS contain regional maps that do not include the Lake Traverse Reservation. In fact, the Reservation and its Indian population are not even mentioned! Table 3.11-1 (2000 Census Data) on page 3-134 of the DEIS shows a minority population of 31.7 percent for Roberts County, with 22.1 percent of the county population living below the poverty level. If the Reservation is completely within the defined airshed for the proposed Project, why did the DEIS not address the potential for disproportionately high adverse environmental effects on the minority population of the Reservation? The spirit and intent of CEQ's environmental justice guidelines were not followed in this case.”

Response: Please refer to the Responses to Comments at Sections 10.2.1 and 10.2.2, above.

21.0 Modifications by Co-owners

Comment Number	Name	Comment Summary
DEIS Comments		
B-1a	OTP, on behalf of the Co-owners	By letter dated July 18, 2006, the Co-owners provided Western with a description of miscellaneous minor modifications to the Project.
B-1b	OTP	See the Comment Summary for Comment B-1a, above.
B-1c	OTP	See the Comment Summary for Comment B-1a, above.
B-1d	OTP	See the Comment Summary for Comment B-1a, above.
B-1e	OTP	See the Comment Summary for Comment B-1a, above.
B-1f	OTP	See the Comment Summary for Comment B-1a, above.
B-1g	OTP	See the Comment Summary for Comment B-1a, above.
SDEIS Comments		
No comments received.		

Response: Western observes that some of the minor modifications addressed by Co-owners in their July 18, 2006 letter are no longer applicable. Western has considered all of the remaining modifications made by OTP in the preparation of the Final EIS.

22.0 Proposed Plant Is Not Considering Minnesota Environmental Laws

Comment Number	Name	Comment Summary
DEIS Comments		
O-4g	MnRES	The commenter expressed concern about mercury. It was noted that emissions from the proposed plant would fall primarily on Minnesota because of prevailing winds, and that Minnesota regulations on mercury, if applied to the proposed plant, would reduce mercury emissions. The commenter also noted that Minnesota's waterways, as noted in the DEIS, are already seriously degraded by mercury deposition; additional loading is unacceptable.
O-4i	MnRES	"Under Council on Environmental Quality regulations [40 CFR 1500.4(n), 1506.2(b), and 1506.2(d)], such conflicts with state law must be addressed in any federal EIS. Notwithstanding that the state of Minnesota is, under its own Environmental Policy Act, developing an EIS on Big Stone II through the Department of Commerce, the WAPA DEIS offers nothing in the way of analysis of the conflict between the proposal for Big Stone II and the laws of the state of Minnesota, let alone any suggestion of how this evident conflict might be addressed and reconciled."
I-32b	Richard Unger	"The proposed Power Plant itself, which has been permitted in South Dakota could not be built in Minnesota because of the existing and new legislation enacted in 2006. This legislation expresses the official policy of the State of Minnesota. It is the job of the Public service Commission to give effect to the policies of the State of Minnesota."
FL-4a	CWA Form Letter Timothy DenHerder-Thomas	"I am concerned about the proposal to build a new coal plant in South Dakota right next to the Minnesota border and supplying [supplying] power to Minnesota citizens, rather than investing in clean energy that supports local communities and is better for our health. I find it disturbing that such a plant, whose production is destined largely for Minnesotas [Minnesota's] use, but has inadequate pollution controls to meet Minesota's [Minnesota's] standards, would be sited just adjacent to the state to avoid this problem."
PH3-2i	Public Hearing Granite Falls, MN Andrew Falk	"We have to deal with all of these other hazards, that it's being built in South Dakota because it does meet or would not pass Minnesota environmental standards, because it's built in South Dakota, those don't apply. I just think that looking at us in rural Minnesota, we need to look at, does this really serve our interests?"
PH3-5f	Public Hearing Granite Falls, MN Duane Ninneman	"This year Minnesota enacted the most stringent mercury reduction legislation in the country, which passed by a unanimous vote in both houses and was signed by Governor Pawlenty. Minnesota regulation will not curtail mercury from the Big Stone plant, even though much of the plant's mercury falls in western Minnesota on the prevailing winds."
PH3-10e	Public Hearing Granite Falls, MN Duane Ninneman	The commenter expressed concern that the stringent mercury reduction legislation passed by Minnesota would not curtail the proposed plant's mercury emissions that fall in western Minnesota.
PH4-6c	Public Hearing Benson, MN Andrew Falk	"It's being built in South Dakota, where 95 percent of the electricity will be shipped to Minnesota and beyond. So I want to have some of these issues addressed."

Comment Number	Name	Comment Summary
PH4-6d	Public Hearing Benson, MN Andrew Falk	“Just for the sake of argument, what if this were, this EIS were prepared to Minnesota standards? What if it were built just across the border in Minnesota? How would it be different? These questions haven't been adequately addressed, which leads us to the environmental impact.”
SDEIS Comments		
No comments received.		

Response: Notwithstanding Federal environmental regulations which apply to all states, the commenters are correct that the proposed plant has been permitted in South Dakota and must comply with the environmental laws of South Dakota. Most of the transmission system is subject to various permitting agencies of the State of Minnesota as well. Minnesota laws do not have jurisdiction beyond its borders dealing with the construction of power generation units in other states. No approved State or local plans in Minnesota purporting to control construction of power generation units in other states were identified. Notwithstanding the lack of approved State or local plans or laws dealing with the construction of generation units in South Dakota, the State of Minnesota was afforded the opportunity to comment both to Western during the EIS process and to the various permitting agencies of the State of South Dakota, and those comments have been taken into consideration. Additionally, the Co-owners entered into a Settlement Agreement (included as Appendix K, Volume III, and summarized in Section 1.5.2, Minnesota Processes of the Final EIS), with the MnDOC in which the Co-owners agreed to implement other environmental controls consistent with the State of Minnesota environmental requirements.

Through the Settlement Agreement, the Co-owners have committed to install control equipment that is most likely to result in removal of at least 90 percent of the mercury emitted from both the existing and the proposed plant. Additionally, the Co-owners have agreed to act in good faith to install such equipment as expeditiously as possible, but have four years after the commercial operation date of the proposed Big Stone II plant to achieve compliance with this commitment. Finally, the Settlement Agreement also requires that the Co-owners with load in Minnesota offset all their respective CO₂ emissions from the proposed plant that is intended to serve their respective Minnesota load responsibilities. The offsets would be accomplished by several methods including, among other options, GHG emission reductions at any of the Co-owners’ other plants, trading on a recognized GHG exchange, purchase of carbon credits, setting aside \$10/ton of CO₂ emitted to be used for future GHG reductions and/or research, or making investment in transmission that the MnPUC certifies would enhance renewable energy development.

Each Co-owner would individually provide offsets for its respective Minnesota load. Consequently, the specific CO₂ reduction target amounts have not been identified for each utility or for each offset method. The offset methodology would be determined at a later date based on the unique opportunities of each Co-owner. The total offsets required under the Settlement Agreement represent approximately 40 to 45 percent of all of the proposed 600 MW plant’s 4.7 million tons of CO₂ emissions. The timing and calculation of emissions to be offset are specified in the Settlement Agreement. The commitment would offset approximately 1.9 to 2.1 million tons of CO₂ per year during the first four years of the proposed plant’s operation.

23.0 Settlement Agreement

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SF-1s	USEPA	“We strongly encourage Western to reference the relevant provisions of the settlement agreement reached between the State of Minnesota PUC and the Co-owners in the FEIS and ROD.”
SF-1t	USEPA	The commenter suggested the Final EIS and ROD clearly reference tracking mechanisms, technology control requirements, and mitigation goals agreed upon in the settlement.

Response: The Co-owners and the Energy Planning and Advocacy function of the MnDOC have voluntarily entered into the “Settlement Agreement, High Voltage Transmission Lines-Big Stone II, Minnesota Public Utilities Commission Docket No. CN-05-619” effective August 30, 2007 (the “Settlement Agreement”). The key provisions of the Settlement Agreement are described in Section 1.5.2 of the Final EIS and the Settlement Agreement has been added to the Final EIS as Appendix K (Volume III). Following the issuance of the Final EIS, there will be a 30-day waiting period before Western issues a Record of Decision on whether or not to grant interconnections for the proposed Project. If granted, the Record of Decision will address implementation of the Settlement Agreement.

24.0 Requests for Extension

Comment Number	Name	Comment Summary
DEIS Comments		
PH1-3a	Public Hearing Big Stone City, SD Michael LaBatte	“I’m from the Sisseton-Wahpeton Oyate, and I work in the Office of Environmental Protection. And the Sisseton-Wahpeton Oyate is hereby petitioning for an extension for comment on the Draft Environmental Impact Statement, DEIS, regarding Big Stone II. We did not receive a timely copy of the DEIS, and there is not adequate time to respond. Tribal consultation on this matter is requested prior to our comments.”
PH1-6a	Public Hearing Big Stone City, SD Steve Jackson, Jr.	“I would like to reiterate what Michael LaBatte said earlier, that our tribe has formally requested that the comment period be extended for the Draft EIS. I would also like to mention, for the record, that the Draft EIS is not on the WAPA web site as has been advertised and relayed to interested parties.”
PH1-10a	Public Hearing Big Stone City, SD Jerry Flute, SWO letter	“The Sisseton-Wahpeton Oyate is hereby petitioning for an extension for comment on the Draft Environmental Impact Statement (DEIS) regarding Big Stone II. We did not receive a timely copy of the DEIS and there is not adequate time to respond. Tribal consultation on this matter is requested prior to our comments.

Comment Number	Name	Comment Summary
PH2-1a	Public Hearing Morris, MN Mary Jo Stueve	“I am here tonight on behalf of South Dakota Clean Water Action membership. And I speak on the membership behalf. I request an extension of the comment period. Our members last night that attended the Big Stone City meeting, the same presentation, informed me of the difficulty in accessing the document. There were instructions to go to a Web site. The page was unavailable. Some had requested the document. It did not arrive. Many of our members feel in order to adequately comment, they needed to see the document first and needed to have time to process this complex, complicated, over 600-page document, and felt hindered at being able to even supply comments last night, although they did attend. So Clean Water Action, South Dakota membership, 7,791 member families, request an extension of the comment period.”
PH2-1e	Public Hearing Morris, MN Mary Jo Stueve	“Who does it harm? Our children, our grandchildren, our environment forever, and how? And in order for a decision to be made, everything should be on the table, and the people should know, what are we risking and what are the trade-ins? The time has not been available. The information has not been available, and we request an extension.”
PH2-5a	Public Hearing Morris, MN M. Kuchenreuther	“As of today 6/14/06 the Big Stone II Draft EIS was not available at the Morris Public Library, according to the librarian I consulted. Without access to the EIS I cannot make an informed comment at this time. I request that you extend the comment period for a reasonable amount of time after assuming the EIS is available for public viewing at all of the locations noted in the Federal Register.”
PH3-6d	Public Hearing Granite Falls, MN Julie Jansen	“Also on behalf of Clean Water Action's 60,000 members statewide in Minnesota alone, we would like to request an extension on the Draft EIS. Many of our members had a hard time getting the Draft EIS, and they felt they've had little or no access to it, and therefore have not had time to address the EIS themselves.”
SDEIS Comments		
No comments received.		

Response: The commenters requested an extension in the time to respond to the Draft EIS. Commenters mentioned that they did not have enough time to review the Draft EIS to be able to provide an adequate response. On May 23, 2006, Western published a notice in the Federal Register (FR) (71 FR 29617) announcing the availability of the Draft EIS and a schedule for public hearings. The USEPA published its notice of availability of the Draft EIS (EPA EIS No. 20060178) on May 19, 2006 (71 FR 29148), that began a 45-day comment period, ending July 3, 2006. Based on requests received from agencies and members of the public, Western extended the comment period on the Draft EIS until July 24, 2006, a 21-day extension.

25.0 Native American Concerns

Comment Number	Name	Comment Summary
DEIS Comments		
T-1a	SWO	“First of all, on September 13, 2005, the SWO Air Quality Coordinator attended a public hearing in Milbank, SD. At that time, it was noted that you wanted to have a consultation with the tribes and would contact me to schedule that meeting with the SWO Tribal Council. However, that did not occur. As the Office Administrator of the Office of Environmental Protection, I can not officially speak on behalf of the Sisseton-Wahpeton Oyate Tribal Leaders, but unofficially I will take the following position opposing the DEIS on BSII.”
T-1b	SWO	“No Tribal Consultation has occurred.”
T-1e	SWO	“For many tribal people, fish is the sustenance of their traditional lifeways”
T-1f	SWO	“Unsafe fish will result in loss of revenue to the tribe. The Tribal Fish & Wildlife program will be negatively impacted economically.”
T-1g	SWO	“There are many roots, berries, medicinal plants & herbs that could become contaminated due to the increased source of air pollution; as well as water, which is considered the source of all Life, considered most Sacred to the traditional lifeways of our people.”
T-1h	SWO	“There are unknowns regarding the long-term environmental impacts which will threaten the health & well-being of our people for generations to come.”
PH1-6b	Public Hearing Big Stone City, SD Steve Jackson	“DEIS mentioned that Western had done some informal consultation with the tribe. Tribes rarely, if ever, participate in informal consultation. Specific consultation practices are required, such as formal consultation with the tribe and the tribal council, regarding the health and welfare of the Sisseton-Wahpeton Oyate. That has not occurred. DEIS indicated that Western had sent out a letter requesting the tribe, among other tribes, to be a signatory on a PA. Formal consultation needs to occur before this can happen.”
SDEIS Comments		
SO-1a	CWA	Failed to consult with Tribes.

Comment Number	Name	Comment Summary
SPH-1a	Public Hearing Milbank, SD Myrna Thompson	<p>“My name is Myrna Thompson. Hello. Okay. On page, under the Chapter 6, the Consultation and Coordination. 6-1, I would like to make a correction to the Western participated in the informational meeting with several tribes on March 9, 2007, in Hankinson, North Dakota, to discuss the proposed project and to inform tribal members of groundwater exploration activities. Western held a government-to-government consultation meeting with the Sisseton-Wahpeton Tribal Council on June 20. I would like to make the correction that so as not to sound as if we were all for this project, because we were, in fact, opposed to it, but we were there for an informational meeting with WAPA and Otter Tail, but the meeting was stopped by the tribes because the tribes did not want it to be construed as consultation, a tribal consultation. Because a true tribal consultation is government to government with the tribal leaders of each respective tribe.</p> <p>And the meeting held on June 20, with the Sisseton-Wahpeton Tribal Council, it was made clear at that meeting that it was not to be considered a tribal consultation and more of an information-sharing meeting, because this was the first actual face-to-face government-to-government meeting with WAPA and Otter Tail. And the tribe was not included from the beginning of the project. And it was stated by Nancy Werdel at that time that they understood that the government-to-government consultation needs to occur with Tribal Council. And Steve, our tribal liaison, had stated that they are trying to establish the government-to-government relationship at that time. But the tribal leadership at that time did not want it to be considered a tribal consultation unless it was identified and agreed upon as such prior to that specific meeting. And this was clearly stated to be an informational meeting for the tribal leadership.”</p>
SPH-2a	Public Hearing Milbank, SD Maggy Harp	<p>“I’m very concerned that the Lower Sioux Indian Community was not invited to this consultation, so to speak, as we are told in this paper on page 6-1, since we, too, live on the Minnesota River and take our fish and whatever from that river.”</p>
SPH-3a	Public Hearing Milbank, SD Mary Jo Stueve	<p>“Clean Water Action still has great concerns on this project, and I’ll speak specifically to what we’re talking about here with the Supplemental Draft EIS tonight. We have concerns that the applicants failed to consult with or investigate the Sisseton-Wahpeton Oyate water use rights and interests, especially with this groundwater proposal.”</p>

Response: The commenters provided a variety of comments expressing concern for the potential impact of the proposed Project on the lifestyle of the Native American community in the area, as well as the need for Western to have government-to-government consultation with tribal leaderships. Western has updated Section 6.1.3 of the Final EIS, describing a number of meetings that occurred, in which the status of the Draft, Supplemental, and Final EIS, as well as the concerns of the Tribes, were discussed. Western will meet its Federal requirements to consult with affected Tribes prior to issuance of its Record of Decision. These consultations would be conducted in accordance with Executive Order 13175 “Consultation and Coordination with Indian Tribal Governments (65 FR 67249)”, the President’s memorandum of April 29, 1994, “Government-to-Government Relations with Native American Tribal Governments (59 FR 22961),” and the U.S. Department of Energy’s Native American policy, “American Indian and Alaska Native Tribal Government Policy” (DOE, 2000).

Comments concerning the impact analysis on wildlife, local water, and traditional lifeways of Native Americans is addressed in Sections 4.4.2.1 and 4.2.2.1 respectively, of the Final EIS.

On May 23, 2006, Western published a notice in the Federal Register (71 FR 29617) announcing the availability of the Draft EIS and a schedule for public hearings. The USEPA published its notice of availability of the Draft EIS (EPA EIS No. 20060178) on May 19, 2006 (71 FR 29148), that began a 45-day comment period, ending July 3, 2006. Based on requests received from agencies and members of the public, Western extended the comment period on the Draft EIS until July 24, 2006, a 21-day extension. Also refer to Section 10.2 (Environmental Justice), above.

26.0 Requests to Deny the Interconnection

Comment Number	Name	Comment Summary
DEIS Comments		
No comments received.		
SDEIS Comments		
SI-2a	Margaret Bitz	"I am requesting that WAPA not grant permission for proposed Big Stone II coal plant."
SI-3a	Jean Dehmer	"I am writing to request that the Western Area Power Administration deny Big Stone II Co-owners an interconnection to Western's transmission system."
SI-4a	Dave Dempsey	"I strongly urge you to deny Co-owners of the Big Stone II Plant in South Dakota an interconnection to Western's transmission system."
SI-4e	Dave Dempsey	"Please deny the Big Stone II interconnection request."
SI-6a	Susan Granger	"I am writing to convey to the Western Area Power Administration (WAPA) my opposition to the Big Stone II power plant and its proposed use of public water resources in western Minnesota."
SI-7a	Michaeleen Kelzenberg	"I am requesting that Western deny Big Stone II Co-owners an interconnection to Western's transmission system. While I recognize the needs for additional power transmission."
SI-7c	Michaeleen Kelzenberg	"Yes, this is an email letter and you will receive many of them, but please do not discount the fact that each of these letters does represent legitimate concern and opposition."
SI-8e	Joe Makepeace	"I do not support this plant."
SI-10a	Christine Marran	"I am requesting that Western deny Big Stone II Co-owners an interconnection to Western's transmission system."
SI-13a	Tom Neiman	"I am requesting that Western deny Big Stone II Co-owners an interconnection to Western's transmission system."
SI-14e	Traci Rasmussen-Myers	"I am requesting that Western deny Big Stone II Co-owners an interconnection to Western's transmission system."
SI-15f	Leslie Reindl	"Please deny the Big Stone II interconnection."
SI-16a	Beth Rogers	"I am requesting that Western deny Big Stone II Co-owners an interconnection to Western's transmission system."
SI-19a	Gene Tokheim	"I am requesting that Western deny Big Stone II Co-owners an interconnection to Western's transmission system."
SI-19i	Gene Tokheim	"Please deny the Big Stone II interconnection request."

Comment Number	Name	Comment Summary
SI-20a	Erica Zweifel	"I am opposed to this change as I am opposed to building the Big Stone Power Plant II."
SFL-1f	CWA Form Letter for SDEIS	"Please deny the Big Stone II interconnection request."
SFL-27a	CWA Form Letter SDEIS- Trever Russell	"Please Say No To Bigstone II!!"
SFL-32e	Sierra Club Form Letter SDEIS	"I ask that these concerns are reflected seriously in the Environmental Impact Statement, indicating a strong recommendation against the Big Stone II power plant and transmission project."

Response: The comments have been noted and will be taken into account by Western in deciding whether or not to grant the interconnections for the proposed Project.

27.0 Comments Noted by Western

Comment Number	Name	Comment Summary
DEIS Comments		
F-4a	CDC	The CDC commented "The DEIS addressed our potential concerns. If the proposed mitigation measures are followed, there should be minimal effect on human health."
O-4t	MnRES	"That WAPA would overlook or dismiss the above list of impacts - both economic and human - is both alarming, and potentially tragic."
I-14b	Glenn Joplin	"I would be willing to pay more for my power if I thought the process to obtain the power was not harming our environment."
I-19k	Richard Kroger	"I urge you and the EIS preparers to use your conscience and prepare a final EIS that you would be proud to put your name on and show the public and your family members that you not only met the letter of NEPA but the intent of the law."
I-20y	Gil Lanners	"In closing, I realize that I will not and cannot stop this power line, nor do I want to stop the progress. But I feel that all people use electricity and that we should all bear the burdens associated with this. I have taken my turn supporting the current structures. Should it not be someone else's turn to support the future electrical infrastructures?"
I-22f	Ellen Mamer	"Please take and spend time and money up front in determining the full impact of this proposed development, lest we make a costly mistake."
I-26g	Elsie Perrine	"Please help us and please help the environment around our area of E. South Dakota and Western Minnesota."
I-29a	Gerald L. Steele	"It is my contention that such an expansion will further harm the fragile environment in which I am a resident."
I-29k	Gerald L. Steele	"I say we need to think in terms of long, rather than, short-term goals."
I-30e	Gregory Stricherz	"This new plant will serve and affect not only the current population but many generations to come. We have to do the right thing now for the future of the earth."
I-35a	Jessica Zupp	"My concerns are only whether the full impact of the coal plant has been evaluated."

Comment Number	Name	Comment Summary
I-36k	Joe Erjavec, et al	“It is our request that WAPA fulfill its obligations as required by law in this important process.”
FL-2a	CWA Form Letter -Rodney Campbell	“ ‘Increasing clean’, I believe the commercial says. Yes increasing clean but never clean. Even with the new technology to capture pollutants before it reaches our children's air, we cannot just bury it and hope it will go away. Let's make a stand to our children's future. The economics will respond. We are America, we meet challenges. Our history is clear. Be a leader that matters. I am concerned about the proposal to build a new coal plant in South Dakota, rather than investing in clean energy that supports local communities and is better for our health.”
FL-6a	CWA Form Letter – Julie Sabin	“Obviously I'm using a pre-written message, but before you decide to read or ignore it, consider this. I'm not a tree hugger or a green freak. I'm a business woman. I'm a capitalist. I cannot see the economic sense in building a coal facility. The future is elsewhere. Get with the program, please. We need you making good decisions.”
FL-8f	Sierra Club Form Letter	The commenter strongly opposed the expansion of this proposed new coal plant and transmission lines to serve it.
FL-10a	Sierra Club Form Letter – Lee Johnson	“Our family gladly pays 20% extra for 100% wind-sourced electricity.”
FL-13a	Sierra Club Form Letter – Mike Refsland	“I was born and raised in Detroit Lakes, Minnesota. My father is still a doctor in my home town. I have much family throughout the state, so I feel very strongly about being a native Minnesotan, and I want what is best for our great state.”
FL-15a	Sierra Club Form Letter – Patresha Tkach	“Please go to the movies, specifically: An Inconvenient Truth. thanks.”
PH3-2f	Public Hearing Granite Falls, MN Andrew Falk	“So with that, I would like to end my comments just finishing up that I truly think that this plant doesn't serve, this doesn't serve the interest of western Minnesota, because we have to deal with the environmental impacts.”
PH3-3b	Public Hearing Granite Falls, MN Izaak Holt	“According to national environmental policy, the government is to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations." That's from the National Environment Policy Association, Section 101, part (b). In continuing to grant permits to coal-fired power plants without a discussion of the global impact via an Environment Impact Statement, permitting agencies are not acting in the best interest of the future generations.”
PH3-7d	Public Hearing Granite Falls, MN Delores Miller	“And just one more comment. I think in addressing this situation, it seems like there is a kind of a sweeping under the rug of some of the important [issues].”
PH3-5h and PH3-10g	Public Hearing Granite Falls, MN Duane Ninneman	“We are very concerned about what the Big Stone Coal Plants are doing to slowly destroy the recreation and tourism economy that has been established for generations around Lac qui Parle Lake and Lac qui Parle Wildlife management area.”

Comment Number	Name	Comment Summary
PH4-2h	Public Hearing Granite Falls, MN Christopher Childs	“This unit is proposed for the simple reason that most of us are used to using an awful lot of power. We are five percent of the population of the world in this country, and we are consuming about a quarter of the world's energy. It is doubtful that that can continue. It is probable, therefore, that at some point, hopefully sooner rather than later, we will all have to reach a conclusion that we will have to do with less. That would be the simplest way to relieve the need for the construction of this or other units that have the potential to do environmental damage.”
PH4-8a	Public Hearing Benson, MN Karen Falk	“I'm an elementary teacher. And this past fall we took our class with a lot of Pope County fifth graders to the Ambush Park over here. And we had a whole day where we studied water. Then we went back to our classroom, and we talked about water. And all of the kids enjoyed the water in Minnesota, and they talked about fishing and swimming.”
PH4-8c	Public Hearing Benson, MN Karen Falk	“And I'm sorry, I'm tiring of saying "It's harmful." It's time for us to say, "Maybe we can do better." We can do better for these kids, because they're the ones that look at me every year and can't understand why we've done this to what they're going to be inheriting. So please consider that, that these children are the ones that are going to be living with the consequences of what you are proposing. So please reconsider this plant and think about the children.”
SDEIS Comments		
SS-2c	SDDENR	“DENR also concurs with the Draft EIS which states that use of a wet cooling system would provide the most efficient process for generating electricity along with the least amount of emissions.”
SO-1u	CWA	“Due to lack of time to investigate fully whether or not a property right may be terminated, or whether application involves a monetary controversy in excess of \$2,500 Clean Water Action on behalf of its members disagrees with the Chief Engineer's finding and reserves the right to require the agency to use the Office of Hearing Examiners if findings indicate accordance with SDCL 1-26-18.3.”
SO-1v	CWA	“In fact, the application reveals property ownership still in question, monetary amounts in excess of \$2,500 and is inconclusive as to whether applicants intend to purchase currently owned or operating irrigation water rights from area farmers. ‘The proposed groundwater withdrawal system will be located on property that includes parcels currently owned by OTP, under option for purchase by OTP, and owned by others’ (3.2.4 Land Ownership, p. 9). ‘15 wells...would cost approximately \$130,000 per well,’ which does not include cost for pipeline to the plant. Estimated range approximately 1.5-3 million dollars. (BARR Memorandum to Terry Graumann, from Nels Nelson and Ray Wuolo, 3 July 2002, Preliminary evaluation of feasibility of groundwater supply for Big Stone Plant, Project 4125003.)”
SI-3c	Jean Dehmer	“Please avoid the pressures of big business and make a responsible choice in favor of the environment and clean water for future generations.”
SI-5b	Chris Domeier	“Remember in the 70s when environmental legislation [legislation] was going to bankrupt corporate America? Hmmm..... After many, many, many environmental laws, our economy has continued to grow. Is it possible, that the economic "boom" that would result from Big Stone II, would actually be less than the long-term economic growth that would result from environmentally friendly energy use and development. And better yet, that revenue would more likely be spread out to more people, especially local tenants.”

Comment Number	Name	Comment Summary
SI-5c	Chris Domeier	“You have ‘tipping poing’ power to help shape the future of peoplekind. Never underestimate the ability of a few, thoughtful individuals to lead society down a better path.”
SI-6c	Susan Granger	“I am a lifelong western Minnesota resident. The Minnesota River is one of our most important local resources, as are Big Stone Lake and its associated wetlands.”
SI-6d	Susan Granger	“We need to work on making the Minnesota River, Big Stone Lake, Marsh Lake, and the wetlands more healthy – not further stress them.”
SI-6h	Susan Granger	“Please act wisely with the conservation and protection of western Minnesota’s natural resources as one of your highest priorities.”
SI-10d	Christine Marran	“Stop promoting private big business using public resources”
SI-15a	Leslie Reindl	“Western Area Power Administration is accountable to the public.”
SI-17b	Dave Staub	“We realize we are threatening the thinking and jobs of the managers of the coal companies, coal plants, including the so-called "co-ops" from Basin Electric to the distribution co-ops to the local rural electric distribution co-ops. The latter have had a mis-information and denial campaign to their members even to the present time. I have practiced medicine for 31 years in Sisseton, Roberts, County, SD. I have also been involved in agriculture, as an active producer, including Farmers Union, and in affordable and healthy housing. The latter includes recent prototype buildings based on cementious materials and large amounts of mass to moderate heating and cooling cycles.”
SI-17f	Dave Staub	“. . . make it easier for everyone to invest in community wind. I would suggest the concept of a South Dakota Wind Investment Fund. . . Individuals and non-profit groups, government entities . . . across the state could invest. All wind projects in South Dakota would be required to obtain at least a certain percentage of the capital from the Investment Fund, as fund assets grow. I would suggest that people in South Dakota would trust the wind (which always blows) as much as Wall Street for their investments . . .”
SI-17i	Dave Staub	“Multiple individuals and organizations have challenged conventional thinking, such as James Hanson of NASA, Ed Mazria of the 2030 Challenge and 2010 Imperative for Architecture, Union of Concerned Scientists, the American Academy of Science, the U.N. committee on global warming, etc.”
SI-17j	Dave Staub	“Decrease e- consumption by conserving and changing energy needs by designing and building residential and commercial buildings that have R-40 wall codes and other net CO ₂ of zero. It would be required by utilities to have retail price structures such as time of day and everyone on peak demand control. 40% of all energy used in the U.S. goes to heating and cooling residential and commercial structures. This is intolerable waste. There is no need to build more of the same and cosmetic rehab work on existing structures.”
SI-17l	Dave Staub	“The coal consortium needs to engage publicly and openly the residents of Minnesota and South Dakota who inhale the by-products of burning coal to utilize the common wind resource.”
SI-18f	Lanny Stricherz	“In conclusion, as a citizen, I am asking that WAPA will protect what the SD PUC is not willing to.”

Comment Number	Name	Comment Summary
SI-19e	Gene Tokheim	"We do not feel confident that the managers of Big Stone 2 have our common interests in mind when they recommend this obsolete technology be foisted upon this region, which will not profit from it."
SI-19g	Gene Tokheim	"Please protect our water, not a 1.8 billion dollar (and rising) business plan."
SI-20c	Erica Zweifel	"The impact of global climate change on this region is not yet fully known and so we should not make decisions on the water resources of this area based on past data."
SI-20f	Erica Zweifel	"I do not think that it is a good use of our precious water to support another coal plant. I believe that our shared natural resources should benefit people in the form of clean drinking water, water for sustainable agriculture, clean water for wildlife and to just enjoy in the beauty of the landscape. Our shared resources should not be given or sold to corporate America for their profit."
SI-21e	John Harkness	"Building the Big Stone Two plant is not in the best interests of the state, nor of the region, nor of the future. There are many other good reasons to oppose this plant, but I think these are the strongest. The time is very, very late. Maybe too late. We can't know for sure. Let's not be an even greater part of the problem than we already are."
SI-23d	John Sens	"Do the right thing, and take a new coal plant off the bill. This is just not a sustainable [sustainable] step."
SFL-7a	CWA Form Letter for SDEIS Steve Deal	"I am a strong supporter of Clean Water Action and what it represents for the future of our fine state and its precious natural resources."
SFL-11a	CWA Form Letter for SDEIS Delor Erickson	"Everything new we build now must be build with environmental hazards in mind. This power plant has MANY."
SFL-15c	CWA Form Letter for SDEIS Carmen LaChappelle	"Do not take the loss of this water lightly. It is a significant amount of water and changes that will likely happen have a domino impact on our environment."
SFL-18a	CWA Form Letter for SDEIS James Moore	"The Minnesota DNR has expressed strong concern over this issue. Their letter to you dated Dec. 10 2007 should be given serious consideration."
SFL-22a	CWA Form Letter for SDEIS Brian Noy	"As someone concerned with the impact of coal emissions as well as the local environment of Big Stone."
SFL-23a	CWA Form Letter for SDEIS Julie O'Brien	"I am a 46 year old female who has enjoyed swimming, canoeing & other lake activities all my life. I can't tell you the extreme lake degradation that I've seen over the course of that lifetime. The fact that my five and ten year old sons cannot see their feet very well at the bottom of the lake when they're standing in the water up to their armpits horrifies me about the state of lake and water quality in a state which I've enjoyed all my life."
SFL-26a	CWA Form Letter for SDEIS Deborah Raymond	"My father grew up in Ortonville, Mn. And Big Stone Lake played an important role in his life. I know he would want the same for the next generation."
SFL-27a	CWA Form Letter for SDEIS Trever Russell	"Please Say No To BigstoneII!!!!!!"

Comment Number	Name	Comment Summary
SFL-29a	CWA Form Letter for SDEIS Judy Swenson	“Please let the rights of people and caring for our precious environment come before big business. Although Big Stone II may bring about some positive effects, the negative consequences far outweigh those minute positives [positives], and thus, ultimately negate any good things it could possibly bring. I personally don't understand how you could even think of going through with the project.”
SFL-31b	CWA Form Letter for SDEIS Dick Unger	“For once, government could do the right thing.”
SFL-32d	Sierra Club Form Letter for SDEIS	“Lastly, the impact on public health and wildlife remains an undeniable risk in this project. Despite mercury controls, the first few years of Big Stone II's operation would put out quantities of mercury that will stay in Minnesota's water systems for years to come. Coal is a dirty, harmful fuel. From the mining, to the burning, to the fly ash, pollutants from coal fired power contribute to health problems such as asthma and heart disease. We should not invest further in such a harmful industry when the opportunity for a clean, green economy is within our reach.”
SFL-32e	Sierra Club Form Letter for SDEIS	“I ask that these concerns are reflected seriously in the Environmental Impact Statement, indicating a strong recommendation against the Big Stone II power plant and transmission project.”
SFL-36a	Sierra Club Form Letter for SDEIS Thomas Donovan	“Instead, I would request that the Environmental Impact Statement reflect the October, 2007, decision of the Kansas Department of Health and Environment which became the first government agency in the United States to cite carbon dioxide emissions as the basis for rejecting an air permit for two proposed 700 megawatt coal-fired plants in Holcomb, Kansas. Climate change is a fact and state regulators need to adjust their regulatory oversight accordingly.”
SFL-38a	Sierra Club Form Letter for SDEIS Clyde Hanson	“I live in a rural area and have a grid-tied 2.5kw solar panel system.”
SFL-40a	Sierra Club Form Letter for SDEIS Jo Harrison	“Please act for the benefit of my children and grandchildren.”
SFL-48a	Sierra Club Form Letter for SDEIS Colleen Krebs	“As citizens, business people, and politicians are rapidly coming to realize, the time is past for energy that is either dirty or needing huge amounts of water to produce.”
SFL-50a	Sierra Club Form Letter for SDEIS Deb Mckay	“And I put my money where my mouth is. My husband and I have built a totally solar home in rural Minnesota. AND he's joined FreeNerG a new solar-electric venture startup to put 50 solar units on residences in Minneapolis this summer. Please please please stop the building of more coal plants and make it easier for businesses and homeowners to "see the light" of solar and wind energy. We spent over \$30,000 on our solar system, getting a \$2,000 tax rebate. This is why there isn't more solar -- there must be more incentives (REAL incentives) from the government. FreeNerG is making solar electric affordable for the average homeowner. So much more can be done to help push this movement. Look to the European Union for ideas -- they are decades ahead of us "slow thinking" Americans!! (I say that because we seem to be stubbornly marching along in our same 'dirty' ways of coal and nuclear energy.”

Comment Number	Name	Comment Summary
SFL-52b	Sierra Club Form Letter SDEIS Julie Nester	“On behalf of our children, stop Big Stone II.”
SFL-55a	Sierra Club Form Letter SDEIS Lynn Ritchie	“As a winter resident of Florida it is impressive that only 5% of their energy comes from coal, while in Minnesota the use of coal is more than 70%. With so many natural resources to protect, I would think the effort to reduce coal consumption would be a logical goal.”
SFL-56a	Sierra Club Form Letter SDEIS Mary Thacker	“Thank you for your time and consideration. I am counting on you to do the right thing.”
SFL-57a	Sierra Club Form Letter SDEIS Ian Willard	“I have been learning about how pollution affects our world, and I think we should avoid that at all costs. My family gets our electricity from Otter Tail Power, and we would rather pay higher rates than have our state get polluted. Please consider how your customers feel.”
SFL-60b	Sierra Club Form Letter for SDEIS Katie Clower	“I am also concerned about the environmental impact of the proposed Big Stone II plant. I believe that the resources used and the pollution produced are unacceptable.”
SFL-61a	CWA Form Letter SDEIS Mary Homan	“Please this is urgent from someone that lives on Big Stone Lake.”
SFL-63a	Mary Lysne	“Taking water from Big Stone Lake for a coal burning power plant is the wrong direction for our continent.”
SFL-64c	Richard Newmark	“Approving a plant which will produce carbon for the 50 years without requiring sequestration [sequestration] of the carbon will be an environmental disaster.”
SFL-67a	Ellen Shores	“I urge recommendation against the Big Stone II power plant and transmission project based on environmental and health concerns.”
SPH-1b	Public Hearing Milbank, SD Myrna Thompson	“I would like to say that the tribe is very concerned and still does oppose the project, because we have no information on long-term environmental impacts over time, as well as the health impacts to our -- not only our people, the human factor, as well as the vegetation and the water, the air quality.”

Response: The comments have been noted and will be taken into account by Western in deciding whether or not to grant the interconnections for the proposed Project.

28.0 Other Comments

Comment F-3a from USDO: “An examination of the current Draft Environmental Impact Statement (DEIS) document as part of our Environmental Review process reveals that the WAPA incorporated many of the USFWS's previous comments. However, a few items from the USFWS's March 22, 2006, letter, under the heading "SPECIFIC COMMENTS," are restated below. Additionally, we reiterate the majority of the concerns outlined under the heading "GENERAL RESOURCE ISSUES" of the March 22, 2006, letter, with exception of the 8th and 9th bulleted items since the DEIS commits to development of an Avian Protection Plan (APP) addressing those items. We commend the WAPA's commitment to formulation of an APP; as this is an appropriate avenue to

deal with immediate and future migratory bird concerns related to the proposed Big Stone II Project such as electrocution, collision, and habitat impacts.”

Response: Your comment has been noted. The remaining items described as SPECIFIC COMMENTS or GENERAL RESOURCE ISSUES have been addressed within the Final EIS or within this Volume II of the Final EIS. Comments F-3b, F-3c, F-3d, F-3e, F-3f, F-3g, F-3h, F-3i, F-3j, F-3k, F-3l, F-3m are SPECIFIC COMMENTS from the USDOJ, locations of the response to each can be found by consulting the index at the beginning of this document.

Comment O-3t from Joint Commenters: “The Project proponents and the “WAPA DEIS would suggest that the plant’s environmental damages (many of which are not discussed) are necessary to obtain the benefits the Project promises. In fact the record in the SDPUC administrative proceeding shows that the environmental damages caused by Big Stone II are wholly avoidable”

Response: Unavoidable adverse effects are addressed in Chapter 5 of the Final EIS. Western will take into account the unavoidable adverse effects in making a decision on whether or not to grant the interconnections requested for the proposed Project.

Comment O-3ab from Joint Commenters: “The EIS must assess the impacts of the project as proposed, and compare them to the impacts of each reasonable alternative to the project’ (40CFR, Sees. [Sections] 1502.14, 1502.16). It must ‘present the environmental impacts of the proposal and the alternatives in a comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public’ (Id. Sec. 1502.14).” The DEIS failed to follow these mandates.”

Response: The Final EIS addresses alternatives to the proposed Project in Section 2.3, the No-Action Alternative in Section 2.4, and alternatives considered but eliminated in Section 2.5. The Final EIS analyzes the impacts associated with the proposed Project and alternatives in Chapter 4.

Western’s decision is whether to grant the Co-owners’ request to interconnect with Western’s transmission system at Morris and Granite Falls substations in Minnesota, an action which requires Western to complete modifications to these substations to support the interconnection. Since the issuance of the Draft EIS and the Supplemental Draft EIS, Western has reexamined its alternatives analysis based on RUS’ withdrawal as a cooperating agency. The reexamination of the alternatives analysis began with a screening of alternatives against Western’s statement of purpose and need for agency action and continued with a comparison against feasibility factors that are based on cost, logistical, technological, social, environmental, and legal factors. Any alternatives that failed to meet Western’s purpose and need were dismissed from further evaluation.

The Supplemental Draft EIS considered three additional cooling alternatives, as well as the cooling alternative presented in the May 2006 Draft EIS. Based on the evaluation of these alternatives, two alternatives were carried forward for additional analysis. The Co-owners selected Alternative 2 (Wet Cooling with Groundwater Back-up) as the preferred cooling alternative. Other cooling technologies considered and not carried forward for detailed analysis are discussed in Section 2.5.2 of the Final EIS.

Comment B-3b from Rose Creek Anglers : “I am reasonably confident that the decision making process to expand the plant was performed with a typical committee agenda in which the objectives were categorized into “musts” and “wants”, the “wants” being further sub-categorized with a weight value of importance. Because emitting zero emissions is obviously not going to be in the “must”

column, Otter Tail officials have expressed their desire to place a high weight value on reducing emissions.”

Response: Each of the Co-owners independently performed analyses to determine their individual future resource needs. Although the methodologies differed among the Co-Owners, their analyses consistently forecasted increased capacity and energy requirements. A planning model was used to evaluate potential resource alternatives. The Co-owners selected a preferred plan from the alternatives considered based on each individual utility's specific set of criteria, such as cost, fuel availability, and maturity of technology. Although each of the proposed Co-owners had differing criteria that were specific to their needs, they each individually selected a need for baseload generation as part of their preferred plans. In order to meet their individual needs in a more cost-effective manner, the Co-owners jointly conducted a qualitative assessment of various alternative technologies culminating in the selection of a pulverized-coal, super-critical boiler technology. Emissions were included in the evaluation processes. None of the alternatives considered the use of technologies with zero emissions. Western has reviewed the Co-owners’ analysis and has determined that there are no reasonable alternatives for providing baseload generation consistent with Western’s need to respond to the Co-owners’ request for interconnections.

Comment I-6b from Jim Falk: “A viable alternative to major power lines is a locally distributed transmission system. As we upgrade our antiquated local transmission system and feed back into the power grid we free up space on our existing major transmission lines.”

Response: The proposed Big Stone II power plant has a capacity of 600 MW. The electric utility industry’s generally accepted approach to transporting this amount of power to points of demand is to first study whether such new projects can be reliably integrated into the existing transmission system and then assess what changes would be required. Required upgrades to the existing transmission system are assessed on the basis of reliability (e.g. conformance to the criteria set forward by the Midwest Independent System Operator and the North American Electric Reliability Corporation), environmental impact, and economics. Studies conducted to date find that the most reliable, environmentally sensitive, and economical approach to integrating the proposed plant into the existing system is to pursue the transmission and substation projects that are identified in the Final EIS. Also, the proposed transmission projects recommended for Big Stone II would provide capacity that could be used to integrate wind energy projects into the region.

Comment I-9f Sergio Gaitan: “So the real question to you is: as a government representative, whose interests do you really represent? The interests of the people that have to live with your decisions for many years to come? Or those of the coal industry who are driven by short term profits? Please listen to the people! We need to breathe Fresh Energy now!!!”

Response: Western will consider the environmental ramifications of the proposed Project in deciding whether or not to grant the requested interconnections.

Comment I-17b Jeanne Koster: “Exactly how might membership in the Western Fuels Association compromise the objectivity of the Co-owners of Big Stone II who are WFA members? Do they instinctively shy away from alternatives to coal because they need to realize return on the investment which their WFA membership might entail. If there is some kind of (even unconscious) compromise of this sort, it should be brought into light of day. Consideration should be made of neutralising [neutralizing] any such compromising from the comparison of wind/conservation versus new coal generation costs.”

Response: Western Fuels Association (Western Fuels) was created 35 years ago as a non-profit entity to provide collective purchasing power to coal-fired plant members in negotiations with coal suppliers and railroads. The membership in Western Fuels consists of a wide variety of consumer-owned power

entities ranging from rural electric generation and transmission cooperatives to municipal utilities throughout the Great Plains, Rocky Mountain, and Southwest regions. In its role as a non-profit entity, Western Fuels currently offers its members expertise in coal exploration, coal mining, coal procurement, and transportation management. For instance, the Co-owners of the Laramie River Station (which include Basin Electric Power Cooperative, Tri-State Generation & Transmission, Lincoln Electric, MRES, HCPD and Wyoming Municipal Power Agency) collectively rely on Western Fuels to negotiate coal contracts and railroad service contracts rather than require each owner to negotiate these contracts on their own. There is no rate of return on investment for the members of the organization.

Membership is divided into three classes: A, B, and C. Class A members generally rely on Western Fuels for the fuel needed to fulfill their power generation needs. Class B members rely on Western Fuels to fuel specifically designated power plants, and Class C members have access to Western Fuels expertise for coal procurement, transportation, and other coal-related services. MRES and HCPD (both Co-owners of the proposed Project) are Class C members. Since neither MRES nor HCPD have any ownership interest in Western Fuels, there is no conscious or unconscious awareness that would compromise the decision-making process due to their membership. Western Fuels plays no role in HCPD's or MRES' resource planning decisions. The services of Western Fuels are not anticipated to be used at any of HCPD's or MRES' generating facilities besides Laramie River Station. As such, the membership in Western Fuels has no bearing in the decision to participate in the proposed Big Stone II Project, and Western Fuels does not have any role in the proposed Big Stone II Project.

Comment I-20x from Gil Lanners: “Wouldn't this inhibit rural development in out state Minnesota? Even putting a little air strip would be out of the question. Are you not putting out state Minnesota at a disadvantage?”

Response: The EIS analysis does not indicate that development would be inhibited in rural portions of Minnesota, nor did the analysis reveal any disadvantages imposed on any part of Minnesota by the proposed Project. Please refer to Section 4.10.2 of the Final EIS for further information and analysis.

Comment I-32c from Richard Unger: “The transmission line and the Power Plant are one and the same project. One cannot work without the other. The builders seem to be separating this into two projects, and urging Minnesota to consider only the effects of the transmission line. However, one will not exist without the other.”

Response: The commenter is correct that the proposed plant and the proposed transmission system are tied together. For purposes of descriptions only, the EIS was conveniently divided so that the power plant systems and the transmission systems could be addressed separately.

Comment I-32d from Richard Unger: “If this scheme is allowed then some [day] there will be a Bigstone III and a Bigstone IV. Minnesota's entire upwind border is the end-around to the Minnesota Mercury Law and our legislation will have no effect. The Commission has the right and duty to prevent this from happening by denying the transmission line under these circumstances.”

Response: Should the Co-owners desire to construct any future projects, any future connection with Western's transmission facilities would have to go through the NEPA process. If portions of a future project are located within Minnesota, the State of Minnesota would also review the impacts of such future projects in accordance with their laws. Additionally, the Co-owners entered into a Settlement Agreement (described in Section 1.5.2 of the Final EIS, and Appendix K) with the MnDOC in which the Co-owners agreed to other environmental controls on emissions, including mercury.

Comment FL-1g from CWA Form Letter: “The draft Environmental Impact Statement does not adequately consider the environmental, health, social, cultural and related economic impacts of the proposed Big Stone coal plant. Please include a more complete analysis of the full impacts of the coal plant proposal in the final Environmental Impact Statement.”

Response: Updates have been provided in Final EIS and impacts are summarized in Table 2.6-1.

Comment PH1-2d from Lanny Stricherz: “When you add in the fact that the city of Rochester, Minnesota, and Mayo Clinic are fighting to keep the DM&E from going right through the city, this whole situation makes less and less sense all the time. Granted the DM&E hauls and will haul more than coal, but that is their major product at the present.”

Response: Coal deliveries to the proposed Big Stone II plant would be delivered on the existing rail line that currently delivers coal to the existing Big Stone plant.

Comment PH1-5e from Jeanne Koster: “Then, also, we think it would be appropriate to mention in the Final EIS, whether any of the generators or their officers or governors have any interest, whatsoever, in coal extraction or supply.”

Response: Information on the interests owned by the officers or governors of the Co-owners was not collected by Western for the EIS.

Comment PH2-2a from Allen Wold: “I was a little disappointed we weren't going to have a question-and-answer. And it is hard to give comments when you walk into the room 10 minutes ago.”

Response: Western provided for an opportunity to ask questions of Western and the Co-owners between 5 PM and 7 PM prior to each formal hearing as well as after the formal hearings. The format of the Public Hearings was announced to the public via local newspaper notices.

Comment PH2-2e from Allen Wold: “It's something new called a "supercritical boiler." I'm assuming that the present one does not have one. What are the advantages of it? Will the one at the existing power plant be replaced with a new one in the future?”

Response: The existing plant's boiler is not a super-critical boiler, and there are no plans to retrofit the existing plant with a super-critical boiler. The advantages of the super-critical boiler, which are largely related to efficiency, are described in Section 2.2.1.3 of the Final EIS. Briefly, the super-critical boiler technology proposed for the proposed Big Stone II plant is a reliable, highly efficient method of energy conversion. In short, less coal is ultimately burned to produce the same amount of heat energy. Therefore, efficiency benefits of super-critical boiler technology results in lower fuel requirements and lower emissions of regulated air pollutants, such as particulate matter (PM), SO₂, NO_x, and mercury. Additionally, because the super-critical boiler is more efficient, less CO₂ per MW-hr would be generated, resulting in substantial reduction in CO₂ emissions over the lifetime of plant operations as compared to other coal-fired technologies.

Comment PH2-2f from Allen Wold: “I notice that coal usage has increased from 2.4 million tons annually to 3.3 million tons. Unless we're really doubling it, it seems like you might be a little short on coal. Seems like there should be almost 5 million tons instead of 3.3. So I'm wondering, either you gained a lot in efficiency or you're not building it proportionately.”

Response: Approximately 2.4 million tons of coal is combusted annually at the existing plant. The proposed plant would use approximately 3.3 million tons per year. The combined coal use for the existing and proposed plant would be 5.7 million tons per year. This has been clarified in Section 2.2.1.3 of the Final EIS.

Comment PH3-1f from Dick Unger: “For all the money we're having on the hearings, we haven't even dissected a fish. We don't know.”

Response: Your comment has been noted. Please refer to the subheading Mercury Emissions from the Existing and Proposed Plants in Section 4.1.2.1 of the Final EIS and the Mercury Response Paper (Response Paper A, Volume II) for additional details regarding mercury. Also refer to the Responses to Comments in Section 1.2, above.

Comment PH3-2e from Andrew Falk: “Furthermore, looking at Great River Energy as being a cooperative, cooperatives namely was built out of the Rural Electrification Act, and REC's, most of their growing demand is coming from Twin City suburbs, and this is the power that's going to be designed or designated to serve those areas. So the fact -- And I think that this RUS loan program, it's kind of contrary to what the initial idea was when it was enacted to help bring electricity to the farmers and rural people.”

Response: Great River Energy is no longer a participant in the proposed Project.

Comment PH4-1a from Cesia Kearns: “One of the foremost things on my mind is that I feel like the Draft EIS gives only superficial attention to environmental assessment implications of the proposal. I mean, that there are populations that will be more affected by the negative impact of this plant than others. Particularly communities that are close by the plant.”

Response: As discussed in Section 4.1.1 of the Final EIS, two types of national air quality standards are established by the Federal Clean Air Act and its amendments. Primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Results of the air quality analysis for the proposed Project show that constructing and operating the proposed Big Stone II plant, transmission lines and substation modifications would not contribute to or cause an NAAQS or PSD increment thresholds to be exceeded.

Through the use of various types of emission controls for NO_x and SO₂, there would be no increase in NO_x or SO₂ emissions from the site as a result of the operation of the proposed Big Stone II plant. Detailed information about the emission controls for NO_x, SO₂ and other types of emissions are discussed in Section 4.1.2.1 under the subheading Plant Emissions and Air Quality Impacts Assessment. Table 4.1-2 provides a summary of the Project emissions for both the existing and proposed plants. Particulate emissions from the proposed Project would be controlled with a conventional jet-pulse fabric filter (baghouse) followed by a WFGD system. Although particulate matter would increase, the air dispersion modeling shows there would be no exceedances of the PSD increment or the NAAQS for PM₁₀ and PM_{2.5} with operation of the proposed Big Stone II plant. The WFGD system would control SO₂ emissions. Exhaust from the existing and proposed plants would be combined and ducted to the WFGD system that is common to both boilers.

Actual emissions of mercury from the existing plant in 2004 were 189.6 lb. As discussed in Section 4.1.2.1 of the Final EIS, the commitment of the Co-owners owners in the Settlement Agreement with the MnDOC is to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant. This would result in mercury emissions of approximately 81.5 lb per year from the combined plants (a decrease of approximately 57 percent over the current emission rate). Refer to Section 4.1.2.1 of the Final EIS and the Mercury Response Paper (Response Paper A, Volume II) for additional details

regarding mercury. See Section 1.5.2 of the Final EIS for some of the key elements of the Settlement Agreement. See Appendix K, Volume III for the Settlement Agreement.

The SDBME is the regulatory agency responsible for issuing a PSD permit for the proposed plant. During the permit review process, the SDDENR determined what emissions would be regulated from the proposed plant and specific control technologies and other conditions for proposed plant operations. The Co-owners would be required to comply with the limits and operating conditions of their air permit, and SDDENR would monitor emissions for the proposed plant and take regulatory action if conditions are not met. As such, any short-term and long-term residual impacts would meet regulatory requirements and would be less than significant.

In summary, even with the implementation of the air pollution controls, satisfaction of the conditions of the Settlement Agreement, compliance with the conditions of the air permit for the proposed plant, and compliance with NAAQS, the existing and proposed plants would still have emissions, but not at levels expected to exceed thresholds established by the State and USEPA for protection of human health and the environment.

Additionally, the CDC (see comment F-4a, page 21, in Volume IV) noted, “the power plant project will [be] constructed and operated in full compliance with all Federal and state regulations.” The CDC indicated, “We understand that both the South Dakota DENR and the Minnesota DNR will issue the necessary environmental permits and will be conducting appropriate monitoring activities to ensure compliance. If the proposed mitigation measures are followed, there should be very minimal effect on human health.”

Comment PH4-6a from Andrew Falk: “But the big part of this speech about construction of plant and transmission lines is that there will be adequate space for renewable energy on these lines, and these claims have been made by an entity that does not have the authority to dictate what goes into the power grid and what comes off the power grid. That instead is controlled by MISO, Midwest Independent System Operator, who has the authority to allow, to dictate what power goes onto the grid. I talked about that the other night. I just wanted to bring it up again and reiterate.”

Response: Integrating the proposed Big Stone II Project into the existing transmission grid would require new transmission lines and modifications to some existing transmission facilities. Any request for integrating new generation resources, including new renewable resources, would be subject to open transmission access and interconnection procedures outlined by MISO and/or Western, if a request involves Western’s transmission system.

Comment PH4-7b from Jim Falk: “My concern with this plant and the transmission is that I don't believe we've adequately addressed, are renewables going to be able to come on line with these transmission lines? Well, obviously, the system, the MISO system is set up so that it's very hard to determine what will be adequately able to integrate into these systems. And I don't know that we totally understand that as certainly as most consumers don't understand that.”

Response: See Response to Comment PH4-6a

Comment PH4-9a from John Baker: “Good evening. I'm John Baker, Swift County Commissioner. The only comment I have to make tonight is the issue of property tax on transmission lines of which I'm not an expert. But from the county aspect, I would hope that if and when this project goes through, those issues are taken care of by both the state and the transmission line people so that we don't have surprises down the road on taxation. It's very detrimental to our citizens of Swift County or any other

county in Minnesota when we end up in court fighting over taxes five years down the road and get a big surprise. Very costly.”

Response: The Co-owners would pay property taxes based on the value of their percentage of ownership of any transmission lines in all counties as established by the State and billed by the counties at the mil rate established in each county. The establishment of the assessed value of these properties in each county is controlled by the State based on a "centrally assessed valuation method." Companies such as gas, railway, telephone and electric utilities (including rural cooperatives) generally will have property located all throughout the State and because of this, it is more efficient for the State to assess the property and assign the proportion as located within each county. Per Section 04.03 of Minnesota's Tax Base Overview and Valuation of Property; in Minnesota (State of Minnesota, 2006), the Commissioner of Revenue is required by law to make the assessment of these types of real and personal property. These values are assessed via an "order of the Commissioner", which in turn, are mailed to the counties. Some portions of utility property are exempt and some are assessed locally. Locally assessed property for utilities includes land, offices, garages and warehouses. In addition, there may be property held for future use or that is not used for utility purposes. The valuation of utility property is based on the cost less depreciation of the property and the income generated by the property. Typically there is no market indicator of value in utilities due to the very limited number of sales. Like railroads, utilities are valued using the unit method. For the electric utility "unit method" refers to what the total overall investment of the utility is in plants, substations, and transmission and distribution lines etc. These numbers are provided by the owners to the State. The Department of Revenue certifies utility values to the county assessors by June 30 of each year. The distribution of the tax dollars to townships and cities, once paid by the owners to the county is controlled by each individual county.

Comment SF-2i from USDOJ: The USDOJ had this comment regarding references noted in Chapter 8 of the Final EIS: “Many of the references provided are incomplete citations for what appears to be unpublished consultant reports. Limited accessibility of unpublished reports limits the public's ability to evaluate the analyses presented in the SDEIS, such as the closeness of calibration of the modeling studies on which some of the conclusions in the SDEIS are based. Consideration could be given to including in the Final EIS complete citations for these reports, if they are publicly available, or summarizing the results from these studies more fully in the appendices.”

Response: Western has added appropriate appendices in Volume III of the Final EIS.

Comment SO-1b from CWA: “Applicants for BSII, willfully or not instigated actions leading to circumvention of the National Environmental Policy Act.”

Response: Western is not aware of any such action by the Co-owners.

Comment SO-1c from CWA: “Applicants for BSII, allowed conflict of interest in that firms doing the modeling and analysis of groundwater availability, recharge and preferred alternative have/had financial and other interest in the outcome of the project, direct and indirect.”

Response: The Co-owners have hired many consultants who are experts in several different resource areas in order to provide the information that must be evaluated by Western during the NEPA process. The consultants hired by the Co-owners have included experts in modeling and analysis of groundwater. While this process is typical in the NEPA process, Western has independently reviewed the efficacy of such materials provided to Western by the Co-owners. As such, Western is not aware of any conflict of interest in the evaluation of groundwater. The Final EIS includes the disclosures of no financial conflict of interest issued by the contractors Western used to prepare the EIS.

Comment SO-1ah from CWA: “There are many other issues which have not been addressed by the applicants. The applicants indicate they may need to secure easements on property owned by others.”

Response: Western agrees that the Co-owners may need to acquire easements for the proposed Project.

Comment SI-17q from Dave Staub: “Since the WAPA footprint is identical to the Rural Electrics and many Native American Tribes, both entities could become the owners of this distributive system, essentially self-financing this incremental development process by borrowing capital from members or a new entity of a “South Dakota Wind Investment Fund (all states could do the same), where rural and city people could invest in the fund. Risk issues would be spread across each state through this fund. Since conception, Rural Electric Cooperatives have been “one-armed” monopolies. Now is the time to grow the opposite arm, the renewable energy production arm, using the successful democratic and grassroots model of co-ops. The co-op members would economically benefit, rural development would result and ultimately electricity costs would be lower.”

Response: An analysis of renewable energy and renewable power generation alternatives considered (but eliminated) are located in Section 2.5 of the Final EIS.

Comment SI-17s from Dave Staub: “Normally the cost of development should be included in the product price. Clean coal will cost more than “dirty coal”; the question is how much of the cost will be passed thru other hidden costs.”

Response: There are no hidden costs for Co-owners’ operations and their associated rates. Fuel cost for the proposed Big Stone II Project would be part of each Co-owners’ fuel cost that is passed through to their customers.

Comment SI-18d from Lanny Stricherz: “The new Draft, expands the power output capacity to 630 MW from 600 even though there are two of the partners that have pulled out. When the issue was being argued before the SD state Supreme Court, the justices were of the opinion [opinion] that the amount of electricity produced would be lessened to 350 MW to 500, so less water would be used and less damage would be done to our environment. The attorneys did not explain the increase in the new draft.”

Response: In the Final EIS , the Co-owners have proposed a 600 MW (net) capacity generating plant to best serve the needs of their electrical customers and the needs of the customers of future participants. Additional detailed discussion regarding proposed needs of the Co-owners is discussed in Chapter 1 of the Final EIS.

Comment SI-18e from Lanny Stricherz: “As I drive to Minneapolis, I constantly see new wind towers going up and new transmission poles going up. We already have the poles here to tie the wind power to the hydroelectric power that we formerly produced from the Missouri River Dams.”

Response: The Missouri River has had low water conditions for the last few years, which has led to reduced generation levels from the hydroelectric generators on the Missouri River. Even with reduced generation levels, Western must use its transmission system to meet its contractual obligations to deliver power to its customers purchased to compensate for lost hydrogeneration. The Midwest ISO, along with utilities in this region, are working towards transmission expansion plans in southwest Minnesota to create much higher levels of transmission capability in order to accommodate more wind generation wanting to connect to the transmission system. The proposed transmission lines for the proposed Big Stone II Project would facilitate the interconnection and delivery of new wind power.

Comment SI-21f from John Harkness: “I strongly recommend that you review the excellent recent well written and well researched reports available at www.carbonequity.info before making any decision on this matter.”

Response: Carbon Equity (<http://carbonequity.info/index.html>), based in Melbourne, Australia, describes itself as a non-governmental organization interested in climate change education and carbon rationing policies. Western has added to the discussion of greenhouse gas emissions and climate change in Sections 3.1.1 and 4.1.2.1 of the Final EIS. The actions required of Western during the NEPA process are described in Section 1.3.1 of the Final EIS.

Comment SFL-1e from CWA: “Please protect our water, not a 1.8 billion dollar (and rising) business plan. It is not possible to ‘mitigate’ or lessen the environmental impact of what Big Stone II will do to Big Stone Lake.”

Response: Extensive simulation and calibration of modeled lake levels over time, using historical agency measurements as modeling inputs and references, was used in a lake level and outflow evaluation of Big Stone Lake. Slightly lower lake levels at Big Stone Lake are expected on rare occasions as a result of increased power plant withdrawals. For additional detailed discussion of the impacts to Big Stone Lake, refer to the subheading Effects on Big Stone Lake Levels and Minnesota River Flows in Section 4.2.2.1 of the Final EIS.

Comment SFL-19a from Patrick Moore: “The Minnesota DNR has expressed strong concern over this issue. Their letter to you dated Dec. 10 2007 should be given serious consideration.”

Response: Western has fully considered MnDNR’s December 10, 2007, comments, designated as Document Number SS-1. Western identified 18 comments in MnDNR’s letter, which have been addressed in various portions of this comment and response document. Please refer to the index at the beginning of this volume for the location of the specific responses.

Comment SFL-34a: “It is time to put our money and resources into nuclear electricity. Coal is not the future for electricity. No more pollution, please.”

Response: During the scoping process for the EIS, nuclear energy was not suggested as an alternative to coal-fired generation. Therefore, nuclear energy was not evaluated for its reasonableness for the proposed Project.

Comment SFL-47a from Gary Kirsch: “What is the projected cost of the Big Stone II power plant? What would be the impact on research and development toward solar and wind generated power if this tremendous amount of money were to be used for green energy research and development?”

Response: The estimated cost of construction of the Big Stone II power plant is \$1.4 billion, which includes labor costs of approximately \$616 million. Diverting dollars to research and development does not satisfy the Co-owners’ near-term need for baseload generation. However, there is a condition in the Settlement Agreement that allows the Minnesota Co-owners to divert carbon offset funds to research and development projects. See Section 4.6.1 of the Settlement Agreement (Appendix K, Volume III).

Mercury Response Paper A

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Introduction

The following information is being provided in response to comments from the U.S. Environmental Protection Agency (USEPA) and other public comments regarding the discussion of mercury emissions and related issues in the Draft Environmental Impact Statement (Draft EIS) for the proposed Big Stone II Power Plant and Transmission Project (Project). Topics covered in the information include the following: basic information about environmental mercury; overturn of the Clean Air Mercury Rule (CAMR) and mercury regulation; emission limits and enforceability; transport, deposition, and local/regional biological and health effects of mercury emissions. This paper also includes information on the anticipated mercury emission levels from the existing and proposed plants and the measures proposed by the Co-owners to control mercury emissions.

Basic Environmental Mercury Information

Mercury (chemical symbol, Hg) is a naturally occurring element in the earth's crust that is also naturally found in air, water, and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. Mercury is found in many rocks and minerals including coal. When coal is burned, the fraction of its mercury not captured by pollution control systems is released into the atmosphere. Coal-burning power plants are the largest human-caused source of mercury emissions to the air in the United States, accounting for over 40 percent of all domestic human-caused mercury emissions.

Mercury cycles throughout the environment as a result of both natural and human (anthropogenic) activities. The amount of mercury mobilized and released into the biosphere has increased since the beginning of the industrial age. As it cycles among the atmosphere, land, and water, mercury undergoes a series of complex chemical and physical transformations, many of which are not completely understood (USEPA, 1997a).

Most of the mercury in the atmosphere is elemental mercury vapor, which circulates in the atmosphere for up to a year and, hence, is widely dispersed and is carried many miles from sources of emission. According to the USEPA Mercury Study Report to Congress (USEPA, 1997a), local scale atmospheric modeling results in flat terrain showed at least 75 percent of the emitted mercury from each facility was predicted to be transported more than 50 km from the facility. The other forms of mercury are less prevalent in the air, either bound to airborne particles or in gaseous forms, and are far more readily removed from the atmosphere by precipitation and dry deposition and becomes deposited on soil, foliage, and surface water. The majority of mercury that remains in surface soil is in the form of oxidized mercury complexes/compounds; however, a small fraction is methylmercury and elemental mercury. Mercury complexes in soils can be transformed

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back into gaseous mercury by light and humic substances and re-enter the atmosphere.¹ Some of the mercury in soil can also enter surface water *via* groundwater, runoff, and soil erosion. Mercury can, of course, also be deposited directly to surface waters from the atmosphere. Mercury in surface waters can remain in solution, be deposited to suspended or bottom sediments, or be re-emitted to the air.

Mercury in most aquatic ecosystems comes from atmospheric deposition, primarily associated with rain. The fate of mercury in an aquatic ecosystem is affected by pH (acidity) and dissolved organic carbon concentration. Many scientists think that mercury becomes more mobile and thus more likely to enter the food chain when acidity and dissolved organic carbon levels are higher.² Much of the research of mercury in aquatic ecosystems has been motivated by human health risks from consuming fish with elevated mercury levels.

Inorganic forms of mercury in soils, ground and surface water, and water body sediments can be converted by certain anaerobic microorganisms (i.e., those living under low oxygen conditions) into organic mercury compounds, most commonly into methylmercury, an organic form of mercury. Methylmercury is taken up by plankton that are eaten by small fish (which absorb this methylmercury), which may then be eaten by larger predatory fish. Because methylmercury is more readily absorbed than eliminated by the fish, a bioaccumulative effect causes mercury concentrations to increase in species in successive steps along the food chain. The levels of methylmercury in specific fish and shellfish depend on what they eat, how long they live, and how high they are in the food chain. Larger, older, predatory fish (and other animals) at the top of the food chain generally have higher mercury concentrations. Nearly all of the mercury that accumulates in fish tissue is methylmercury. Inorganic mercury, which is less efficiently absorbed and more readily eliminated from the body than methylmercury, does not tend to bioaccumulate (i.e., remains in the body in increasing concentrations).

Because mercury accumulates most efficiently in the aquatic food chain, consumption of fish is the main source of methylmercury exposure for many people. Studies have consistently shown that mercury uptake by plants is negligible and consequently, animals foraging on plants accumulate little mercury.³

The amount of methylmercury ultimately entering the food chain is dependent on many variables. Mercury emitted to the atmosphere from a specific source may eventually enter a water body, be converted to methylmercury, bioaccumulate in fish, and may be consumed by a person. The chemical and physical forms of the mercury emissions strongly influence where and how the emitted mercury deposits from the air. Local geography, geology, and meteorology also affect the fraction of mercury deposited to

¹ University of Minnesota website. Mercury, Sources, Fate and Transport of Mercury in the Environment. <http://enhs.umn.edu/hazards/hazardssite/mercury/mercfate.html>

² USGS, undated. Mercury Contamination of Aquatic Ecosystems. Fact Sheet FS-216-95.

³ Ibid.

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soils, foliage, and surface water (which also receives secondary loadings from soil erosion and leaf litter). Chemical, physical, and ecological conditions present in a specific water body determine the degree to which waterborne mercury is converted to methylmercury and is bioaccumulated as it moves up the food chain. Finally, the rate at which humans ingest mercury in the fish depends on the location and fish type. Many of these conditions can vary widely from place to place, even among otherwise very similar sites. More information about the effects that variability in some of these conditions can have on potential mercury exposure levels is provided below.

The Overturn of CAMR and Mercury Regulation at Big Stone

The regulation of mercury emissions from the proposed Big Stone II plant under the CAMR and the Prevention of Significant Deterioration (PSD) Air Quality Construction Permit under the jurisdiction of the South Dakota Department of Environment and Natural Resources (SDDENR) was discussed in the Draft EIS. Since the issuance of the Draft EIS, several developments have occurred with regard to CAMR. Petitions for review of two final rules promulgated by the USEPA were heard before a three-judge panel of the United States Court of Appeals for the District of Columbia Circuit on December 6, 2007. The first rule removed coal and oil-fired electric generating units (EGUs) from the list of sources whose emissions are regulated under Section 112 of the Clean Air Act (CAA). The second rule set performance standards pursuant to Section 111 of the CAA for new coal-fired EGUs and established total mercury emission limits for states and certain tribal areas, along with a cap-and-trade program for new and existing coal-fired EGUs. This second rule was known as the CAMR. On February 8, 2008, the Court recommended that these two rules be vacated. A mandate was issued by the Court on March 14, 2008, formally overturning the CAMR. Thus, the CAMR no longer exists, and neither this document nor Volume I of the Final EIS will address it. However, it is noted that the D.C. Circuit's CAMR decision, *New Jersey v. EPA*, is now on petition for certiorari before the U.S. Supreme Court. The regulation of mercury emissions from coal-fired EGUs now falls under the requirements of Section 112, Maximum Available Control Technology (MACT) standards. The Big Stone site would be subject to regulation under MACT. However, since the proposed Big Stone II plant is not a major source of hazardous air pollutant emissions as defined in Section 112, and there are no MACT standards currently in place, there are no regulatory requirements regarding mercury that need to be addressed. Nevertheless, as discussed in Section 4.1.2, mercury emissions would be addressed in the "Settlement Agreement, High Voltage Transmission Lines – Big Stone Unit II, Minnesota Public Utilities Commission docket No. CN-05-619," (the "Settlement Agreement") effective August 30, 2007, between the Co-owners and the Minnesota Department of Commerce (MnDOC). The final terms of the Settlement Agreement are contingent upon approval by the Minnesota Public Utilities Commission (MnPUC).

Emission Limits and Enforceability

Minnesota has one of the most stringent mercury regulations in the United States. Minnesota has adopted a rule regulating mercury emissions from coal-fired power plants

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greater than 500 megawatts (MW). The rule requires a 90 percent removal of mercury from units with wet scrubbers by December 31, 2014. Even though the proposed Big Stone II Project does not fall under the jurisdiction of the Minnesota regulations, the Co-owners have entered into the Settlement Agreement with the MnDOC, where the Co-owners agree to meet Minnesota mercury emission requirements. In the Settlement Agreement, the Co-owners agreed to install control equipment for the existing plant and the proposed plant that is expected to remove approximately 90 percent of the mercury emitted from the existing plant and proposed Big Stone II plant combined. For a Powder River Basin (PRB) coal containing 0.0715 parts per million by weight (ppmw)⁴ mercury, the approximate value expected for the coal used by the proposed Project, a 90 percent removal would result in annual emissions of approximately 81.5 pounds (lb) of mercury, less than the estimated 189.6 lb of mercury emissions reported from the existing Big Stone plant in 2004. Also, as part of the Settlement Agreement, the Co-owners agreed to act in good faith to install control equipment as expeditiously as possible. However, considering that emission controls specifically for mercury are not sufficiently demonstrated to be commercially available at this time, the parties to the Settlement Agreement recognize that the Co-owners would have four years from the proposed Big Stone II plant's commercial operation date to achieve compliance with the control requirements and emission limits.

Comments provided on the Draft EIS indicated a concern regarding the financial risks to the Co-owners and utility customers if commercially and technically available mercury control measures prove incapable of limiting the combined mercury emissions from both units. Additional comments expressed concern about the possibility that elevated mercury emissions during the previously proposed test and evaluation period would also pose a potential financial risk to the proposed Project due to an anticipated shortage of allocated allowances under the CAMR cap-and-trade program. In response to those comments, it is noted that the CAMR has been vacated, and there is no allowance program for mercury emissions in place, or currently proposed, that would be applicable to the proposed Big Stone II. Information in the discussions that follow regarding the capabilities of technically feasible and anticipated commercially available control measures indicates that the combined facility appears to be capable of achieving a 90 percent removal efficiency for mercury within the four-year period. Moreover, the combined facility may require only the currently planned major emissions control equipment to achieve this level of efficiency. With the binding requirements of the Settlement Agreement and the corresponding level of research and development activity in this field, the additional time provided by the test and evaluation period would aid in determining the most effective and appropriate mercury control measures for the proposed Big Stone II plant. In fact, committing to a specific mercury control technology at this time may preclude the Co-owners from the use of either a more efficient or less

⁴ *Control of Mercury Emissions from Coal Fired Electric Utility Boilers: An Update*; Air Pollution Prevention and Control Division, National Risk Management Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, February 18, 2005, p.33.

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costly commercially demonstrated control technology in the future, should additional control be required.

Potential Local/Regional Mercury Impacts and Health Effects

Some comments received on the Draft EIS refer either to studies of the overall national environmental effects of atmospheric mercury emissions or to studies of local effects due to specific nearby or regional sources of mercury. Because many factors influence the transport and behavior of mercury in the environment, it is not appropriate to assess the likely environmental impacts of mercury emissions from the proposed Big Stone II plant by simply extrapolating from the results of either national or regional-scale mercury impact studies, or from the results of dissimilar local-scale emission and transport studies.

To estimate how emissions from a single source of atmospheric mercury might affect mercury levels in a local environment, it is necessary to consider a large amount of data regarding the emissions and the environmental conditions in the area surrounding the source. Among the vital data are the forms of mercury in the emissions; local meteorological, geographical, geological, and ecological data; and information on consumption of locally caught fish. Even if all of the necessary data are available, modeled estimates are uncertain because the processes and parameters influencing the many stages of mercury transport and transformation are either not fully understood or insufficiently characterized to make reliable predictions. Nevertheless, if one considers changes in the amounts and forms of mercury emitted from a given facility, it is possible to reasonably assess whether its mercury impacts would increase or decrease in the surrounding area. Therefore, since mercury emissions from the existing and proposed plant combined would be lower than mercury emissions from the existing plant alone, it is reasonable to assume the mercury impacts in the surrounding area would also decrease.

Types of Mercury Emissions from a Coal-Fired Source

Mercury emitted from a coal-fired power plant is comprised of elemental mercury (which is found in the vapor phase at stack temperatures), oxidized mercury, and particle-bound mercury. Elemental mercury is virtually insoluble in water and is generally un-reactive. It is therefore removed from the atmosphere very slowly; its atmospheric lifetime is approximately one year, and it mixes globally throughout the troposphere. Vapor-phase divalent mercury is a highly soluble, reactive form. Mercuric chloride (HgCl_2), a common vapor-phase form, deposits readily from the air via wet and dry deposition. Particle-bound mercury is composed primarily of mercury compounds associated with flue gas particles. These flue gas particles deposit when they are scavenged by precipitation (wet deposition) or as they settle directly from the air to the ground (dry deposition). Both divalent and particle-bound mercury have atmospheric lifetimes on the order of a few days, but can be deposited more rapidly during precipitation events. Because of the very large and fundamental differences in the atmospheric behavior of these three forms of mercury, it is essential to consider them separately when assessing the potential for a source of atmospheric mercury to impact local water bodies and fish.

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Characterizing Mercury Emissions at Existing Plant and Proposed Big Stone II

The physical and chemical properties that affect the behavior of mercury species in the atmosphere also affect the ability of pollution control devices to remove them from combustion exhaust gases. Generally, elemental mercury is difficult to remove from flue gas, though activated carbon has been found to remove some of it from certain combustion sources. As part of the Settlement Agreement, the Co-owners would evaluate activated carbon as a possible mercury emission control to remove elemental mercury from the existing and proposed plants. Divalent vapor-phase mercury can be removed using wet control processes, and particle-bound mercury can be controlled using the same techniques used to control other particulate emissions. Emissions tests performed in November 2002 on the existing Big Stone unit (Laudal, 2003) indicate that emissions are comprised of approximately 74 percent oxidized mercury and 26 percent elemental mercury. Emissions of particulate-bound mercury were not detected.⁵ The existing plant includes a baghouse for particulate matter control but does not contain controls specifically designed to reduce mercury emissions. However, in accordance with the Settlement Agreement, the Co-owners have committed to additional controls that would control mercury emissions from the existing and proposed plants if construction of the proposed plant is approved. A detailed discussion of these additional controls is provided below.

Mercury emissions from the proposed Big Stone II plant and future emissions from the existing plant are expected to be different when compared to emissions from the existing plant alone. A Selective Catalytic Reduction (SCR) emissions control system (to be a part of the proposed plant to control nitrogen oxide (NO_x) emissions) is expected to create a higher percentage of mercury in the oxidized form. Additionally, a Wet Flue Gas Desulfurization (WFGD) system would be installed to control combined SO₂ emissions from the existing plant and the proposed Big Stone II plant. Due to the high solubility of oxidized mercury in water, the WFGD is expected to remove about 90 percent of the oxidized mercury.⁶ Therefore, the overall emission of the divalent mercury from the combined existing plant and the proposed Big Stone II plant (with the proposed emission controls) is expected to be lower than that of the existing plant (as it currently operates). The Co-Owners would provide a report to the MnPUC and the MnDOC on the progress of meeting the mercury control goal outlined in the Settlement Agreement. Reducing oxidized mercury emissions from the combined existing plant and proposed Big Stone II plant would likely have a substantial effect on reducing deposition of mercury in the area surrounding the existing and proposed plants as is discussed in more detail below.

⁵ Four separate samples were taken starting November 19, 2002 and ending on November 22, 2002 in support of demonstrating a full-scale retrofit of the Advanced Hybrid Filter technology, which began operating at the existing Big Stone plant in October 2002.

⁶ Control of Mercury Emissions from Coal Fired Electric Utility Boilers: An Update, p. 6.

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Transport and Fate of Atmospheric Mercury

Before mercury emissions from the proposed Big Stone II plant, or any other source of atmospheric mercury can bioaccumulate in fish, which might be consumed by humans or wildlife, the mercury must undergo a series of physical transport steps and chemical transformations. Many of these steps are outlined above. Additional details, methods for modeling the behavior of mercury in the environment, and some relevant environmental mercury data are described below. The behavior of mercury is emphasized in the modeling because the mercury speciation would change due to the use of new pollution control devices at the existing plant and proposed Big Stone II plant.

The first step in evaluating the atmospheric emissions of mercury (or any other pollutant) is to model the dispersion and dilution of the emissions as the wind carries the stack emissions from the source. Dispersion and dilution occur in both horizontal and vertical directions. Models subsequently estimate the rates of mercury deposition (i.e., removal from the atmosphere) at locations various distances and directions from the source. This step is critical in evaluating local, regional, and overall environmental and potential public health impacts that a source's mercury emissions might have. As described above, the three forms of atmospheric mercury (elemental, divalent vapor, and particulate bound) have very different tendencies to deposit. However, additional factors are also important to consider: the amount of mercury that undergoes wet deposition at a given location depends on the amount, frequency, type, and intensity of the precipitation that falls there and the amount of atmospheric mercury that undergoes dry deposition depends on the surface properties of the area being considered and how the air interacts with the surfaces (e.g., deposition to surface water is different than deposition to forested hillsides). To accurately model mercury deposition related to a specific source or collection of sources, the distribution of mercury forms in the emissions must be well characterized, and the atmospheric behavior and surface interactions of the mercury must be modeled correctly. If realistic source distributions and atmospheric deposition properties are not employed in the modeling, then the estimated deposition rates can be very different than actual rates.

The environmental pathways that mercury may follow after it is deposited from the air are also complex (as described in the basic information section above). Although the greatest public health concern focuses on mercury bioaccumulation in edible fish, it is important to note that a large portion of atmospheric mercury does not enter the aquatic food chain. Instead, much of the fraction of mercury that locally deposits becomes bound in soils or sediments, remains in solution, or cycles back and forth in the atmosphere.

Mercury Control Measures

Mercury Speciation in Coal Combustion Flue Gas

Trace amounts of mercury are found in coal. As previously discussed, coal combustion releases elemental mercury into the flue gas where it may be oxidized via gas phase

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reactions or reactions occurring on solid surfaces.⁷ Although elemental mercury and oxidized mercury are found in the gas phase of the flue gas, these species also can adhere to the surface of fly ash or unburned carbon and remain particulate bound. Each of these three forms (or species) of mercury (elemental, oxidized, and particulate-bound) are found in coal combustion flue gas in varying proportions and have different properties that affect removal efficiencies within various emissions control equipment. Some of the factors affecting the speciation of mercury through the flue gas stream to the stack exit include the following: flue gas residence time, boiler and flue gas temperature, changes in flue gas temperature, boiler configuration, type of pollution control equipment, flue gas moisture, quantity of unburned coal (carbon), and coal characteristics, including mercury content, ash content, chlorine content, and sulfur content. With all of these factors, a complete characterization of the mercury behavior in flue gas of a specific EGU is difficult to predict, and the stack exit speciation and overall removal is expected to vary from unit to unit.

Control Equipment Currently Proposed

As mentioned above, the emission controls for the proposed plant would include an SCR system for NO_x emission control, a fabric filter for particulate control, and a WFGD system. The WFGD system for the proposed Big Stone II plant would also be used to reduce emissions from the existing Big Stone plant. Mercury would be controlled through concurrent controls of the fabric filter and WFGD system. Additionally, as mentioned above, the Settlement Agreement obligates the Co-owners to install control equipment that is likely to remove 90 percent of the mercury emitted from the existing and proposed Big Stone plants.

The baghouse and WFGD proposed as part of the proposed Big Stone II plant would provide a level of mercury removal that cannot be specifically defined at this time. Testing and evaluation during the four year evaluation period would provide conclusive data to indicate the actual level of mercury removal from the currently proposed emission control equipment and from additional control equipment, if any, installed in accordance with the Settlement Agreement.

Other Technically Feasible and Potentially Commercially Available Control Technologies

As indicated in the discussion above regarding speciation of mercury emissions, the characteristics of mercury emission from any coal-fired boiler vary from facility-to-facility and are difficult to predict. However, the Co-owners have jointly participated in a research and testing project on Texas Genco's W.A. Parish Station Unit 8 (Laumb, 2006). Noting that this EGU is a similar size, burns similar coal, and is equipped with similar emissions control equipment and configuration to the proposed Big Stone II, the preliminary test results at the Parish unit indicate that mercury removal in excess of 90 percent is possible. A calcium chloride fuel additive is used to increase the chlorine

⁷ Control of Mercury Emissions from Coal Fired Electric Utility Boilers: An Update, p. 4.

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content of the flue gas and promote oxidation of mercury across the SCR to improve capture on the fabric filter. At certain additive injection rates, the oxidation of mercury was observed to be nearly complete (greater than 95 percent) following the SCR. While a portion of the mercury was then captured by the fabric filter, the results indicate that nearly all of the oxidized mercury was captured in the WFGD (due to the high solubility of oxidized mercury). Also, an additive was evaluated in the WFGD to ensure that mercury captured in the WFGD does not get reduced (the opposite of oxidation) and reemitted as elemental mercury (which is insoluble).

As an alternative to the mercury control scheme described above, activated carbon injection upstream of a fabric filter or electrostatic precipitator is the most mature technology and appears to be potentially effective in removing mercury from coal combustion flue gases. Noting that additives or control enhancements discussed above may be necessary, a mercury removal efficiency in excess of 90 percent is possible.^{8,9}

Commercially available mercury control technologies are currently limited, but additional research and development activity is anticipated to produce additional options that will become available during the next few years. As such, there is presently no long-term operating record for any mercury control technology on a comparable size facility. Considering the unit specific emissions characteristics of mercury from coal-fired boilers and the significant chemical differences between the various species of mercury, it would be necessary to perform tests to evaluate control technologies available to the Big Stone units upon startup of proposed Big Stone II plant.

Health Effects

Several comments on the Draft EIS have expressed concerns regarding the toxicity of mercury to the brain, especially to the developing brain of fetuses, infants, and children. In this regard, it is worth reiterating that the combined emissions of mercury from the existing and proposed Big Stone II plants would decrease from current emission levels for the existing plant. Therefore, the proposed Project would not cause an increase in the rate of accumulation of methylmercury, although bioaccumulation of methylmercury would continue at a reduced rate. Thus, given the lower mercury emissions from the combined existing and proposed plants, it would be reasonable to assume that mercury-associated risks would be reduced. The question then becomes whether the impacts from these lower emissions are nonetheless harmful to health.

Without question, mercury is a toxic substance. In particular, if a pregnant woman ingests significant amounts of methylmercury, the developing brain of her offspring can be harmed. At even higher levels of exposure, the nervous systems of children and even adults may also be harmed. As with all substances, however, the exposure level determines the impact on human health.

⁸ Ibid, p. 4.

⁹ Control of Mercury Emissions from Coal Fired Electric Utility Boilers: An Update, p. 14.

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Scientific researchers from the University of Rochester have extensively studied children who live in the Seychelles (islands in the Indian Ocean), where people's diets contain very large amounts of ocean fish (UR, 2008). These investigators found that amounts of mercury that are 10 to 20 times larger than amounts ingested in the U.S. are "harmless." Many other groups of researchers have documented the health benefits of eating fish (due apparently to its healthful oils and other essential nutrients), despite the presence of small amounts of mercury in fish (Mozaffarian, 2006; Nesheim, 2006; Cohen 2005). This benefit is particularly important for the developing nervous system of the fetus.

Finally, fish consumption advisories, which notify people to limit their intake of local fish, have been issued for many surface waters throughout the U.S. These advisories are set with margins of safety, so that even people eating fish from advisory areas are not expected to be harmed, as long as the amounts consumed are within the advisory guidelines.

USEPA Guidance on Modeling Mercury Impacts

In the mid-1990s, the USEPA reviewed a vast number and wide range of research studies to better understand the sources, transport, fate, and effects of mercury in the environment. In 1997, they issued the comprehensive Mercury Study Report to Congress (USEPA, 1997a). This report provided a framework and an initial set of data for modeling mercury's atmospheric dispersion and deposition, land and water-based transport and transformation, and its bioaccumulation in the aquatic food chain. Much of the framework and many of the findings of this report were later incorporated into a guidance document referred to as the Human Health Risk Assessment Protocol¹⁰ (HHRAP) for assessing the potential human health impacts caused by emissions of mercury and many other compounds emitted by combustion facilities.

Among the primary recommendations of the HHRAP for assessing mercury emissions is that the three general forms of atmospheric mercury (elemental, oxidized, and particle-bound), need to be modeled separately, and that source-specific measurements or estimates of the fractionation of the three forms should be used. Additionally, the HHRAP recommends the use of as much site-specific data as possible to model the subsequent transport and transformation of mercury in soil, water, and the biota. To model the atmospheric behavior of each form, the HHRAP notes that the majority of mercury exiting the stack does not readily deposit, but is vertically diffused to the free atmosphere, by which it is transported outside the local area and into the global cycle.¹¹ The HHRAP recommends using the following fractions to assess local impacts of the different forms of mercury emitted to the air by a point source:

¹⁰ Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (HHRAP), USEPA Office of Solid Waste and Emergency Response, USEPA530-R-05-006, September 2005. Available at <http://www.epa.gov/osw/hazard/tsd/td/combust/risk.htm>. Accessed November 24, 2008.

¹¹ For purposes of air quality and environmental modeling, the local area is considered to extend 50 kilometers from the source.

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- For vapor-phase elemental mercury, the vast majority (over 99 percent) does not readily deposit, but becomes part of the global cycle;
- For mercury emitted as oxidized mercury, about 68 percent is deposited locally and about 32 percent diffuses to the global cycle; and
- For particle-bound mercury, 36 percent is deposited and about 64 percent diffuses to the global cycle.

Although these values are based on the USEPA's national-scale modeling, and may not precisely reflect conditions at a specific site, the estimates clearly show the expected differences in local impacts due to emissions of the different forms of atmospheric mercury.

Since the time when the Mercury Study Report to Congress was issued, there have been many studies conducted and measurements taken that enable a better understanding of the sources and behavior of atmospheric mercury. An instructive comparison of estimates from this report and measurements made since its release, highlights the need for accurate data in the assessment of atmospheric mercury emissions. A section of the Mercury Study Report to Congress used the data available at the time to perform a national-scale model of atmospheric mercury emissions and deposition. Because of the limited amount of source-specific emission data and an incomplete understanding the behavior of atmospheric mercury under different conditions, the modeling required many assumptions to be made. Among the results of this modeling is an estimate of annual total mercury wet deposition flux across the lower 48 States (i.e., annual the micrograms of mercury deposited in precipitation per square meter surface area).¹² This modeling shows a large region of elevated mercury wet deposition extending roughly across areas downwind from the largest coal-fired power plant mercury sources. A map from a National Oceanic and Atmospheric Administration (NOAA) report to Congress identifies the largest sources of total mercury emissions to the air in the U.S. and Canada (NOAA, 2007). However, measurements of total mercury wet deposition collected since 1998 (NADP, 2008) show that the actual wet deposition rates in this downwind region of the country are less than the modeled predictions and are not elevated relative to deposition rates in areas where there are far fewer coal-fired power plants. This comparison of measured mercury deposition data against modeled estimates demonstrates the erroneous conclusions that may be drawn when using limited or generic data to assess potential mercury impacts from a given source or source group.

¹² A figure representing the results is on page 5-14 of Volume 3 of the Report. Available at <http://www.epa.gov/mercury/report.htm>. Accessed November 24, 2008.

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Accounting for the Atmospheric Behavior of Mercury Emissions from Big Stone II

Considering the basic atmospheric behavior of the three forms of mercury, facilities that emit higher fractions of uncontrolled oxidized mercury, especially vapor-phase mercuric chloride, are more likely to produce levels of local mercury deposition higher than those from facilities that emit greater fractions of elemental mercury. The possible existence of mercury “hot spots” in the vicinity of some commercial and industrial facilities would be dependent on the amount of oxidized mercury in their emissions, not necessarily on the amount of total or elemental mercury in their emissions.¹³ Thus, hot spots may exist near older, uncontrolled municipal solid waste and medical waste incinerators, which had significant fractions of vapor-phase divalent mercury in their emissions. On the other hand, sources that emit most of their mercury in the elemental form or generate oxidized mercury that is controlled using a wet scrubbing system (such as the WFGD system for the proposed Big Stone II plant), are less likely to produce elevated levels of local mercury deposition.

To address the impact of mercury emissions from the proposed Big Stone II plant on the local area, information published by the USEPA in the May 31, 2006, Response to Significant Comments Regarding CAMR indicates that “hot spots” are not a concern.

To properly assess the potential of proposed Big Stone II operations to increase nearby mercury deposition rates and levels of mercury in local fish populations, it is essential to consider some of the qualities of mercury, the quantities of mercury emissions from the existing plant and proposed Big Stone II plant, and the behavior of atmospheric mercury in general. As discussed above, the Co-owners have committed to install control equipment likely to achieve a 90 percent removal efficiency for mercury from the combined emissions of the existing plant and proposed Big Stone II plant. This would equate to a reduction in annual mercury emissions from the site of 81 percent when compared to 1994 actual emissions and a 57 percent reduction when compared to 2004 actual emissions. Notwithstanding the reductions in annual mercury emissions that would occur, the proposed Big Stone II plant would likely achieve greater reductions in emission rates of certain specific types of mercury, or chemical species of mercury. As a result, construction of the proposed Big Stone II plant can reasonably be expected to improve upon historical local mercury deposition. The basis for this expectation is discussed in detail beginning with the “Types of Mercury Emissions from a Combustion Source” subheading, above. To understand this expected improvement, it is necessary to consider a comparison of the anticipated mercury emission rates by chemical species, rather than just total mercury emissions, between the existing plant and the combined plants following construction of the proposed Big Stone II plant.

¹³ Mercury hotspots are locations on the landscape that, when compared to the surrounding landscape, are characterized by elevated concentrations of mercury that exceed established criteria as determined by a statistically adequate sample size.

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Existing Conditions Regarding Local and Regional Accumulation of Mercury

The sources of mercury emissions affecting Minnesota waters have been the subject of several studies. Those studies are summarized in a publication by the Minnesota Pollution Control Agency (MPCA) entitled “Minnesota Statewide Mercury Total Maximum Daily Load” (MPCA, 2007). That publication concludes that approximately five percent of mercury deposition in Minnesota comes from Minnesota energy production and five percent comes from other Minnesota sources. The remaining 90 percent comes from other U.S. industrial sources, foreign industrial sources, and natural sources outside Minnesota. The report further concludes that there are currently no sources causing locally elevated levels of atmospheric deposition.¹⁴ The report conclusions are further supported by data on mercury in fish (<http://www.health.state.mn.us/divs/eh/fish/eating/lakegenpop.pdf>), which indicate that mercury levels in most fish in Big Stone Lake (i.e., next to the existing power plant) are not as high as mercury levels in fish within hundreds of other Minnesota lakes. In addition, the MPCA report states, “Declines in mercury emission and deposition should result in reduced mercury concentrations in fish.”¹⁵ Therefore, the reduced rate of bioaccumulation, when considering the MPCA information, suggests that the lower mercury emissions from the existing plant and proposed Big Stone II plant could contribute to lower mercury concentrations in fish over time.

Estimates and Measurements of Mercury Deposition and Impacts at Other Locations

Some comments cited published scientific studies that have found elevated environmental mercury levels near specific large point sources. It is either stated or implied that these studies are evidence that there are or will be elevated mercury impacts near the Big Stone site. However, for such extrapolations to be valid, they must consider the wide range of source and site-specific information described above. Some of these studies have been conducted near facilities that had discharged mercury directly to surface or ground water, and therefore, these are not at all comparable to the scenario at either the existing plant or the proposed Big Stone II plant. Many of the studies where local impacts have been measured near atmospheric sources of mercury were conducted at medical and/or municipal solid waste incinerators, which, because of the forms of mercury in their emissions and the lower exhaust stack heights typically found at these sources, were more likely to have localized impacts than would coal-fired power plants. Mercury emissions from these sources were reduced during the 1990s (NOAA, 2007).

A recent study of mercury and other pollutant levels in lake sediments near several coal-fired power plants in central Alberta, Canada (JP, 2006) appears to be more similar to the situation at the existing and proposed Big Stone II site than the other studies cited; however, there are several differences between the Alberta sources and either the existing

¹⁴ Ibid. p. 20.

¹⁵ Ibid. p. 33.

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plant or the proposed Big Stone II plant. The most significant difference between the sites is that the watershed surrounding the lake in Alberta contains two coal strip mines that have operated since 1948. In addition, ash from one of the coal-fired power plants (as well as drainage from one of the mines) is stored in lagoons that discharge into the lake. Also, the cooling pond of one of the plants, which discharged to the lake, received mine drainage until 1985. The authors of the Alberta study state that the mercury flux to the lake is “most likely a combined result of atmospheric deposition of particulate Hg released from local coal-fired power plants, and surface inputs related to watershed development and erosion, including extensive coal mining.” The existing plant has a fabric filter, which aids in the capture of particulate mercury emissions. The proposed Big Stone II plant would have fabric filter controls and also an SCR, which will aid in converting some of the mercury into oxidized mercury, which is readily captured in the WFGD. For these reasons, and because there is no coal mining near the plant to cause surface inputs, the mercury impact results from the Alberta study are not directly applicable to the existing plant or the proposed Big Stone II plant.

Comments also cited studies that have estimated the public health and economic costs of environmental mercury, and in particular, the costs due to mercury emitted by coal-fired power plants. The most prominent of these studies was published in 2005 by researchers at medical schools and hospitals in Boston and New York; this study estimates the public health and economic costs nationwide (EHP, 2005a). A problem with this 2005 study is that it ignores all of the environmental transport and transformation stages in the overall pathway from atmospheric deposition to human consumption. Specifically, the 2005 study uses the USEPA’s Mercury Study Report to Congress’ nationwide estimate of the fraction of mercury deposition due to anthropogenic emissions, apportions the fraction of this deposition due to coal combustion based on nationwide total mercury emissions data, and applies the resulting fraction to estimate coal combustion’s contribution to mercury levels in newborns. The 2005 study did not address the critical complexity of the connection between mercury emissions and deposition (this complexity and the overestimates of USEPA’s deposition model relative to measured data are discussed above), as well as the complexity of the connections between deposited mercury and mercury in surface waters, fish tissue, and eventually mercury consumed by humans. The 2005 study’s overall cost estimates are therefore far more uncertain than described in the paper, and because of the overestimation of coal-related deposition in the U.S., the costs are also likely to be overestimated. Unfortunately, these same cost estimates were used to estimate the cost of mercury emissions in Minnesota from coal-fired power plants, so not only are they overestimated, but they are also inaccurate because the 2005 study uses nationwide mercury emissions to make regional predictions.

Conclusions

Based on the best available information available, local mercury deposition rates would decrease as a result of the construction and operation of proposed Big Stone II for the following reasons:

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- The use of a WFGD system on the combined emissions from the existing and proposed coal-fired units, along with an SCR for NO_x control on proposed Big Stone II, would reduce emissions of the form of mercury that deposits most readily from the atmosphere (i.e., divalent vapor-phase mercury) as a result of the installation of this system.
- Actual emissions of mercury from the existing plant in 2004 were 189.6 lb. Considering the expected life of the proposed plant and the commitment of the Co-owners of the proposed Big Stone II Project to install technologies that are most likely to result in removal of at least 90 percent of the mercury emitted from the existing plant and the proposed Big Stone II plant, it is expected that mercury emissions from the combined plants would be approximately 81.5 lb per year. Therefore, if the proposed Big Stone II plant is constructed (and after implementation of emissions controls), mercury emissions from both plants would be less than the emissions from the existing plant, a reduction of approximately 57 percent when compared to 2004 values.

Many factors influence the transport and behavior of mercury in the environment making it inappropriate to assess the likely environmental impacts of mercury emissions from the proposed Big Stone II plant by simply extrapolating from the results of either national or regional-scale mercury impact studies.

- It is necessary to consider a large amount of data regarding the emissions and the environmental conditions in the area surrounding the source to estimate how emissions from a single source of atmospheric mercury might affect mercury levels in a local environment.
- Even if all of the necessary data are available, modeled estimates are uncertain because the processes and parameters influencing the many stages of mercury transport and transformation are either not fully understood or insufficiently characterized to make reliable predictions.

Wind and Renewable Energy Response Paper B

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Introduction

The primary objectives of this Response Paper are to respond to the feedback provided by commenters and to provide additional background information to facilitate the readers' understanding of wind and renewable energy. This Response Paper B also explains why wind and renewable energy resources are not the Co-owner's first resource options to meet their baseload generation needs and describes how the Co-owners have pursued a mix of traditional and renewable generation to meet their load requirements.

The focus of the Co-owners' purpose and need is to address peak capacity, energy, and pertinent legal and technical requirements. Some commenters indicated an interest in replacing the proposed Big Stone II Project with wind or other renewable resources. This paper examines how wind and renewable generation resources fit into the Co-owners' generation mix. In addition, there are existing legal and regulatory statutes that dictate the actions of the Co-owners. The Co-owners intend to fully comply with statutes that address integrated resource planning and renewable energy resources (e.g., wind resources). These statutes are currently found on a State-by-State basis, as there are no United States (U.S.) statutes that direct the Co-owners' actions regarding the adoption of wind and renewable resources. Consequently, this Response Paper sets out the plans that the Co-owners have made to conform to pertinent legal and regulatory State statutes in meeting their load requirements.

It is important to note that the Co-owners have stated that their purpose and need for the proposed Big Stone II is based on the timely acquisition of baseload capacity and energy. The differences between baseload capacity and energy are discussed in Chapters 1 and 2 of the Final EIS. In short, wind resources may offer certain benefits to energy, and are included in the Co-owners mix of generation resources, but are not the Co-owners' first resource option in meeting the Co-owners' purpose and need for baseload capacity. An assessment of the value of wind resources to baseload capacity requires consideration of the resource's capacity value, which is explained in this Response Paper.

Regarding the input provided by commenters, there has been considerable feedback about utilizing wind and renewable resources instead of all or part of the proposed Big Stone II Project. Two alternatives (wind resources and wind plus the proposed Big Stone II) directly address such concepts. Some commenters have used the words wind and renewables interchangeably, apparently perceiving wind energy as being the most viable example of renewable resources in this specific region.

Western Area Power Administration (Western) has addressed the wind energy alternative in Section 2.5.1, under the subheading Power Generation Alternatives Eliminated. Subsection 2.5.1.2 (Wind Energy) has been updated to provide a more exhaustive explanation of the wind-generation alternative, including its environmental impacts. While the public comments did not broach specific questions regarding the legal or regulatory requirements that are placed on the Project's Co-owners, such attributes affect

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the Co-owners' decision-making process for new energy resource adoption and are addressed in this response paper. Consequently, this Response Paper B also examines the pertinent legal and regulatory requirements that are associated with renewable energy (e.g., wind) and then examines the status of the Co-owners' efforts to develop and use renewable generation resources.

Technological Background

Energy from wind has been harnessed for hundreds of years.¹ Common historical applications of windmills have included grinding grain and pumping water. Today's equivalent of the windmill, the wind turbine, can be used to capture wind energy to generate electricity. As the wind spins the turbine blades, a shaft rotates, which turns a generator, converting the wind energy into electricity. When a large number of utility-scale wind turbines are built close together, the "wind farm" can provide an important source of energy to an energy provider's electricity customers. North Dakota, South Dakota, and Minnesota are located in areas with high potential wind energy.

Wind turbines produce no air emissions (because no fuels are combusted), do not use water resources (except for cleaning turbine blades), do not generate any wastewater while creating electricity, and do not produce any substantial amount of solid waste. In the proposed Project area, wind turbines would require the use of land, which would reduce land resources for other local uses such as farming and grazing of livestock. However, land-owners are usually compensated for use losses and may be provided annual lease payments. Large wind farms can pose aesthetic concerns to some observers, have noise impacts, and mortality impacts to birds and bats.

Wind power poses new challenges to the daily operation of electric utilities, especially in dispatching electric generating units to reliably meet the demands of consumers.

This challenge is complex since the electric output of wind power is unpredictable. When the momentary output of wind power increases, utilities need to decrease the output of other non-wind resources to continually match total customer demand and generation. Similarly, when the momentary output of wind power decreases, other non-wind resources are called upon to increase their electric output. The balancing of total demand and output is a continuous process. This condition is further complicated by the physical limitations of power plants, which mandate fixed minimum and maximum electric output values that cannot be exceeded. Consequently, it is possible that during periods of unexpectedly high wind output, some non-wind generating resources may need to be taken off-line. The converse is also true, in periods of unexpectedly low wind output, where some non-wind generating units may need to be started-up. In parallel with these conditions is the need to adhere to voltage stability. Generating units are an

¹ National Renewable Energy Laboratory Web site, Wind Energy Basics. http://www.nrel.gov/learning/re_wind.html. Web site accessed January 14, 2008.

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important control for system voltages, and it is necessary to have adequate generating units on-line at all times to control voltages. The consequence of having inadequate generating units on-line could be a partial or total power blackout.

The conditions described above may have contributed to electricity curtailments in Texas during 2008.² On February 26, 2008, the Electric Reliability Council of Texas, Inc. (ERCOT) reported that it implemented part of its Emergency Electric Curtailment Plan and curtailed approximately 1,150 MW of customer demand.³ The National Renewable Energy Laboratory (NREL) reviewed this event and found that “Wind did cause part of the issue along with other resources and load forecast.”⁴

Traditional energy resources, such as coal-fired power plants, have much higher availability rates than wind farms and can be dispatched more readily. Consequently, there are more concerns about wind power availability than with coal-fired power plants.

Legal and Regulatory Requirements for Wind and Renewable Energy

Numerous States have implemented statutes that mandate amounts and schedules for the adoption of wind and renewable energy sources. Understanding these statutes is important since they affect the Co-owners’ resource planning decisions regarding the adoption of new energy resources. The pertinent governmental jurisdictions that are of interest to the proposed Project are the States of Minnesota, Montana, North Dakota, South Dakota, and the U.S. Federal government. The status of the applicable statutes of each regulating entity is described below.

² On February 26, 2008, a drop in wind generation coupled with simultaneously increasing electrical demand due to colder weather resulted in an electric emergency in Texas. The Electric Reliability Council of Texas (ERCOT) reported that wind energy fell from more than 1,700 MW to 300 MW at the same time that load was substantially increasing. ERCOT system operators were able to mitigate the emergency by shaving 1,100 MW of demand by curtailing power to large industrial customers. Source: <http://www.reuters.com/article/domesticNews/idUSN2749522920080228?feedType=RSS&feedName=domesticNews&rpc=22&sp=true>. The American Wind Energy Association (AWEA) notes that, “Over the 40 minute period preceding the start of load curtailment, wind generation declined by 80 MW relative to its schedule, non-wind generation decreased by 350 MW relative to its schedule, and load rapidly increased to a level that was 1,185 MW more than forecast. AWEA reports that the Electric Reliability Council of Texas (ERCOT) will incorporate wind forecasting into its short term planning. AWEA further reports that ERCOT’s drop in frequency was successfully managed and no customers involuntarily lost power.” Source: http://www.awea.org/newsroom/080312-AWEA-Viewpoint_on_ERCOT_event.pdf. Separately, a study performed by ERCOT and titled, “ERCOT Operations Report on the EECF Event of February 26,2008” finds that ERCOT implemented its Emergency Electric Curtailment Plan (EECP) and the primary factor leading to the implementation of the EECF was unavailable generation, which was counted as being available, resulting in a deficiency of available generation during the increase in load. Source: http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/27706_114_577769.PDF.

³ Electric Reliability Council of Texas, ERCOT’s Operations Report on EECF Event, March 5, 2008, Project No. 27706 to the Public Utility Commission of Texas.

⁴ ERCOT Event on February 26, 2008: Lessons Learned, National Renewable Energy Laboratory, July 2008, Technical Report NREL/TP-500-43373.

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Minnesota

During 2006, Minnesota Statute 216B.1691 was amended to require electric utilities to generate defined amounts of electricity from wind and renewable sources. Eligible renewable energy sources are the following (Minnesota Statutes, 2007):

- Solar.
- Wind.
- Hydroelectric - capacity must be less than 100 megawatts (MW).
- Hydrogen - provided that after January 1, 2010, the hydrogen must be generated from a renewable resource.
- Biomass – includes landfill gas, anaerobic digester systems, and energy recovery facilities used to capture the heat value of mixed municipal solid waste or refuse-derived fuel from mixed municipal solid waste as a primary fuel.

Minnesota 216B.1691 also mandates the following wind and renewable resource schedule⁵ and amounts (State of Minnesota, 2006):

- Phase 1 - 2012 – 12 percent of sales.
- Phase 2 - 2016 – 17 percent of sales.
- Phase 3 - 2020 – 20 percent of sales.
- Phase 4 - 2025 – 25 percent of sales.

The above schedule and targets are applicable to any public utility that provides electric service in Minnesota, including investor-owned utilities, generation and transmission cooperatives, municipal power agencies, or power districts. This definition suggests that Minnesota's 216B.1691 is applicable to the following Co-owners: Central Minnesota Municipal Power Agency (CMMPA), Heartland Consumers Power District (HCPD), Missouri River Energy Services (MRES), and Otter Tail Power Company (OTP). The Montana-Dakota Utilities (MDU) does not serve any customers in Minnesota and is the only Co-owner not affected by this Minnesota Statute.

Montana

The State of Montana's renewable portfolio standard (RPS) includes wind resources and requires public utilities and competitive electricity suppliers to obtain a percentage of their retail electricity sales from eligible wind and renewable resources (Montana Resource Standard, 2007). Conforming to the RPS is not voluntary. Eligible resources include wind, solar, geothermal, existing hydroelectric projects (10 MW or less), landfill or farm-based methane gas, wastewater treatment gas, low-emission, nontoxic biomass,

⁵ Minnesota utilizes a separate resource schedule for utilities that owned a nuclear generating facility as of January 1, 2007. Since the Co-owners do not own any nuclear generating facilities, this alternate schedule is not addressed in this document.

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and fuel cells where hydrogen is produced with renewable fuels. The RPS schedule for implementing wind and renewable resources is as follows:

- Phase 1 – 2008-2009 – 5 percent of sales.
- Phase 2 – 2010-2014 – 10 percent of sales.
- Phase 3 – 2015 – 15 percent of sales.

North Dakota

The North Dakota Legislature has passed objectives related to wind and renewable energy, in which Section 49-02 of the North Dakota Century Code was amended in March 2007 (North Dakota, 2007). The Renewable Energy and Recycled Energy (RERE) amendments state that 10 percent of all of North Dakota's electricity that is sold at retail shall be from wind and renewable and recycled energy sources by the year 2015. The RERE amendments apply to all retail providers of electricity in the State, regardless of the electricity retailer's ownership status. The 10 percent objective is voluntary, and there is no penalty for failing to meet the objective. Municipal or cooperative utilities that receive wholesale electricity through a municipal power agency or generation and transmission cooperative may aggregate their wind and renewable and recycled energy resources to meet the 10 percent objective.

Under the RERE amendments, wind and renewable electricity, and recycled energy are defined to include:

- Solar.
- Wind.
- Biomass – using agricultural crops and agricultural wastes and residues, wood and wood wastes and residues, animal wastes, and landfill gas as the fuel to produce electricity.
- Hydroelectric.
- Geothermal – using energy contained in heat that continuously flows outward from the earth as the source of energy to produce electricity.
- Hydrogen – provided that the hydrogen is generated from a renewable or recycled energy resource.
- Recycled energy systems – producing electricity from currently unused waste heat resulting from combustion or other processes, which do not use an additional combustion process. This term does not include any system whose primary purpose is the generation of electricity.

The RERE amendments also include provisions for wind and renewable electricity and recycled energy credits.

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South Dakota

South Dakota passed House Bill No. 1123 early in 2008. This House Bill requires each retail provider of electricity in the State (e.g., municipal utilities, investor owned utilities, cooperative utility, etc.) to provide 10 percent of electricity sold at retail to be obtained from wind, renewable energy, and recycled energy sources by the year 2015. This ten percent target is voluntary, and there are no penalties associated with a failure to comply. Each retail provider of electricity shall report to the South Dakota Public Utilities Commission its total annual retail energy sales and qualifying electricity delivered from wind, renewable energy and recycled energy. Distribution cooperatives may aggregate their reporting through generation and transmission cooperatives and municipal utilities may aggregate their reporting through a municipal power agency.

Federal

There are no Federal statutes that mandate the use of wind or renewable energy sources by electric utilities.

Summary of State Requirements

The following table provides a summary of the above wind and renewable energy requirements. Over the course of time, new legislation or technological advances might occur that would affect the adoption of wind and renewable energy sources, such as carbon taxes or credits, or clean coal technologies. Since such events are speculative and cannot be accurately predicted, only existing legal or regulatory attributes are considered in this paper.

Table 1. State Regulatory Requirements for Wind and Renewable Energy Sales

Year	Minnesota^b (Percent^a)	Montana^b (Percent)	North Dakota^b (Percent)	South Dakota^b (Percent)	Federal (Percent)
2008	None	5	None	None	None
2012	12	10	None	None	None
2016	17	15	10	10	None
2020	20	15	10	10	None
2025	25	15	10	10	None

^aThe percent values in the table refer to the percent of total energy sales that must be generated by wind and renewable energy resources from regulated electric service providers for the specified year.

^bMinnesota, Montana, and North Dakota have implemented statutes that mandate amounts and schedules for the adoption of wind and renewable energy sources. North Dakota and South Dakota's wind and renewable requirements are voluntary.

Source: Minnesota Statutes, 2007, Montana Resource Standard, 2007, North Dakota, 2007, South Dakota, 2008.

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Status of Co-owners' Wind and Renewable Energy Programs

Based on a review of available reports and filings, each of the Co-owners routinely assesses its available resources and makes plans to meet the future energy and capacity needs of its constituents, including use of wind and renewable energy sources. The following discussion briefly summarizes the findings of this review.

The Co-owners' commitment to using wind and renewable energy resources is found in each entity's respective Integrated Resource Plan (IRP). Each Co-owner has addressed its own resource needs in an IRP or similar planning document. Utilities that serve customers in Minnesota file their IRP or similar materials with the Minnesota Public Utilities Commission (MnPUC). In addition, the Co-owners provided extensive comparisons of wind energy development to coal generation as part of the South Dakota Site Certification approval and the North Dakota Advanced Determination of Prudence process.

Table 2 shows the IRPs that are filed by the Co-owners. Table 3 summarizes some of the key features of the Co-owners' IRPs.

Table 2. Co-owners' IRP Filings

Co-owner^a	Minnesota	Montana	North Dakota	South Dakota	Western
CMMPA	No	No	No	No	No
HCPD	No	No	No	No	Yes
MDU	No	Yes	Yes	Yes ^b	No
MRES	Yes	No	No	No	No
OTP	Yes	No	Yes ^b	Yes ^b	No

^aAll Co-owners are in compliance with State regulations for filing of their respective IRPs. CMMPA is not required to file an IRP with any of the States.

^bVoluntary filing.

Source: OTP, 2009.

As shown in Table 3, the Co-owners' IRPs are fairly recent and include references to participation in the proposed Big Stone II Project and their respective commitments to using wind and renewable resources. Based on their IRPs, the Co-owners plan on using renewable energy, especially wind power, in their future energy and capacity portfolios to meet their load requirements, as summarized below.

HCPD

- HCPD is pursuing the installation of a wind project that has a capacity of 51 MW and is proposed to be operational in December 2008.

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- One of HCPD's customers is pursuing a 6-MW project, which is proposed to be operational in the year 2010.

CMMPA

- CMMPA and its member systems have approximately 18 MW of wind resources.

MDU

- In 2002, MDU executed a power purchase agreement for approximately 20 MW of wind resources, located near Ellendale, North Dakota. The developer later failed to complete the project and the contract was terminated.
- In 2005, MDU executed a power purchase agreement for approximately 31.5 MW of wind resources, located near Java, South Dakota. The contract went into default in 2006.
- MDU owns the 20 MW Diamond Willow Wind Farm near Baker, Montana. Diamond Willow went into operation in December 2007 and the project is designed to meet Phases 1 (5 percent by 2008) and 2 (13 percent by 2010) of Montana's wind and renewable energy standard. An additional 10 MW will be installed in 2014 to meet Phase 3 of Montana's RPS, which has a 15 percent threshold.

MRES

- MRES already receives 3.7 MW of wind energy from its Worthington Wind Project.
- MRES has completed the construction of 19 wind turbines (maximum capacity 38.7 MW) that are located near Marshall and Odin, Minnesota. Construction commenced in July 2007. Two of the nine Marshall turbines went commercial in 2007, the other seven in 2008. The 10 Odin units went commercial in 2008.
- The Worthington, Marshall, and Odin projects have met MRES' goal to have 40 MW of wind resources by 2011.
- In addition to wind, MRES intends to obtain 1,400 megawatt hours (MWh) per year of biomass by 2015.

OTP

- OTP's IRP forecasts that it will have more wind and renewable energy in Minnesota and North Dakota than required by State law.
- The MnPUC previously approved 160 MW of new wind resources under Docket No. E017/RP-05-968.
- OTP has a contract to purchase the 19.5 MW output from the Langdon Wind Energy Center, which became operational in December 2007.

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- Another 40.5 MW of OTP-owned wind generation at the Langdon Wind Energy Center became operational in December 2007 and January 2008.
- On April 30, 2008, OTP announced that it entered into agreements to build and own 48 MW of wind energy generation at the Ashtabula wind energy facility planned in Barnes County, North Dakota. The facility became operational in November 2008.
- OTP has also entered into an agreement with M-Power, LLC, to purchase a portion of its Luverne Wind Farm under development in east central North Dakota. OTP would own 49.5 MW which, when combined with the Langdon and Ashtabula resources, brings the total of new large wind resources to 157.5 MW of the approved 160 MW. The OTP portion of M-Power is scheduled to be constructed in 2009. Customer-owned facilities are being installed continuously and will more than fulfill the remainder of the 160 MW of new wind generation facilities.
- OTP has a number of pre-existing wind facilities. OTP expects to total more than 185 MW of wind generation by the end of 2009.

Table 3. Key Features of the Co-Owners' IRPs

Co-owner	IRP Filing Date (Latest)	Includes Notice for the Proposed Big Stone II Project	Includes Commitment to Wind and Renewable Resources
CMMPA	October 2006 ^a	Yes	Yes
HCPD	September 2002 ^b	Yes	Yes
MDU	July 2007 ^c	Yes	Yes
MRES	May 2006 ^d	Yes	Yes
OTP	January 2008 ^e	Yes	Yes

^a CMMPA is not required to file an IRP, but voluntarily submitted IRP information as part of the proposed Big Stone II Certificate of Need Application to the Minnesota Department of Commerce (CMMPA, 2006).

^b HCPD's customers are cooperative electric service providers who are responsible for implementing demand side management (DSM) programs with their retail customers. HCPD submitted an IRP to Western that identified 15 types of DSM programs. These programs are based on a screening program to compare benefits and costs for each program option. HCPD has an action plan for program implementation and currently is tracking implementation progress. HCPD provided Western with its IRP dated September 2002 (HCPD, 2002).

^c MDU does not file an IRP, however their plan for utilizing DSM and renewable energy resources is included in MDU's "Ten Year Plan for South Dakota Electric Properties."

^d Updates MRES' June 2005 filing.

^e Updates OTP's June 30, 2005 filing and 2006 update.

Source: Davis, Robert, 2007; Knofczynski, John 2007; Montana Dakota Utilities, 2007b; Schumacher, J. P., 2007; Morlock, Bryan, 2007.

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Minnesota Settlement Agreement

The Minnesota Department of Commerce (MnDOC) and Co-owners entered into a Settlement Agreement on August 30, 2007, that addresses a number of issues that pertain to the proposed Big Stone II Project, including wind and renewable energy.⁶ The terms of the Settlement Agreement were included as a condition to the Certificate of Need, issued March 17, 2009. Salient features of the Settlement Agreement that pertain to wind and renewable energy are listed below.

- The Granite Falls transmission line should be constructed to 345-kilovolt (kV) standards instead of 230 kV to provide capacity for 800 to 1,000 MW of future generation developments, which are currently expected to be renewable wind energy projects.
- The Mid-Continent Area Power Pool (MAPP) 2007 Load and Capability Report forecasts that the Upper Midwest region will be capacity deficient by the summer of 2010.⁷

The Settlement Agreement (see Appendix K of Volume III) states that the Minnesota Co-owners will own or purchase more than 2,600 gigawatt hours (GWh) per year of wind and renewable energy by the year 2012.⁸ Assuming a capacity factor of 35 percent, this amount of energy would be equivalent to roughly 848 MW of capacity.⁹ The Settlement Agreement further states that by the year 2020, the Minnesota Co-owners will own or purchase approximately 5,100 GWh per year of wind and renewable energy. This would be equivalent to 1,663 MW of capacity at a 35 percent capacity factor.

Wind Reliability, Capacity Factor, and Capacity Value

Using current technologies, there is no perfect electrical generation resource. Each type of energy resource provides a predictable set of advantages and disadvantages. It is common practice for electric utilities throughout the U.S. to view their generation resources as a portfolio of different types of units, making use of baseload units¹⁰, load

⁶ Settlement Agreement, High Voltage Transmission Lines – Big Stone Unit II, MnPUC Docket No. CN-05-619, effective date August 30, 2007.

⁷ Subsequent to the MAPP 2006 report, MAPP conducted a revised analysis dated May 1, 2007 which forecasts that the Co-owners will be capacity deficient by the summer of 2010.

⁸ The Settlement Agreement includes renewable energy from the Southern Minnesota Municipal Power Agency and Great River Energy, which have withdrawn from the proposed Big Stone II Project.

⁹ Capacity factor is defined as the annual net electric output of a generating unit (measured in kilowatt hours) divided by the total amount of energy (measured in kilowatt hours) that could be produced if that generating unit operated 100 percent of the hours in a year. The capacity of this resource is computed as energy (2,600,000 MWh) divided by hours per year (8760 hour per year) divided by capacity factor (35 percent or 0.35) equals 848 MW.

¹⁰ A baseload unit is an energy generating facility which sole or primary purpose is to provide minimum power requirements for customers. Baseload units are typically the most reliable and lowest cost generating facilities within a given group of generating units.

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following¹¹ units, and peak load units¹². Baseload plants are usually large generating plants that cannot be started and stopped quickly and are used to supply a minimum power level or baseload, 24 hours per day every day of the year. Baseload plants have the lowest costs per unit of electricity because they are designed for maximum efficiency and are operated continuously at high output. The generating plants that are the most economical to operate are used to supply baseload power. Since these are some of the least costly plants to operate, they are usually operating (i.e., dispatched) near their maximum available power level.

As described in Section 1.2.2 of the Final EIS, Co-owner Utility Power Requirements, a baseload-generating unit is required to meet growing electricity demand. From an operating perspective, the most important characteristics of a baseload unit include a high degree of reliability and availability, which result in high capacity factors. Coal-fired generating facilities generally have capacity values above 80 percent. Since wind cannot be scheduled or predicted with a high degree of accuracy, the capacity value for wind generators is much lower than that of coal-fired power plants, and ranges from 25 to 35 percent. Therefore, wind power in a generation portfolio sacrifices future dispatchability in the overall ability to deliver reliable electrical power to an energy provider's customers.

A utility's ability to schedule a power resource is especially critical for baseload generating units. The Co-owners have noted their commitment to the prudent use of renewable resources, such as wind power. However, the inherent characteristics of such resources, such as wind, constrain certain applications. The nature of wind power contains uncertainties associated with how much energy or capacity would actually be available during various times of day, or during periods of high demand, in event that the wind is blowing less than energy or capacity requirements. Additionally, winds can be too high for a turbine to operate.¹³ For these reasons wind energy is often considered an energy resource (rather than a capacity resource) which can be used to displace energy produced from other technologies and to reduce fuel costs from those technologies. With the recent significant growth in the wind energy generation market, there is interest and need to estimate the amount of capacity that wind generation provides. Capacity is generally quantified by examining a unit's capacity factor. The capacity factor of wind

¹¹ Load following is a utility's practice of adding additional generation to available energy supplies to meet moment-to-moment demand in the distribution system served by the utility, and/or keeping generating facilities informed of load requirements to ensure that generators are producing neither too little nor too much energy to supply the utility's customers.

¹² A peak load generating facility is constructed and operated expressly for the purpose of providing energy supply during periods of very high demand. Peak load stations are typically operated only during particular times of day or at times of the year when there is a spike in the demand for energy for heating or cooling systems.

¹³ U.S. Department of Energy Web site. Wind and Hydropower Technologies Program. Turbines do not operate at wind speeds above about 55 mph because they might be damaged by the high winds. http://www1.eere.energy.gov/windandhydro/wind_how.html. Web site accessed January 14, 2008.

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power generating units is assessed here by examining several independent sources of data:

- Comparisons of various power plants conducted by the NREL assume that the capacity factors of wind plants are 25 to 35 percent.¹⁴
- Wind power analysis conducted by the American Wind Energy Association assumes that wind power facilities have a capacity factor of 35 percent.¹⁵
- The British Wind Energy Association reports that wind energy has a capacity factor of 25 to 40 percent.¹⁶
- The Energy Center of Wisconsin reports, "...a wind turbine may produce on average a third of the maximum power of the generator, or have a 33 percent capacity factor. Typical capacity factors are 20 to 25 percent."¹⁷
- The MnDOC notes that wind generators have an average capacity factor of 35 percent.¹⁸
- The U.S. Department of Energy reports that actual wind generators at six different sources have experienced capacity factors between 25.2 to 35.5 percent.¹⁹

Based on the above independent sources, it appears that an assumed capacity factor of 35 percent is reasonable for wind power units. Low capacity factors mean that wind power units can not be scheduled in the same manner as traditional baseload units. Since coal-fired power plants have a capacity factor above 80 percent, its likelihood of being available during high load demand is also much greater. This increase in expected availability means that coal-fired plants can be scheduled with greater reliability and certainty.

Another issue which was noted in a recent publication is that wind generation increases the amount of variability and uncertainty of the net load.²⁰ This may introduce measurable changes in the amount of operating reserves required for regulation, ramping, and load-following. Operating reserves may consist of both spinning and non-spinning reserves. In two major recent studies, the addition of 1,500 MW and 3,300 MW of wind (15 percent and 10 percent, respectively, of system peak load) increased

¹⁴ NREL, "Comparing Statewide Economic Impacts of New Generation from Wind, Coal, and Natural Gas in Arizona, Colorado, and Michigan," S. Tegen, Conference Paper NREL/CP-500-38154, August 2005.

¹⁵ The Economics of Wind Energy, American Wind Energy Association, February 2005.

¹⁶ British Wind Energy Association, <http://www.bwea.com/energy/rely.html>.

¹⁷ Energy Center of Wisconsin, Wind Power Wisconsin, <http://www.ecw.org/windpower/web/cat2b.html>.

¹⁸ Minnesota Department of Commerce, "Wind Integration Study," November 2004.

¹⁹ Department of Energy, Energy Information Administration, "Forces Behind Wind Power", February 2001.

²⁰ Power & Energy Magazine, May 2006. Utility Wind Integration State of the Art. http://www.ieee.org/portal/site/pes/menuitem.bfd2bcf5a5608058fb2275875bac26c8/index.jsp?&pName=pes_home.

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regulation requirements by 8 MW and 36 MW, respectively, to maintain the same level of North America Electric Reliability Corporation control performance standards. As noted above, the costs of operating reserves and system regulation must be added to wind generation project costs for proper accounting and integration of wind generation into electric systems.

In addition to the capacity factor of a wind power unit, it is a common industry practice to consider the capacity value of a generation addition. In this context, capacity value is defined as the ratio of assumed available capacity versus the nameplate rating of the unit, during peak demand conditions. Commenters indicated that the Co-owners applied a zero capacity value to wind turbines in their studies, citing a study conducted in 2005. The Co-owners used a capacity value of 15 to 25 percent in their most recent resource addition studies. Based on the considerations for capacity reserve requirements and system regulation requirements discussed above, these capacity value assumptions appear to be in the correct range. The following table summarizes the Co-owner's capacity value assumptions:

Table 4. Wind Turbine Capacity Values

Co-owner	Capacity Value (%)
CMMPA	22
HCPD	20 - 25 ^(a)
MDU	22
MRES	15
OTP	15 - 20 ^(b)

^a HCPD assumes a summer capacity value for wind turbines of 20 percent and a winter value of 25 percent.

^b OTP assumes a summer capacity value for wind turbines of 15 percent and a winter value of 20 percent, based on performance of existing facilities on the OTP system.

Environmental Impacts of Wind

Table 5 briefly describes the typical issues and impacts associated with wind projects on the following resources:

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Table 5. Typical Environmental Issues and Impacts of Wind Projects

Resource	Brief Description of Impacts and Issues
Air Quality	No air emissions are generated by wind turbines during operations. Air emissions from maintenance vehicles occur during operations, but these emissions are minor. Minor air emissions would occur during construction associated with fugitive dust, construction vehicle emissions, and on-site concrete manufacturing for the wind turbine foundations.
Water	Minor amounts of water are required for concrete batching during construction of turbine foundations. Wind power does not require any water supply for operations, other than occasional washing of turbine blades and wastewater generated by sanitary uses in an associated office/maintenance building. Thus, there are minimal wastewater discharges associated with wind turbine operations. Impacts to groundwater are not typically a concern. However, particularly in the proximity of wetlands, mitigation of stormwater runoff to surface waters can be of concern.
Geology and Minerals, Paleontological and Soils	Disturbances to existing resources can occur during construction of wind towers, associated substations, and linear facilities (access roads, electric transmission lines, and the buried collection grid and grounding grid). Access roads must be constructed, turbine foundations and buried collection systems require excavation, and occasional blasting is required. Wind turbine site locations and the associated linear facilities can be moved short distances to accommodate unique resources.
Biological Resources	Permanent loss of vegetation resources may occur during construction, but the impacts are typically minor. Typically, Federal and State lists of threatened and endangered species are reviewed prior to construction, so that known species and sensitive habitats can be avoided. Depending upon the ecology of an area, birds or bats may be present seasonally or year-round. The potential for avian and bat strikes to the turbine blades during operations may be unavoidable, and therefore, some mortality will occur. However, advances in wind turbine technology, including systems to warn birds and bats, have been able to reduce the number of strikes. Wind turbines can be sited to minimize the potential for bird strikes.
Cultural	Cultural resource surveys are typically conducted prior to construction, so that these resources can be avoided, if necessary.
Land Use	Lands typically available for wind projects in Minnesota and South Dakota would likely be agricultural. Construction of a wind farm would reduce land resources for local uses such as farming and grazing of livestock, however, these reductions are not typically large. A lease from the landowner would be required before development of any wind project, and landowners often welcome the additional income obtained from the leases. Agricultural land use is compatible with a wind project, since farming activities can typically occur in close proximity to wind-associated facilities.

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Resource	Brief Description of Impacts and Issues
Infrastructure, Public Health and Safety, and Waste Management	Large cranes are needed to construct wind turbines and certain turbine components (e.g., blades) are very long and difficult to transport. Therefore, there may be local traffic and routing concerns associated with transporting construction equipment and the turbines to the turbine locations. Some jurisdictions may impose limits on the times during the day when large components can be transported to the site. Worker safety is a common concern for any construction site. Concerns for public health are not associated with wind farms, except that consideration must be given to siting wind farms in the vicinity of airports or communications (i.e., microwave) transmissions, because turbines represent a potential obstruction. Very little solid waste is generated from a wind farm during operations. One study finds that it is possible for wind farms to cause some interference to radar at airports, but that such effects need to be studied on a case by case basis. ²¹
Visual	The visual impacts issue can be highly controversial, since some people consider wind turbines an eyesore, spoiling the rural landscape and causing an impact to vistas. Others may consider the wind turbines an attractive addition to the landscape and taking advantage of a valuable resource, which helps to reduce pollution. Depending upon the viewer, the visual impacts of a wind farm can be high.
Noise	Noise is generated by the mechanical gear box. Insulation minimizes noise from the gear box. Noise is also generated from the turbine blades passing through the air, although, as distance from the turbine increases, noise from the turbine blades is reduced to levels that are not significant. The noise carries somewhat farther in the downwind direction. Wind farms are most often located where the wind speed is higher than average; accordingly the background noise of the wind tends to mask any sounds that might be produced by the wind turbines. In general, wind farms are very quiet compared to other types of industrial facilities. ²²
Social and Economic Values and Environmental Justice	Generally, wind projects are often considered to have a positive socioeconomic impact to an area, principally because local landowners receive annual income from the use of their land. Where there have been concerns over the socio-economic impacts, it has usually been a result of concern over visual impact for projects located in close proximity to residential or recreational lands. It is unlikely that such issues would be a large concern in association with wind projects in the regional area.

Transmission Issues and Wind

The Final EIS contains information that describes the electric transmission additions and modifications that would be required to integrate the proposed Big Stone II power plant into the existing transmission system reliably. If the proposed Project is not constructed, then such associated transmission additions and modifications would not be pursued at this time.

²¹ Idaho National Laboratory, Wind Radar Interference, June 2006. http://www.windpoweringamerica.gov/pdfs/workshops/2006_summit/seifert.pdf Web site accessed on November 4, 2008.

²² American Wind Energy Association (AWEA). http://www.awea.org/pubs/factsheets/WE_Noise.pdf. Web site accessed on January 11, 2008.

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As discussed below, if the proposed coal-fired Big Stone II plant were to be replaced with wind resources, then other transmission infrastructure projects (in addition to those currently proposed) would be required. Such alternative transmission additions have not been studied and are outside the application for interconnection presented to Western by the Co-owners. It is expected that transmission additions would be substantially greater in number than those required for the proposed Big Stone II Project due to increased capacity requirements and geographic dispersion. To illustrate this point, assume that a wind power alternative is implemented and has a capacity value of 35 percent and the coal plant has a capacity value of 85 percent. Replacing the proposed 600-MW, coal-fired Big Stone II unit with equivalent wind power would then require roughly 1,457 MW of wind capacity.²³ The transmission additions for 1,457 MW of wind resources are expected to be significantly different from the proposed 600-MW, coal-fired Big Stone II unit. The 65 percent deficit in capacity could also be made up by installation of other generation.

It is a generally accepted engineering practice to plan and design a transmission system to facilitate the integration of 100 percent of resource capacity. Essentially, the proposed Project would require transmission system additions and modifications to integrate 600 MW of new capacity. However, under a wind power option, the transmission system would require increased system modifications to integrate 1,457 MW of capacity. The additional transmission system requirements associated with wind power would be more extensive than those associated with the proposed Project. If other generation were installed to complement wind generation development, it, too, would likely require additional transmission system requirements.

In addition to the capacity effects noted above, the geographic dispersion of 1,457 MW of wind resources would also increase the adverse impacts on the transmission system. The proposed Big Stone II power plant is located at a single location that is already served by transmission facilities. In contrast, a wind power alternative would require numerous wind turbines located over a much wider area. Such geographic dispersion is expected to increase the length of required new transmission lines, thereby increasing Project costs, environmental impacts, and schedule lead-times.

Capacity and Dispatchability Considerations

One article addresses the capacity and dispatch of wind resources.²⁴ Portions are excerpted below.

²³ Computation assumes that a 600 MW coal fired power plant is reduced by its capacity factor (85 percent), yielding 510 MW. This resultant capacity is equivalent to a wind energy facility of 1,457 MW having a capacity factor of 35 percent.

²⁴ Power & Energy Magazine, May 2006. Utility Wind Integration State of the Art. http://www.ieee.org/portal/site/pes/menuitem.bfd2bcf5a5608058fb2275875bac26c8/index.jsp?&pName=pes_home

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“The addition of a wind plant to a power system increases the amount of variability and uncertainty of the net load. This may introduce measurable changes in the amount of operating reserves required for regulation, ramping and load-following.”

“Fluctuations in the net load (load minus wind) caused by greater variability and uncertainty introduced by wind plants have been shown to increase system operating costs by up to about \$5/MWH [MWh] at wind penetration levels up to 20% [percent]. The greatest part of this cost is associated with the uncertainty introduced into day-ahead unit commitment due to the uncertainty in day-ahead forecasts of real-time wind energy production.”

“The impact of adding wind generation can vary depending on the nature of the dispatchable generating resources available, market and regulatory environment, and characteristics of the wind generation resources as compared to the load. Dealing with large output variations and steep ramps over a short period of time (e.g., within the hour) could be challenging for smaller balancing areas, depending on their specific situation.”

Conclusion

The specific effects associated with replacing the proposed Big Stone II coal-fired power plant with wind power would include:

- Increased number of transmission system additions, upgrades, and modifications.
- Increased capacity reserves and system regulation reserves.
- Increased cost for transmission system.
- Increased schedule lead-time to construct additional transmission projects.
- Decreased reliability to generate customer-demanded baseload power.

The development of the proposed Project does not impede the use of existing or future wind power resources. In fact, the transmission system additions and modifications required for the proposed Big Stone II plant are likely to aid in the integration of future renewable energy resources, such as wind.

Studies performed by the Co-owners indicate that the transmission additions and modifications required to reliably integrate the proposed Big Stone II plant into the existing system would also result in roughly 1,000 MW of excess transmission system capacity. Some of this capacity may aid in the development of future wind energy resources. Any request for integrating new generation resources, including new wind and

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renewable resources, would be subject to open transmission access and interconnection procedures outlined by Midwest Independent System Operator and/or Western, if a request involves Western's transmission system. Any new request to Western would also be subjected to review under the National Environmental Policy Act and related legislation.

Demand Side Management Response Paper C

DEMAND SIDE MANAGEMENT

RESPONSE PAPER C

Introduction

The primary objectives of this Response Paper are to respond to the feedback provided by commenters and provide additional background information to facilitate the readers' understanding of Demand Side Management (DSM). DSM is a term that generally applies to the planning, implementation, and monitoring of activities that are designed to encourage consumers to modify their electricity use. This approach addresses the need for additional capacity by reducing the amount or adjusting the timing of electric demand. DSM refers to energy and load-shape modifying activities that are undertaken in response to utility-administered programs, strategic conservation, load management, and strategic load growth. DSM is an on-going means to reduce generation requirements by helping customers reduce their need for electrical energy. DSM-related reductions in peak demand have been factored into the Co-owners' projected capacity needs.

Legal and Regulatory Requirements and Goals for DSM

Numerous States have implemented statutes that mandate the consideration of DSM in the Integrated Resource Plans (IRPs) of electric utilities. Understanding these statutes and IRPs is important since they affect the Co-owners' planning decisions regarding the adoption of new energy resources. The pertinent governmental jurisdictions that are of interest to the Project are the States of Minnesota, Montana, North Dakota, South Dakota, and the U.S. Federal government. The status of the applicable DSM statutes of each of these entities is described below.

Minnesota

Minnesota's energy policy, as defined by the 2007 Minnesota Legislature in the Next Generation Energy Act, is to achieve an energy savings goal of 1.5 percent of annual retail electric sales through energy conservation improvement programs (CIP), rate design, energy codes and appliance standards, programs designed to transform the electric market or change consumer behavior, utility infrastructure energy efficiency programs, and other efforts to promote energy efficiency and energy conservation.¹

The 1.5 percent CIP goal is based on the most recent three-year weather normalized average and applies to investor-owned utilities, municipalities, and cooperative electric associations that sell electricity at retail to consumers within Minnesota. This definition suggests that this statute is applicable to the following Co-owners: Central Minnesota Municipal Power Agency (CMMPA), Heartland Consumers Power District (HCPD), Missouri River Energy Services (MRES), and Otter Tail Power Company (OTP). The Montana-Dakota Utilities (MDU) does not serve any customers in Minnesota and is the only Co-owner not affected by this Minnesota Statute. Applicable Co-owners are required to file an energy conservation improvement plan with Minnesota Public Utilities

¹ State of Minnesota Statute 2006, Section 4, 216B.2401.

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Commission (MnPUC) at least once every three years and be in compliance by calendar year 2010.

Each utility is required to submit a proposed energy savings goal for its operations to the State Department of Commerce by 2010. The minimum goal is 1.0 percent and is subject to cost-effectiveness of the conservation measures applicable to the utility.

For purposes of planning for the proposed Big Stone II Project, each of the Co-owners with customer load in Minnesota assumed that they would achieve the 1.5 percent Minnesota goal in that State, without regard to whether such levels were actually achievable or cost-effective.

Montana

Montana does not have any statutes that mandate the implementation of DSM or conservation by electric utilities.

North Dakota

North Dakota does not have any statutes that require electric utilities to implement DSM or conservation programs. There is, however, an existing electric rates docket that requires MDU to consider DSM in its resource planning process.

South Dakota

South Dakota does not have any statutes that mandate the implementation of DSM or conservation by electric utilities.

Federal

The Federal government does not have any statutes that mandate the utilization of DSM or conservation by electric utilities.

Summary

Minnesota is the only regional governmental entity that requires electric utilities to implement DSM or conservation measures. Over the course of time, new legislation or technological advances might occur that would affect the adoption of DSM. However, since such events are speculative and cannot be accurately predicted, only existing legal or regulatory attributes are considered.

Status of Co-Owners' DSM Programs

Based on a review of available reports and filings, it is observed that each Co-owner routinely assesses its available resources and makes plans to meet the future energy and capacity needs of its constituents, including the use of DSM. The following discussion briefly summarizes the findings of this review.

The Co-owners' commitment to using DSM is found in their respective IRPs. Each Co-owner has addressed its own resource needs in an IRP. The following table summarizes some of the key features of the Co-owners' IRPs. HCPD does not serve

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enough load in Minnesota to meet the IRP filing requirement and thus does not file an IRP in Minnesota. CMMPA is not required to file an IRP, but did provide IRP-like information as part of the proposed Big Stone II Certificate of Need Application to the Minnesota Department of Commerce.

Table 1. Key Features of Co-Owners' IRPs

Co-owner	IRP Filing Date (Latest)	IRP Includes DSM
CMMPA	October 2006 ^a	Yes
HCPD	September 2002 ^b	Yes
MDU	July 2007 ^c	Yes
MRES	May 2006 ^d	Yes
OTP	January 2008 ^e	Yes

^a CMMPA is not required to file an IRP, but voluntarily submitted IRP information as a part of the proposed Big Stone II Certificate of Need Application to the Minnesota Department of Commerce (CMMPA, 2006).

^b HCPD provided Western with its IRP dated September 2002 (HCPD, 2002).

^c MDU does not file an IRP. Refers to MDU's "Ten Year Plan for South Dakota Electric Properties."

^d Updates MRES' June 2005 filing.

^e Updates OTP's June 30, 2005 filing and 2006 update.

As shown in Table 1, the Co-owners' IRPs and related updates are recent and include references of their respective commitments to DSM. Based on their IRPs, the Co-owners plan on using DSM, as summarized below.

HCPD

Based on HCPD's IRP submitted to Western Area Power Administration (Western), HCPD has identified 15 types of DSM programs based on a screening program to compare benefits and costs for each program option. HCPD has an action plan for program implementation and currently is tracking implementation progress. HCPD's customers are responsible for implementing DSM programs with their retail customers.

HCPD's most recent resource planning studies examined whether its participation in the proposed Big Stone II Project would be required if DSM targets were achieved. Such studies find continued participation is required even if DSM targets are achieved and that the proposed Big Stone II Project is in the best interest of its consumers in order to reliably meet their future electricity needs.²

² Minnesota Public Utilities Commission, Docket No. CN-05-619, Supplemental Testimony of Mr. John Knofczynski, Heartland Consumers Power District.

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HCPD did not implement any DSM programs during the past three years. This is due to HCPD being restricted to providing wholesale electric power to its customer systems. Consequently, HCPD does not have the ability to directly implement DSM programs within its customers' communities. HCPD's customers are responsible for implementing DSM programs with their retail customers.

HCPD does provide assistance to its customers with DSM programs. For example, in 2008, HCPD spent about \$69,000 for a DSM potential study and related activities that provided its customers with information to assist them in their DSM programs. HCPD also recently hired two employees to assist customers with DSM programs. For 2009, HCPD has budgeted \$122,000 for DSM-related programs.

HCPD's resource plans assume a goal of 1.5 percent per year of energy savings for their Minnesota customers, as noted in the new Minnesota Statute. Actual achievability and cost effectiveness of such savings levels remain to be established by studies and planning now underway.

The impact that DSM is forecasted to have on HCPD's forecasted loads are summarized in the following table.

Table 2. HCPD's Demand Reduction Due to DSM

Year	Load Forecast (MW)	Demand Reduction (Percent)	Demand Reduction (MW)
2010	141	2.00	2.82
2011	143	2.20	3.15
2012	144	2.40	3.46
2013	146	2.90	4.23
2014	147	3.30	4.85
2015	149	3.90	5.81

CMMPA

CMMPA and its members are not required to submit an IRP. However, as part of its evaluations filed in the proposed Big Stone Unit II transmission hearings, CMMPA did incorporate DSM programs that are consistent with recent State Legislation governing utility DSM and CIP. Although CMMPA is not required to file a formal IRP in Minnesota, the historical and projected future impact of its members' DSM activities are included in CMMPA's internal planning for new generation resources, including the proposed Big Stone II plant. These DSM activities have historically been performed by

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CMMPA members, not the agency itself. CMMPA's members recently chartered CMMPA to be more involved in coordinating, directing, and managing the development and delivery of energy savings programs on behalf of its members.

CMMPA members' DSM programs include the following:

- Energy Start Appliance Rebates for furnaces, refrigerators, dishwashers, clothes washers, electric water heaters, dehumidifiers, window/room air conditioners, central air, air to air heat pumps, freezers, variable speed furnaces, etc.
- Lighting rebates on industrial/commercial lighting projects and bulb change-outs.
- Lighting rebates on residential compact fluorescent bulbs.
- Window rebates.
- Fluorescent lighting bulb, compact fluorescent lamp and ballast collection and disposal for all customers - residential, low income, commercial, and industrial.
- Street light conversion from mercury vapor to high pressure sodium lamps.
- Traffic signal lights conversions to LED.
- Commercial/industrial energy conservation customer defined "Custom" programs and studies.
- Energy saving equipment rebates for commercial.
- Premium efficiency motors rebates.
- Automatic meter reading project to provide time of day use of energy to make energy saving decisions.
- Low income energy audits.
- Low income weatherization: 3M window film and home weatherization material and labor.
- Low income energy efficient lighting.
- Low income energy efficient appliance replacement program.
- Energy conservation educational materials.
- Air conditioning tune-up program.
- Furnace tune-up program.
- Energy efficient municipal light replacement program.
- Municipal buildings energy conservation.

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- Shade tree program.
- Load management/load control on central air conditioning units and electric hot water heaters.

Like the other Co-owners with Minnesota load, CMMPA's resource plans assume a goal of 1.5 percent per year of energy savings, as noted in the new Minnesota Statute. Actual achievability and cost effectiveness of such savings levels remain to be established by studies and planning now underway.

In accordance with Minnesota law, CMMPA members plan to spend at least 1.5 percent per year of gross operating revenues on qualifying conservation activities until the new 1.5 percent energy savings goal becomes effective in 2010. Thereafter, it is anticipated that spending will increase by several multiples of 1.5 percent of gross operating revenues. Using 2008 actual conservation expenditures and budgeted figures for 2009 and 2010, CMMPA members are estimated to have spent approximately \$1.8 million for 2008 through 2010.

CMMPA's studies relating to CIP compliance are in process. CMMPA members report that they plan to comply with the Minnesota Statute, but have not yet developed specific plans or energy savings goals.

Table 3. CMMPA's Demand Reduction Due to DSM

Year	Load Forecast (MW)	Demand Reduction (Percent)	Demand Reduction (MW)
2010	174.3	1.45	2.53
2011	176.8	2.88	5.09
2012	179.5	4.27	7.67
2013	182.3	5.62	10.25
2014	185.1	6.93	12.83
2015	187.8	8.20	15.40

MDU

MDU offered DSM programs to its electric consumers during 2006-2007. These programs focused on commercial lighting and residential high-efficiency air conditioning. MDU also includes DSM in its IRP analysis and expects to achieve a reduction in demand of 3.5 to 3.8 percent per year. The following table summarizes MDU's forecasted reductions in demand for the 2010-2014 timeframe.

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Table 4. MDU’s Demand Reduction Due to DSM

Year	Load Forecast (MW)	Demand Reduction (Percent)	Demand Reduction (MW) ^(a)
2010	505.5	3.5	17.5
2011	511.3	3.8	19.6
2012	517.1	3.8	19.6
2013	522.9	3.7	19.6
2014	528.7	3.7	19.6
2015	534.5	3.7	19.6

^a Some data does not match due to rounding.

MDU made a financial investment in DSM during 2006-2008 and has budgeted additional funds for 2009-2012. These amounts are summarized in the following table.

Table 5. MDU’s Investment in DSM

Year	Investment in DSM
2006 ^(a)	\$60,402
2007 ^(a)	\$133,279
2008 ^(a)	\$323,823
2009 ^(b)	\$1,175,527
2010 ^(b)	\$4,720,197
2011 ^(b)	\$1,819,071
2012 ^(b)	\$470,731
Total	\$8,703,030

^a Actual expense.

^b Budgeted expense.

MRES

MRES reports that it did not implement any DSM programs prior to 2008. However, MRES plans to launch the following DSM programs during 2008-2009:

- Commercial and industrial lighting.
- Motors, pumps, and variable frequency drives.

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- Cooling and chiller technologies.
- Custom commercial and industrial measures.
- Residential lighting.
- Residential air conditioning.

MRES included DSM in its most recent IRP, which assumes the values shown in the following table.

Table 6. MRES Demand Reduction Due to DSM

Year	Load Forecast (MW)	Demand Reduction (Percent)	Demand Reduction (MW)
2010	459.4	2.85	13.09
2011	473.8	4.15	19.66
2012	488.5	5.36	26.18
2013	502.6	6.52	32.77
2014	516.3	7.61	39.29
2015	516.3	8.90	45.90

MRES reports that it intends to spend approximately \$8.3 million on DSM projects during the 2008-2012 timeframe. This forecasted expenditure does not include projected participant costs of \$15 million or additional dollars required to meet the Minnesota CIP.

Similar to the other Co-owners with Minnesota load, MRES assumed that it would achieve the Minnesota 1.5 percent energy savings goal in Minnesota in its planning for the proposed Big Stone II Project, regardless of its actual achievability or cost-effectiveness.

OTP

OTP has been pursuing DSM programs since the 1980s and intends to work towards compliance with the new Minnesota CIP Statute. OTP includes DSM programs in its IRP process and intends to comply with the Minnesota CIP Statute. OTP has implemented conservation programs in South Dakota at the request of the Public Utility Commission. OTP previously operated conservation programs in North Dakota in the 1990s, and is again implementing new programs in the State at the direction of the Public Service Commission in the Big Stone II Advanced Determination of Prudence. OTP expects that by 2020 its DSM conservation activities will reduce capacity requirements by approximately 100 megawatts (MW) from its 2007 load forecast. The specific amounts of demand reductions targeted by OTP's DSM programs are summarized in the following table.

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Table 7. OTP's Demand Reduction Due to DSM

Year	Load Forecast (MW)	Demand Reduction (Percent)	Demand Reduction (MW)
2010	842	10.94	92.12
2011	852	11.53	98.24
2012	863	12.11	104.51
2013	884	12.52	110.68
2014	894	13.09	117.03
2015	905	13.62	123.26

During the past three years, OTP has implemented the following direct impact DSM programs:

Residential

- Hot pack.
- Residential demand control.
- Air conditioning control.
- Air source heat pumps.
- Geothermal heat pumps.
- Change a light.

Low Income

- House therapy.

Commercial

- Lighting.
- Cooking.
- Refrigeration.
- Motors.
- Energy grants.
- Plan review.
- Air source heat pumps.
- Geothermal heat pumps.

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In addition to the above programs, OTP has also implemented the following non-direct impact DSM programs:

- Financing.
- Implementation and training.
- Advertising and education.
- Energy analysis and recommissioning.
- Technical research.
- CIP development.
- Distributed generation.
- PUC assessments.

OTP's financial investment in Minnesota's DSM has been approximately \$1.6 million in 2005, \$1.9 million in 2006, \$1.9 million in 2007, and \$2.35 million in 2008, totaling \$7.75 million over the past four years. Looking forward, OTP's budget for future Minnesota DSM programs is approximately \$3.5 million in 2009, \$4.2 million in 2010, and \$4.6 million in each of years 2011 through 2013. In addition to these amounts, OTP's investment in South Dakota DSM for 2008 was \$0.069 million. OTP's 2009 budget for South Dakota DSM programs is \$0.14 million and \$0.105 million per year for 2010 and beyond. OTP has filed in North Dakota to commence DSM programs with a budget of \$1.2 million per year in 2010 and 2011. These North Dakota investments are expected to carry on in 2012 and 2013. The North Dakota Public Service Commission has yet to act on the filing. These past and expected future investments are summarized in the following table.

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Table 8. OTP’s Investment in DSM in Minnesota, North Dakota, and South Dakota

Year	Approximate Investment in DSM
2005 ^(a)	\$1.6 Million
2006 ^(a)	\$1.9 Million
2007 ^(a)	\$1.9 Million
2008 ^(a)	\$2.4 Million
2009 ^(b)	\$3.6 Million
2010 ^(b)	\$5.5 Million
2011 ^(b)	\$5.9 Million
2012 ^(b)	\$5.9 Million
2013 ^(b)	\$5.9 Million
Total	\$34.6 Million

^a Actual expense.

^b Budgeted expense.

OTP testified before the Minnesota Public Utilities Commission, “Achieving the 1.5% compliance goal is not only going to be difficult just from the standpoint of finding ways to do it, but it is also likely to be very expensive.”³ Despite these challenges, the above data indicates that OTP intends to meet the Minnesota CIP. In fact, like the other Co-owners with Minnesota load, OTP assumed for planning purposes that it would achieve the 1.5 percent energy savings goal in Minnesota, regardless of its actual technical achievability or cost-effectiveness.

Conclusion

The Co-owners have been pursuing DSM as a part of their respective IRP and planning processes. DSM related reductions in peak demand have been factored into the Co-owners’ projected capacity needs. The Co-owners have been or will be making financial investments in DSM. In fact, the Co-Owners with load in Minnesota are assuming they will achieve the very aggressive 1.5 percent per year energy savings goal in new Minnesota Statutes; regardless of whether it is technically achievable or

³ Uggerud, Ward, 2007. Applicants’ Exhibit 114. Supplemental Prefiled Testimony, representing Otter Tail Power Company and Others, Application for Certification of Transmission Facilities in Western Minnesota and Application to the MPUC for a Route Permit for the Big Stone Transmission Project in Western Minnesota, before the Minnesota Public Utilities Commission, OAH No. 12-2500-17037-2, MPUC Dkt No. CN-05-619 and OAH No. 12-2500-17038-2, MPUC Dkt No. TR-05-1275. Minnesota Public Utilities Commission, Office of Administrative Hearings. November 13, 2007.

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cost-effective. The following table summarizes the total impact that DSM is forecasted to have on the five Co-owners.

Table 9. Co-owners' Total Demand Reduction Due to DSM

Year	Load Forecast (MW)	Demand Reduction (Percent)	Demand Reduction (MW)
2010	2,122.2	6.04	128.25
2011	2,156.9	6.75	145.57
2012	2,192.1	7.37	161.47
2013	2,237.8	7.92	177.28
2014	2,271.1	8.52	193.56
2015	2,292.6	9.16	209.97

The above data indicates that the Co-owners are forecasted to reduce their collective load forecasts by 6.04 percent to 9.16 percent between the years 2010 and 2015. This corresponds to a reduction of 128.25 MW to 209.97 MW between the years 2010 and 2015. In the year 2015, such reductions in the Co-owners' total load forecast would represent only approximately 35 percent of the capacity of the proposed Big Stone II Project. Had the Co-owners not taken into consideration savings by their DSM programs, then the capacity requirement would have been approximately 35 percent greater than that found as their purpose and need under the proposed Project. DSM represents the dynamic ability to reduce system loading for predetermined periods of time, but is not the preferred alternative to provide baseload generation.