

Intertribal COUP

Council On Utility Policy

Intertribal Wind Planning and Policy Project

**Department of Energy
Tribal Energy Program**

Project Review

October 23, 2006

Denver, CO



**INTERTRIBAL
Council On Utility Policy**

COUP

Tribes Building Sustainable Homeland Economies

P.O. Box 25, Rosebud, SD 57570

Pat Spears, President - Lower Brule Reservation, SD

Terry Fredericks, Vice President - Ft. Berthold Reservation, ND

Bob Gough, Secretary - Rosebud Reservation, SD

Bill Schumacher, Treasurer - Flandreau Santee Reservation, SD

www.IntertribalCOUP.org

www.NativeWind.org

Intertribal Council On Utility Policy “Intertribal Wind Development”



Tribal Renewable Energy

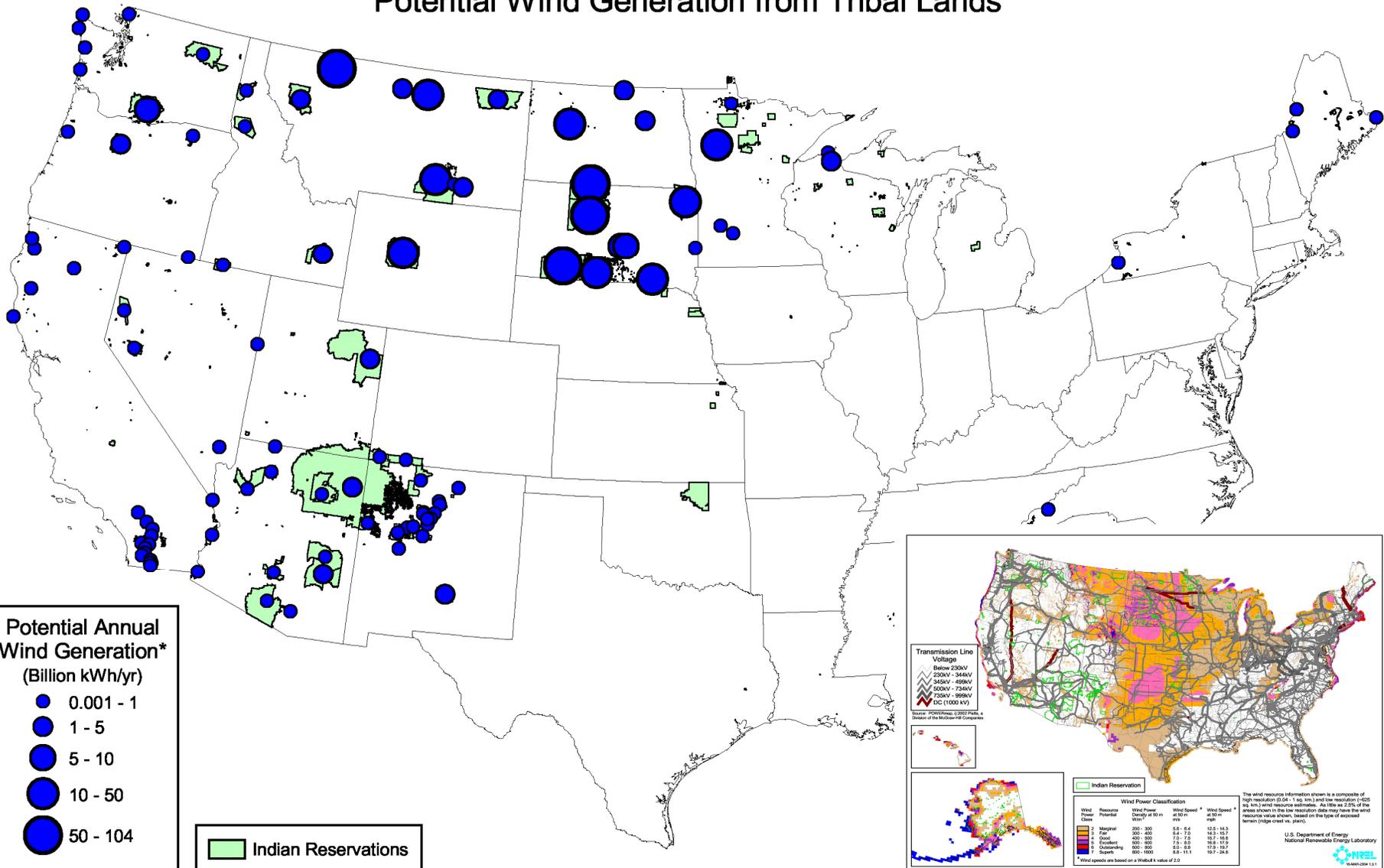


- Indian Reservations are the poorest communities in the U.S. and have the highest unemployment rates.
- Indian Tribes are the fastest growing populations in the U.S with half their members under 18 years of age, and all growth is natural, not immigration.
- Reservation homes are 10 times more likely (14.2%) to be without electricity than rest of U.S. (1.4%)
- Tribes have hundreds of gigawatts of renewable energy potential. Tribes could meet most of U.S. electric energy needs with clean green power.

Rosebud Sioux Turbine • Federal Trust Responsibility to build Tribal Sustainable Homeland Economies/Federal Markets

<http://www.eia.doe.gov/cneaf/solar.renewables/page/pubs.html>

Potential Wind Generation from Tribal Lands



* Generation estimated for areas of class >= 4 annual average wind resource, assuming 5 MW/km² of installed capacity, and capacity factors ranging from 25.1% (class 4) to 41.4% (class 7).

Aggregate technical estimate of 209 GW does not account for sacred sites, transmission access, water bodies, or other factors that will significantly impact development potential.

Total Tribal Wind Generation Potential:
535 Billion kWh/yr

U.S. Total Electric Generation (2004 Est.):
3,853 Billion kWh/yr (EIA)

U.S. Department of Energy
National Renewable Energy Laboratory



DHJul3004winger



Image © 2006 DigitalGlobe

©2006 Google™

Pointer 43°00'10.78" N 100°34'42.46" W elev 2769 ft

Streaming ||| 100%

Eye alt 3224 ft

The first Tribally owned, utility scale wind turbine on the Rosebud Reservation casts a long shadow across the West

Rosebud Sioux & Intertribal COUP

Environmental Justice Revitalization Plan:

3,000 MWs of Tribally Owned Wind Power Across the Northern Great Plains
Financed with Sale of Energy & Environmental Attributes ("Green Tags")

Phase 1 (2003-05):

1st Tribally owned 750 kW Turbine on Rosebud Reservation
Commissioned March 4th, Dedicated May 1st, 2003 (DOE/RUS/NE)

2nd Tribally owned 65 kW Turbine on Ft. Berthold Reservation
Commissioned Oct 4, 2005 (DOE/NE)

3rd Tiospaye (Extended Family) owned 10 kW project on Pine Ridge (non-DOE)

4th Tribally owned 660 kW project planned for Flandreau Santee Sioux Tribe

Phase 2 (2004/7):

30 MW Wind Ranch on Rosebud Reservation (DOE)

Phase 3 EJ Demonstration (2004/7):

80MWs: Eight 10 MW Wind Ranches on 8 Reservations

DOE and BIA Funding

Phase 4 (2004-2008):

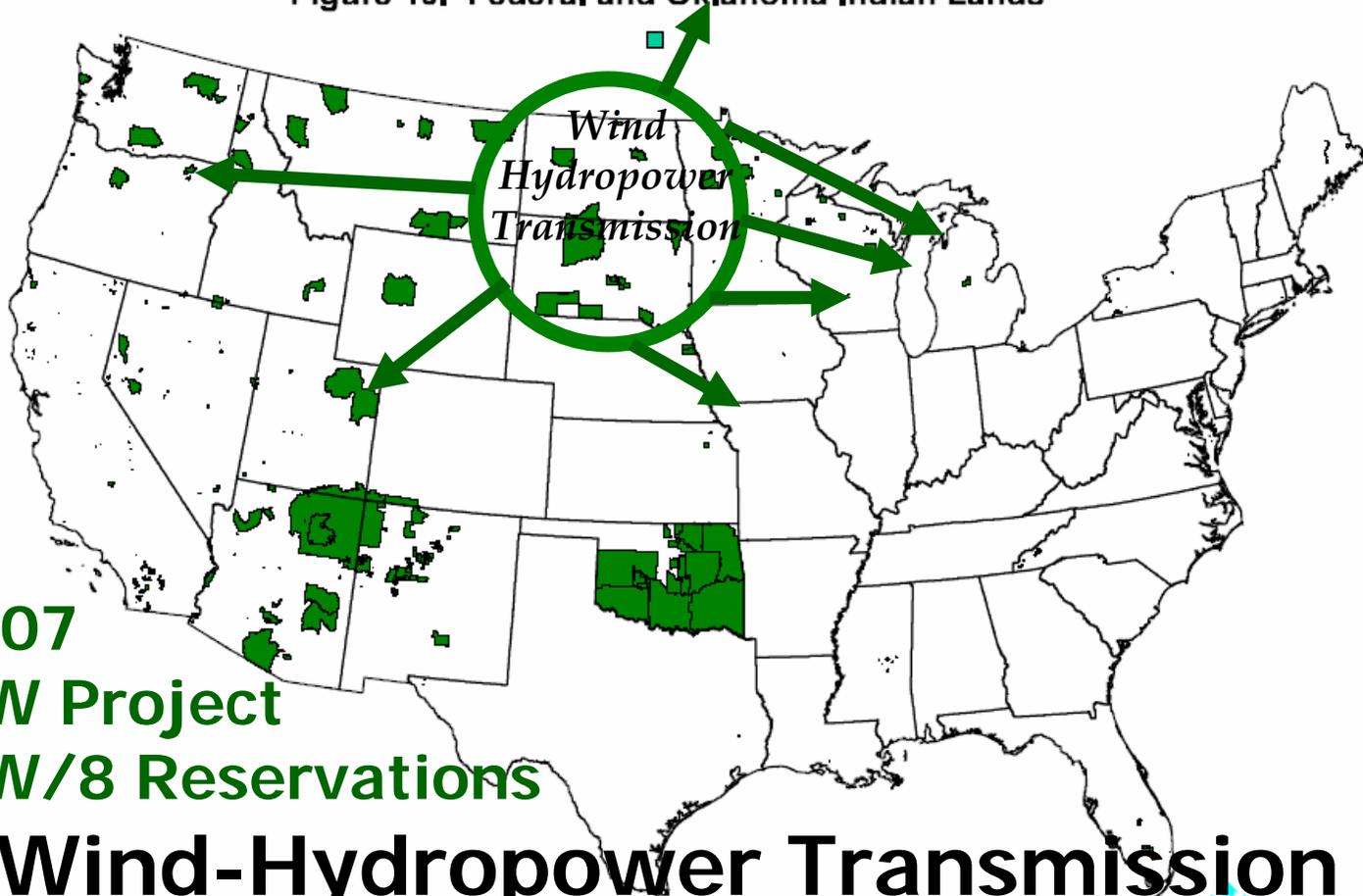
Expand and Replicate across the Northern Great Plains

Phase 5 (2006/15):

3,000 Tribal MW on Great Plains Reservations

Intertribal COUP Federal Demonstration Project

Figure 10. Federal and Oklahoma Indian Lands



By 2007
80 MW Project
10 MW/8 Reservations

Wind-Hydropower Transmission COUP Wind EJ Demonstration

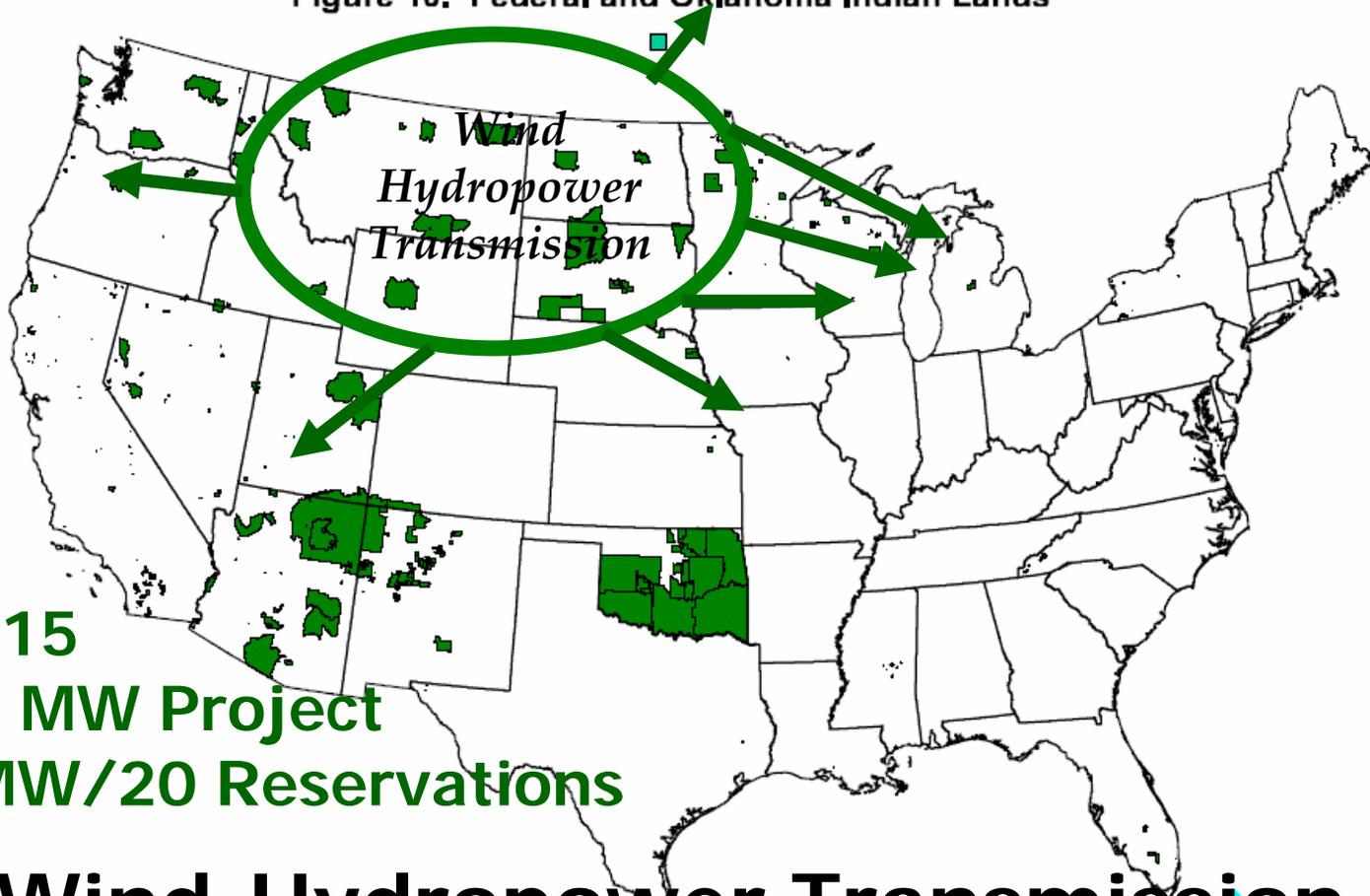
Federal and Oklahoma
Indian Lands



US Dept of Energy - National
Renewable Energy Laboratory

Intertribal COUP Extended Demonstration Project

Figure 10. Federal and Oklahoma Indian Lands



By 2015
3,000 MW Project
150 MW/20 Reservations

Wind-Hydropower Transmission

 Federal and Oklahoma Indian Lands

COUP Wind EJ Demonstration

US Dept of Energy - National Renewable Energy Laboratory

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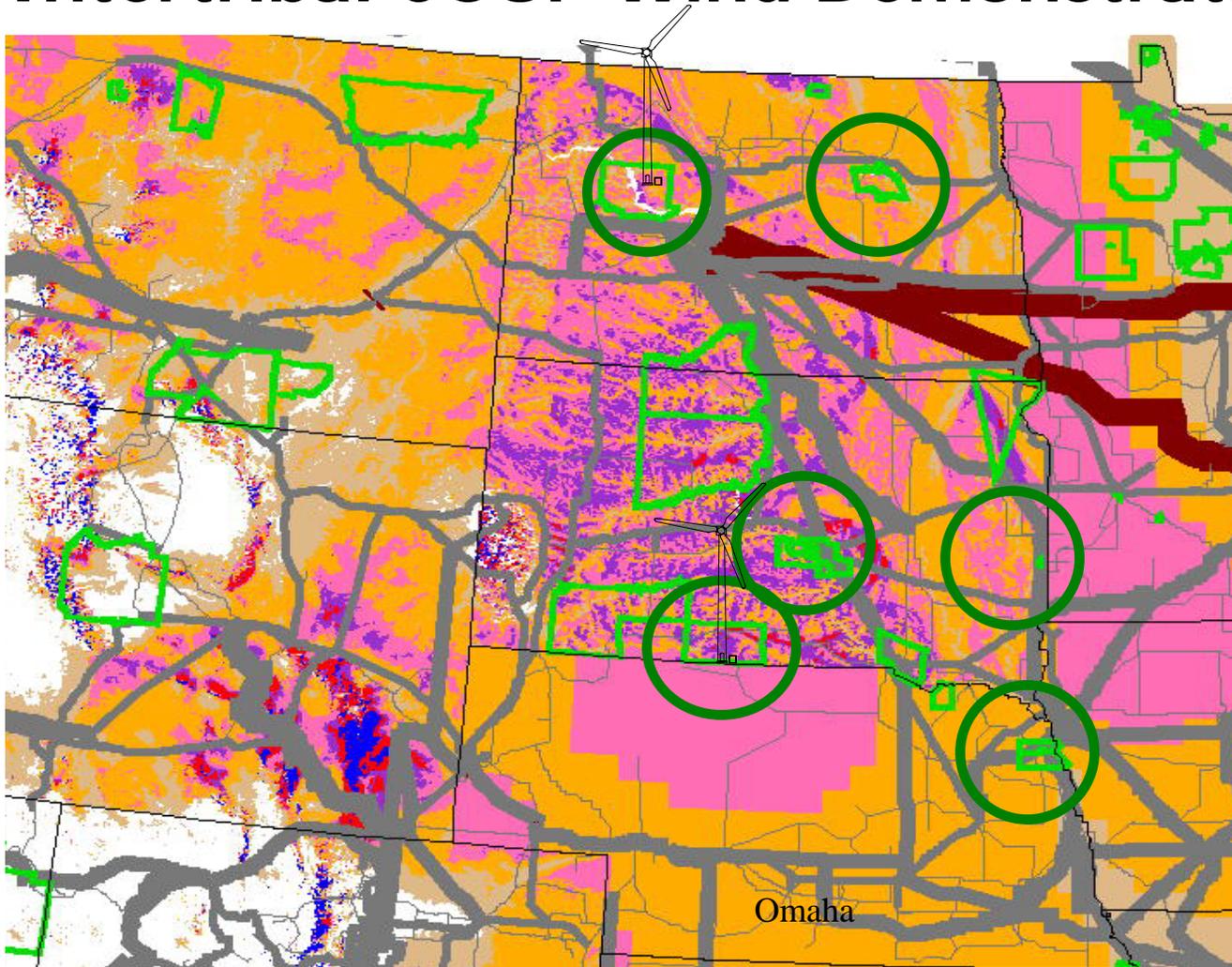
DOE TEP PROJECT STATUS October 23, 2006

80 MW INTERTRIBAL WIND PROJECT

Six (6) Tribes committed by Council resolution:

- Flandreau Santee Sioux Tribe
- Lower Brule Sioux Tribe
- Mandan, Hidatsa, and Arikara Tribes
- Omaha Tribe of Nebraska and Iowa
- Rosebud Sioux Tribe
- Spirit Lake Nation

Intertribal COUP Wind Demonstration Project



This tribally-owned, multi-MW intertribal project is to be built in at least 10 MW clusters on each of the COUP Reservations.

 Planned

INTERTRIBAL Council On Utility Policy

DOE TEP PROJECT STATUS October 23, 2006

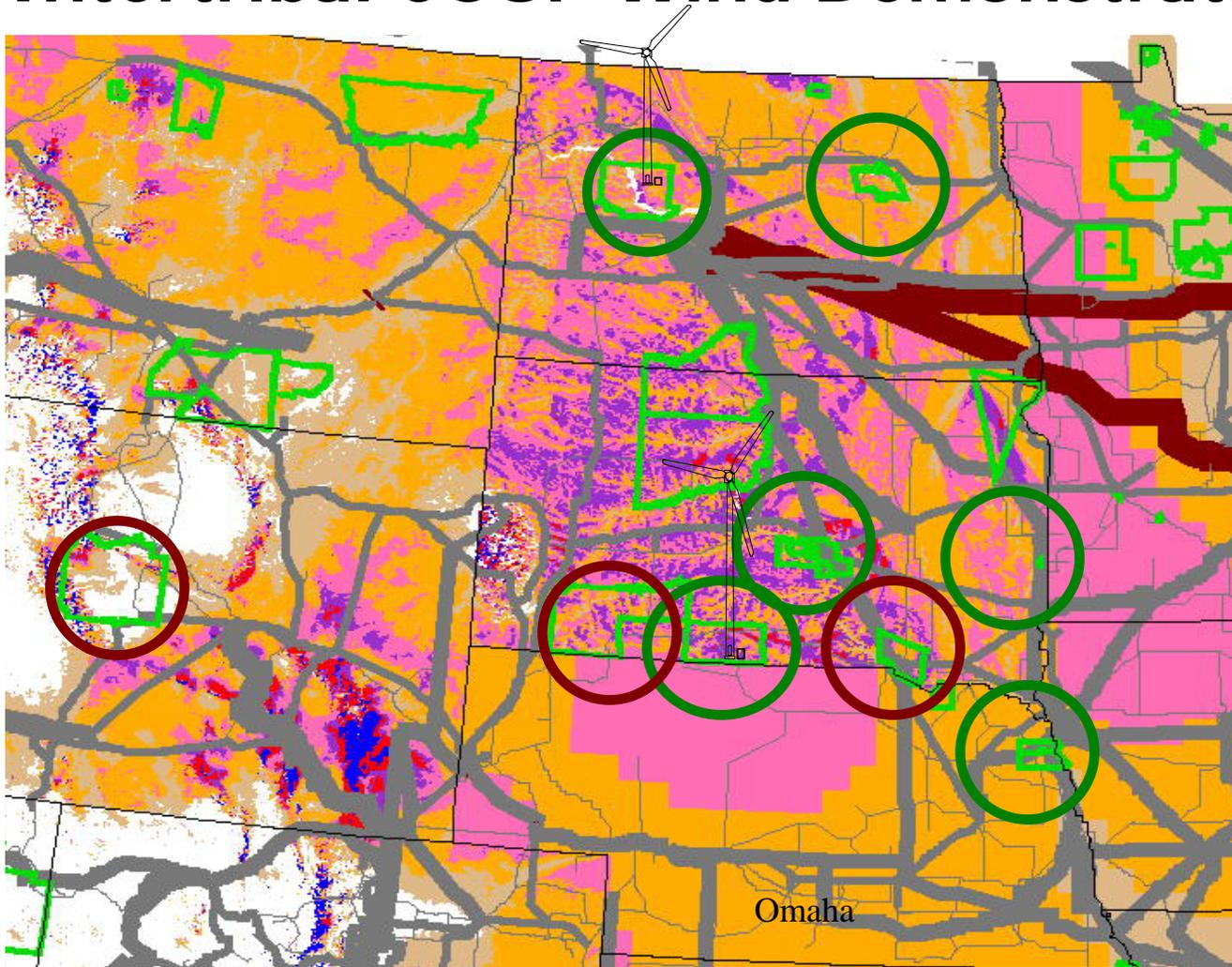
80 MW INTERTRIBAL WIND PROJECT

Three (3) Tribes recently joined Intertribal COUP

- Oglala Sioux Tribe
- Yankton Sioux Tribe
- Wind River Tribes:
Eastern Shoshone and Northern Arapaho

Project participation pending

Intertribal COUP Wind Demonstration Project



This tribally-owned, multi-MW intertribal project is to be built in 10 MW clusters on each of the participating COUP Reservations.

-  Planned
-  Pending

INTERTRIBAL Council On Utility Policy

DOE TEP PROJECT STATUS October 23, 2006

PROJECT DEVELOPMENT ACTIVITIES

Project Site Assessment:

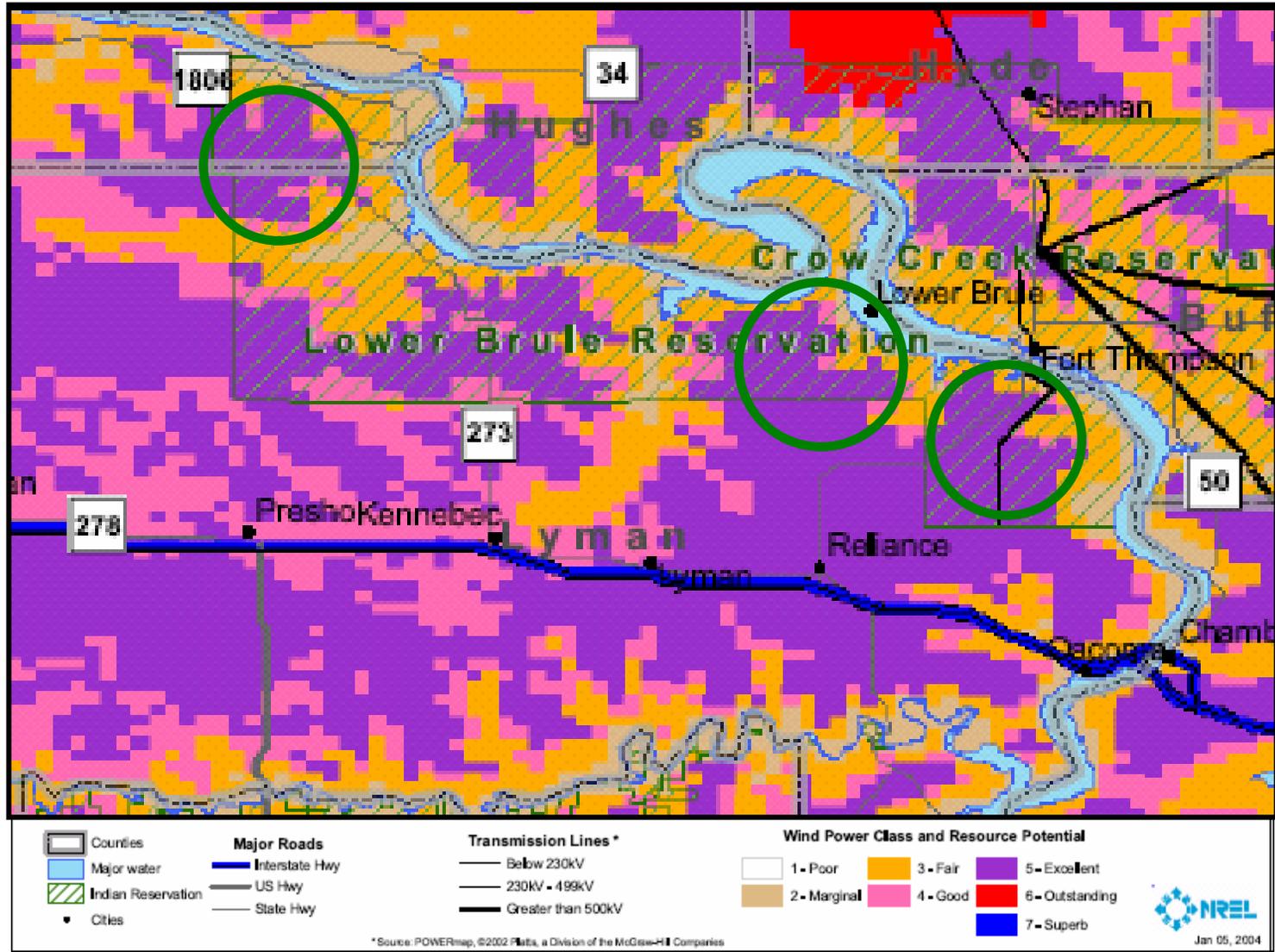
- Project sites have wind data collected and analyzed
- Six Tribes have 16 to 18 mph average daily wind speed
- Other three Tribes need data access or collection
- Project sites near WAPA, REC, MUNI or IOU substations

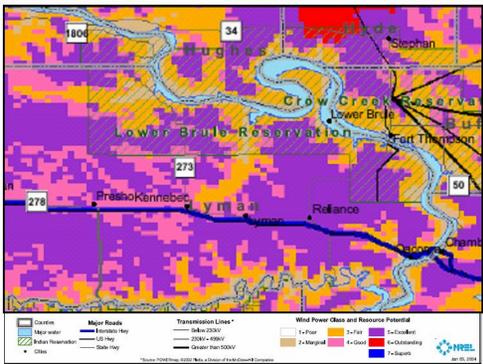
Interconnection for Wind onto Existing Grids:

- Dakota Wind Study
- Interconnection screening studies
- Interconnection studies

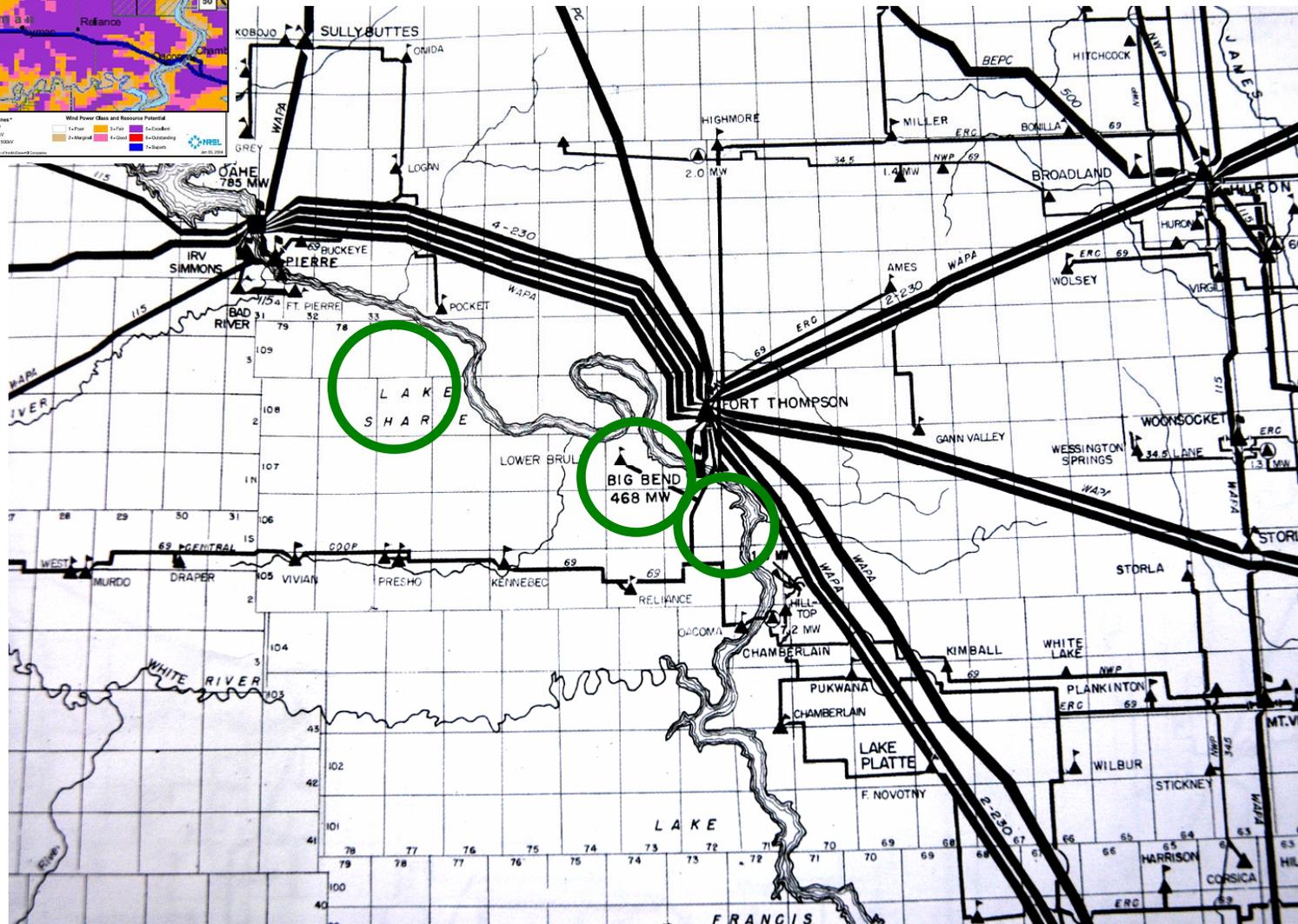


Lower Brule Sioux Tribe Lower Brule Reservation



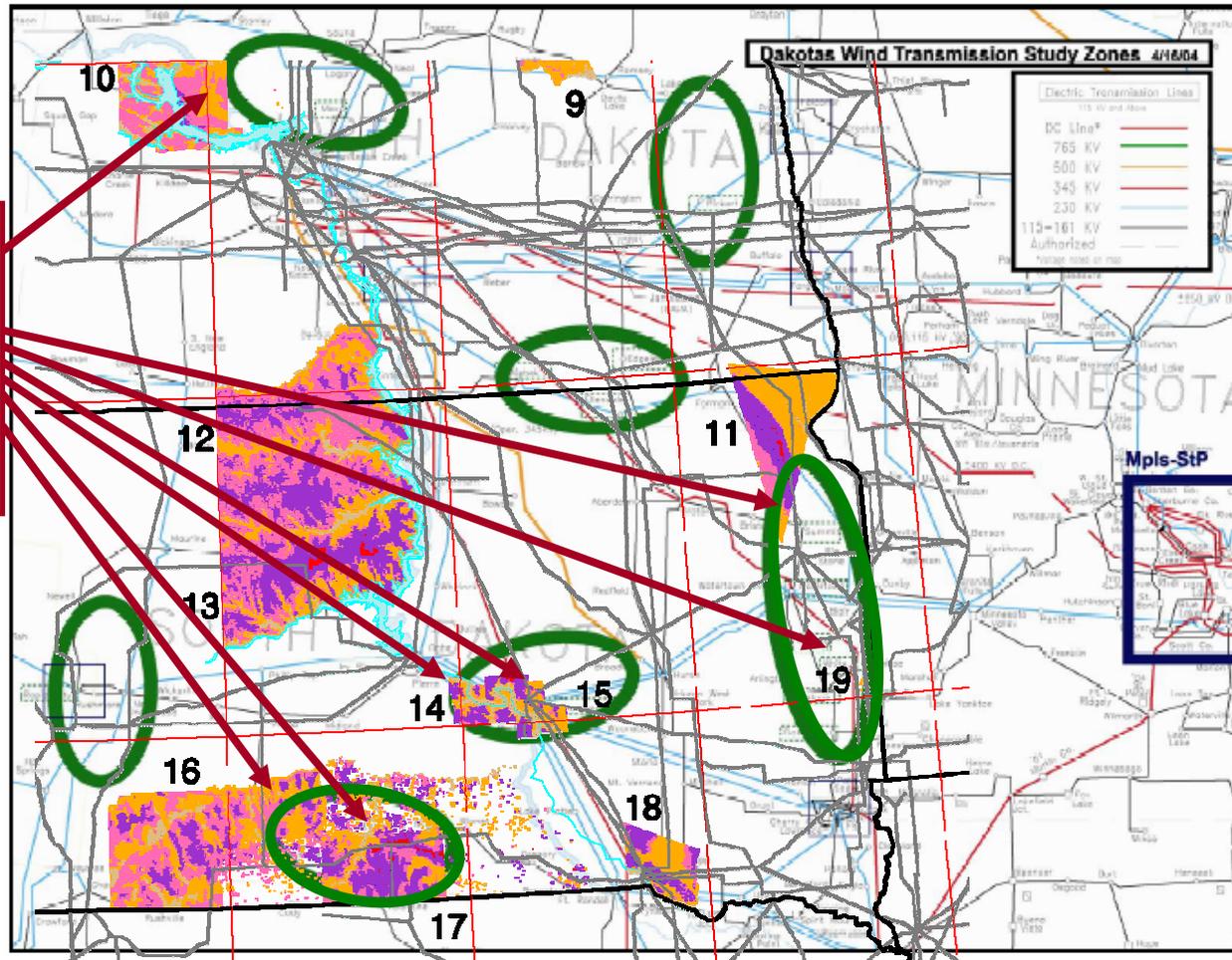


Lower Brule Sioux Tribe Wind Resources and Substations



WAPA / WIND INTEGRATION STUDY AREA

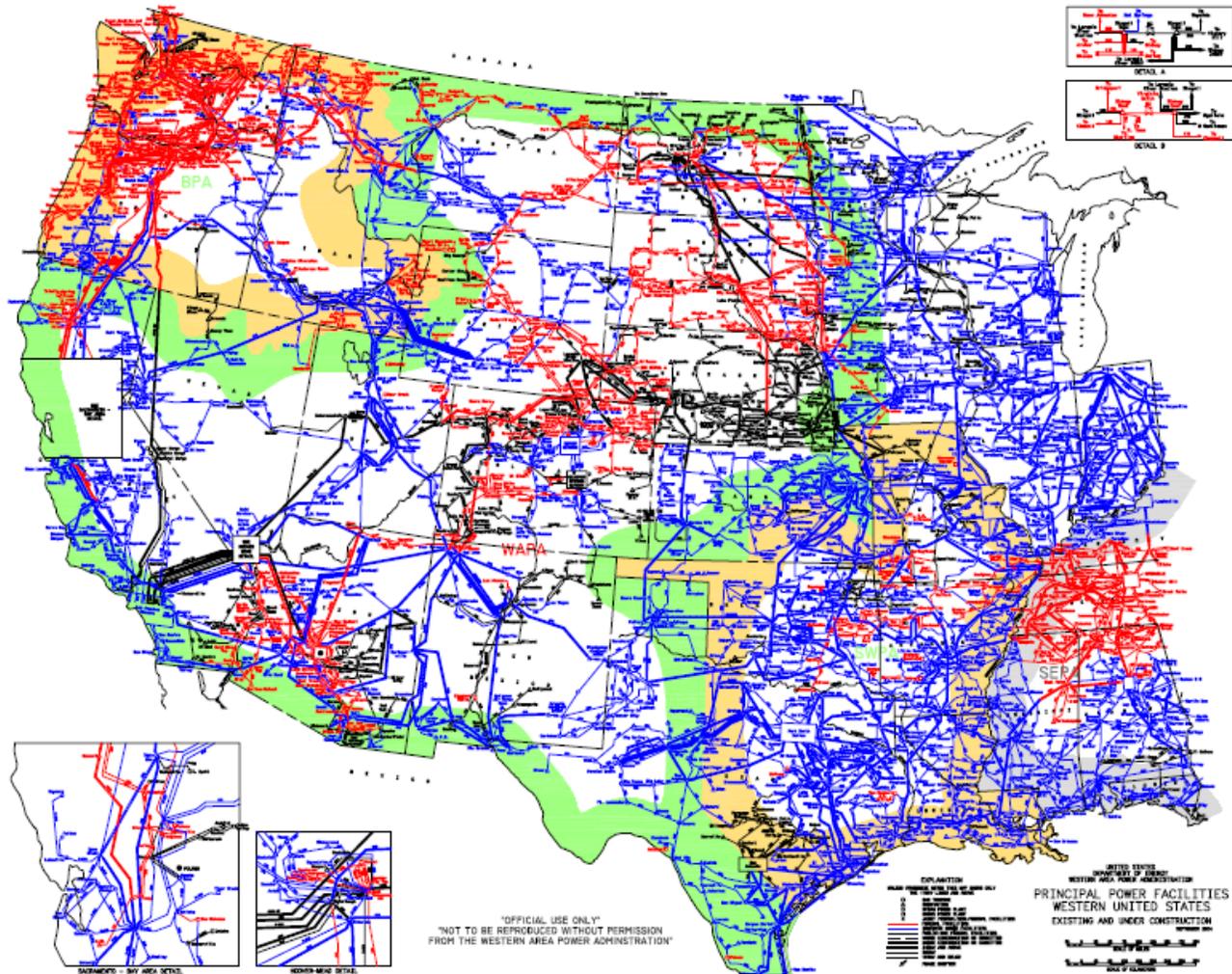
Includes Several Reservation Interconnection Sites



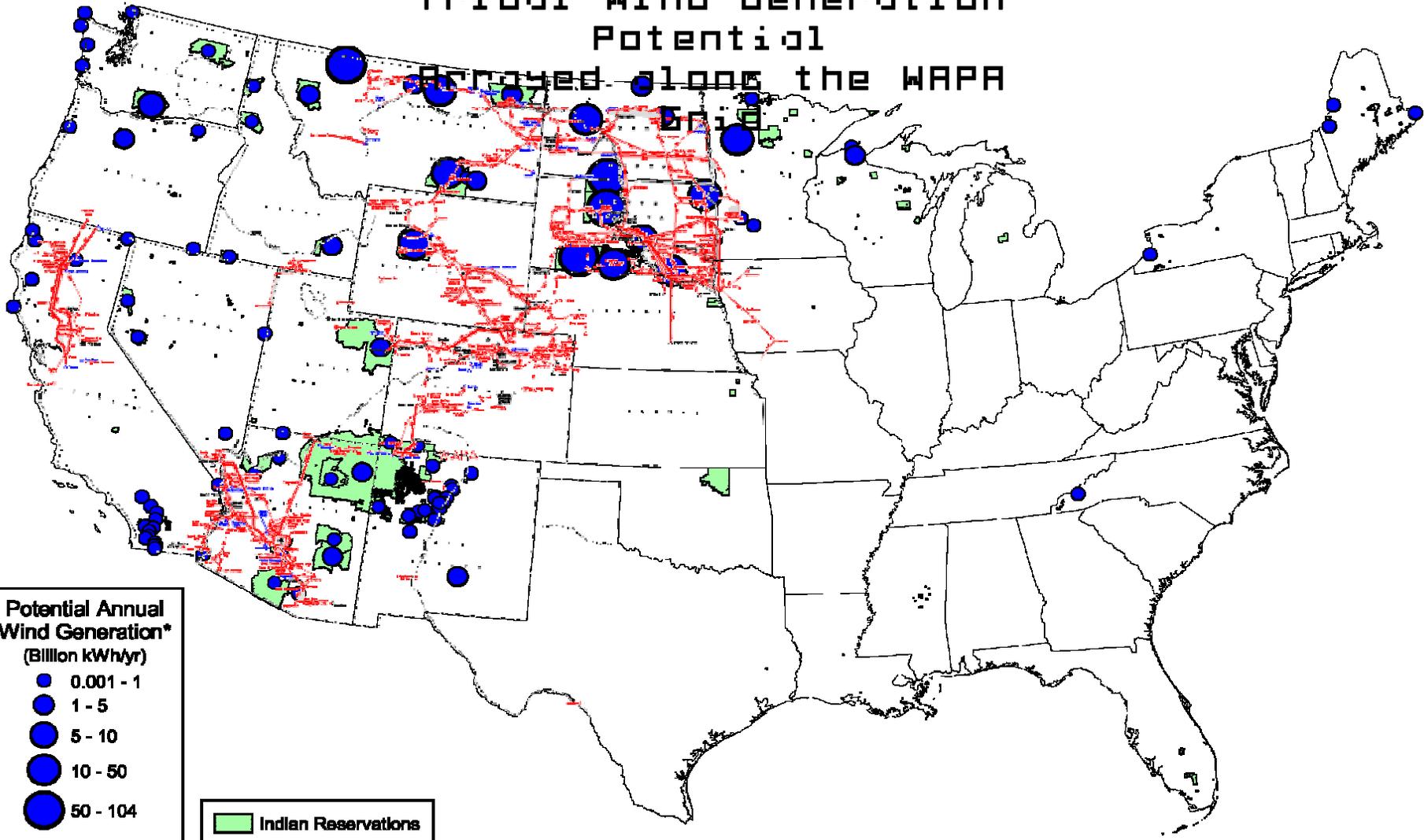
<http://www.wapa.gov/ugp/study/DakotasWind/Zone%20Map.pdf>



Principal Power Transmission Facilities



Tribal Wind Generation Potential Arrayed along the WAPA Grid



**Potential Annual
Wind Generation***
(Billion kWh/yr)

- 0.001 - 1
- 1 - 5
- 5 - 10
- 10 - 50
- 50 - 104

■ Indian Reservations

* Generation estimated for areas of class ≥ 4 annual average wind resource, assuming 5 MW/km² of installed capacity, and capacity factors ranging from 25.1% (class 4) to 41.4% (class 7).

Aggregate technical estimate of 209 GW does not account for sacred sites, transmission access, water bodies, or other factors that will significantly impact development potential.

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U.S. Department of Energy
National Renewable Energy Laboratory



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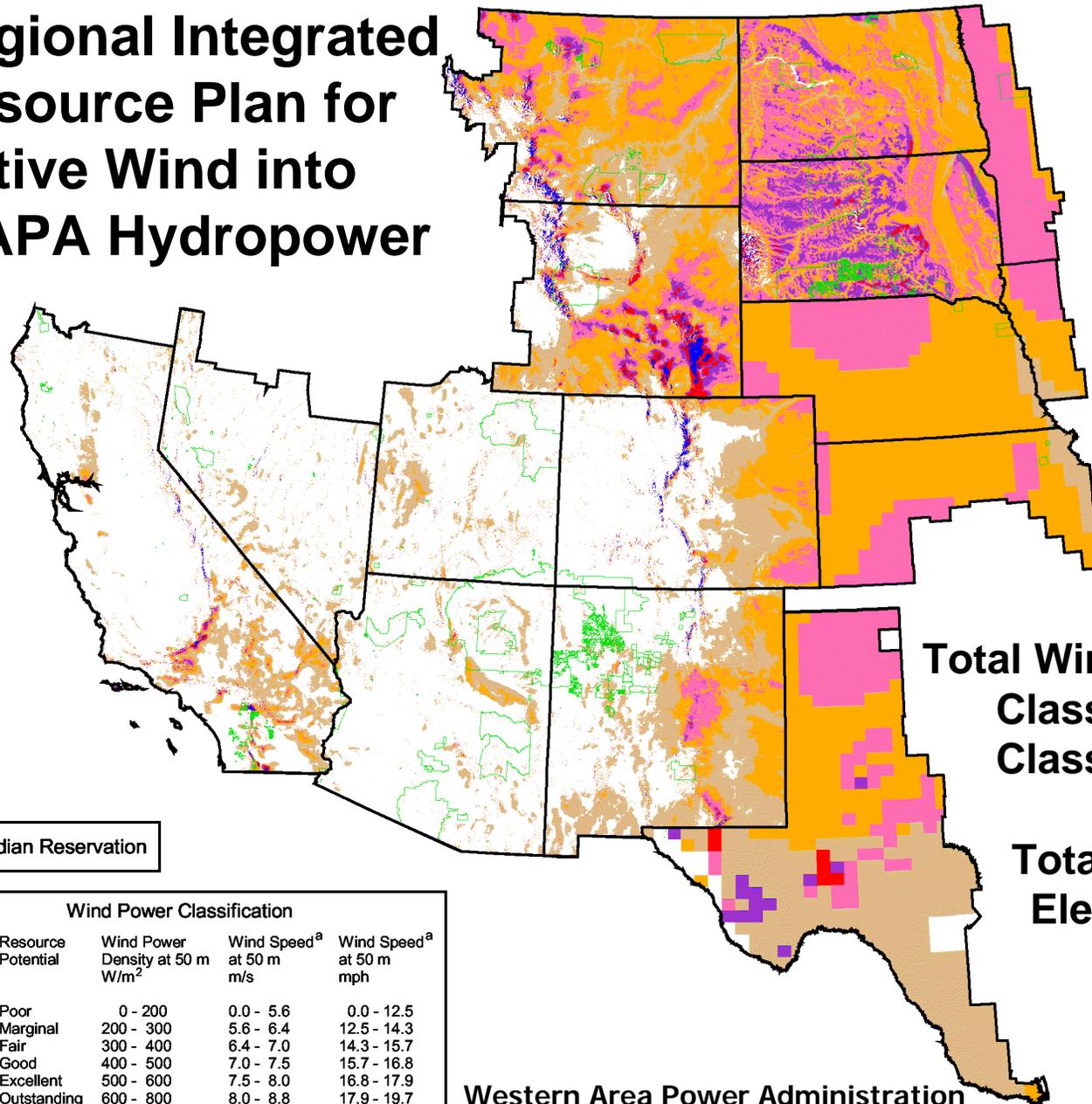
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PROJECT DEVELOPMENT ACTIVITIES

MARKET DEVELOPMENT

- Community wind on reservations
- RECs: Basin Electric or NPPD
- IOUs: Excel Energy, Otter Tail,
or Montana-Dakota Utilities
- Western Area Power Administration (WAPA)

Regional Integrated Resource Plan for Native Wind into WAPA Hydropower



Nine of the Top Ten Wind States in the U.S. are located in the WAPA Service Territory

WAPA's total hydro-power capacity is 17,474 MWs with 2,791 MWs UGPR

**Total Wind Power Potential:
Class 3+ 4,500 GWs
Class 4+ 2,000 GWs**

**Total U.S. Installed Electric Capacity
~ 800 GWs**

U.S. Department of Energy
National Renewable Energy Laboratory

Indian Reservation

Wind Power Classification

Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m ²	Wind Speed ^a at 50 m m/s	Wind Speed ^a at 50 m mph
1	Poor	0 - 200	0.0 - 5.6	0.0 - 12.5
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7

^aWind speeds are based on a Weibull k value of 2.0

**Western Area Power Administration
Wind Power Potential**

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Phase I Environmental Screening

Completed on 6 projects sites:

- Western Ecosystems Technology
- Negotiations with USFWS and BIA

Economic Modeling:

- Preliminary economic analysis initiated
- Overall economic model on wind data report completion

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DOE TEP PROJECT STATUS October 23, 2006

PROJECT DEVELOPMENT ACTIVITIES

Market Decisions

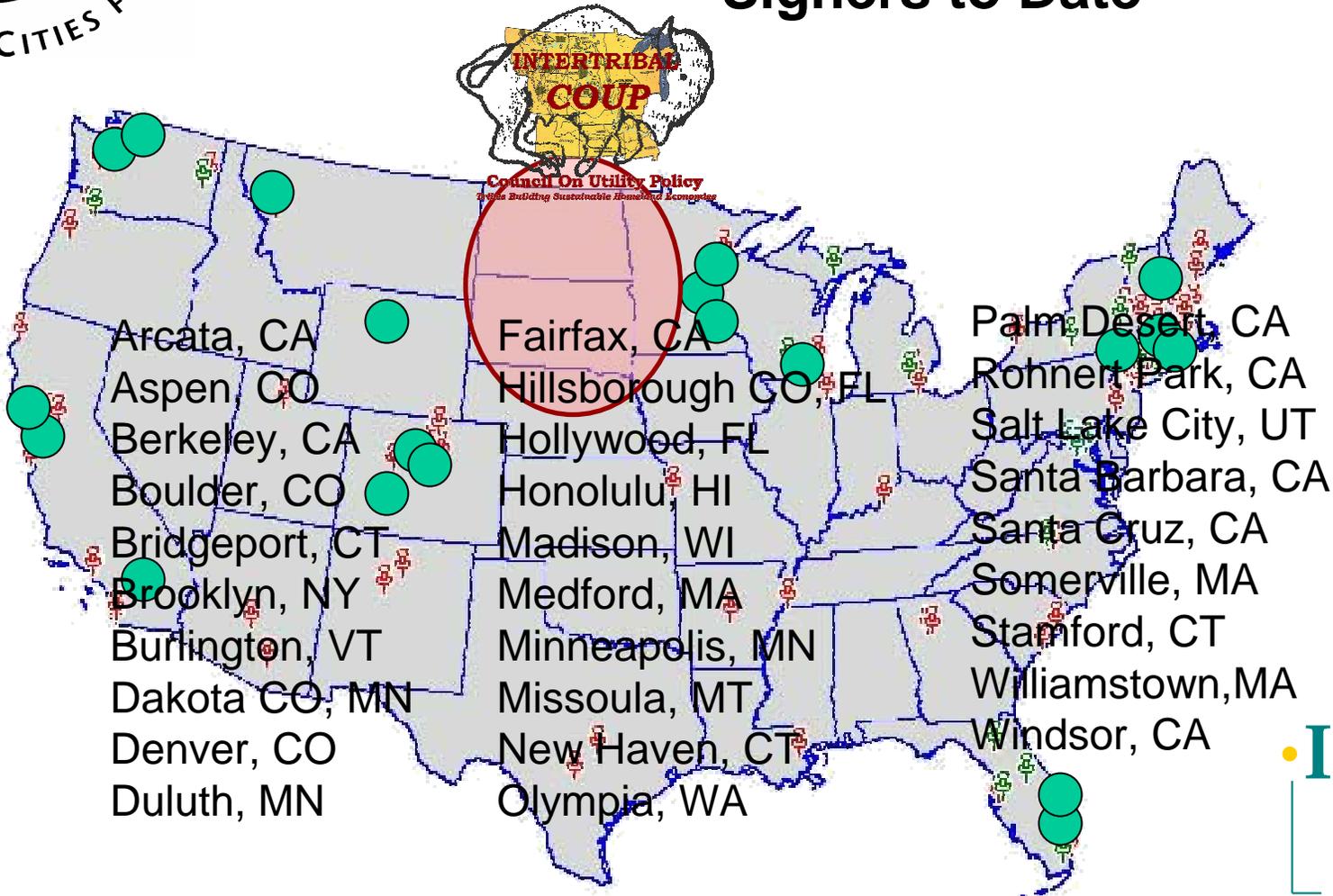
- Community wind projects with REC or IOU
- Private or WAPA project
- All of the above

New Markets

- Tribes and Cities Alliance
- NativeEnergy
- 25 x '25 Campaign

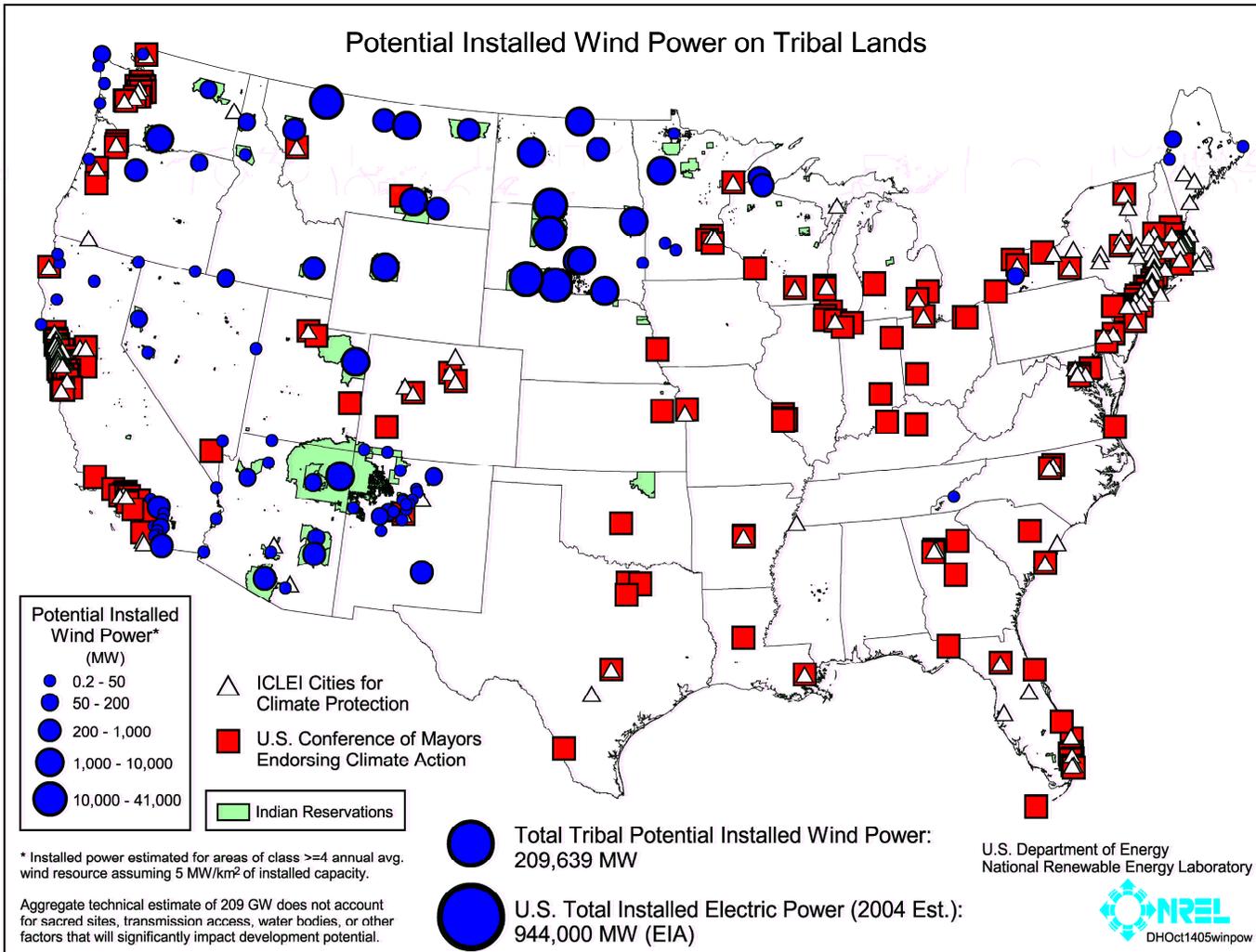


American Leadership Energy Independence Day.org Local Government/Tribal Partnership Signers to Date



COUP/ICLEI ~ Tribal City Partnership

ICLEI and U.S. Conference of Mayors



NATIVEWIND
ENERGY INDEPENDENCE
INTERTRIBAL COUP



NativeEnergy is now Native-Owned!



Intertribal COUP Executive Council and the founders of *NativeEnergy*

Intertribal COUP acquires majority stake in leading renewable energy marketer, on behalf of its member tribes.

Rosebud, SD and Charlotte, VT (August 16, 2005) – *NativeEnergy*, a leading national marketer of Renewable Energy Credits (RECs) and greenhouse gas offsets, and the nonprofit **Intertribal Council On Utility Policy** (COUP), announced today that COUP has acquired a majority interest in *NativeEnergy*...

www.NativeWind.org

Marketing Tribal Green Tags

Reaching out to the marketplace...

SHE JUST LOST 12 TONS SO CAN YOU!

Lose 12 tons of carbon dioxide emissions - the kind of greenhouse gases that cause global warming. Join thousands who are fighting back against climate change, the most important environmental issue of our time.

Become a WindBuilder™ member today. You'll help build the first Native American-owned large-scale wind turbine. You'll have the same impact on global warming as if you powered and heated your home entirely with wind energy for a whole year! Most homes use electricity made by burning coal, natural gas and oil, which causes more CO₂ emissions than any other industrial source.

The last ten years have been the warmest on record and it just keeps getting warmer. So what are you waiting for? The Timberland Co. isn't waiting. Neither is Co-op America or Ben & Jerry's. These agents of change and more have already become WindBuilders™ Business Partners and they've been joined by individual WindBuilders™ members all across the country. Now it's your turn.

Become a WindBuilder™ member now. It costs as little as 17 cents a day. Join us! You'll feel lighter than you have in years.

NativeEnergy
Bringing New Renewables To Market

Sign Up Now!
Go to [www.nativeenergy.com/123](http://www.nativeenergy.com/)
or call: 1-800-924-6826

*The average U.S. household is responsible for 12 tons of CO₂ emissions each year.

Photo by Carole Good Shanks

They know how to fight global warming... Do you?

Students at the Ho-Doig School on the Rosebud/Sioux Indian Reservation understand the benefits of renewable energy sources. By helping build new wind farms they will reduce consumption of fossil fuels, and keep tons of carbon dioxide emissions out of the air - the kind of greenhouse gases that cause global warming. Join thousands who are fighting back against climate change, the most important environmental issue of our time.

Become a WindBuilder™ member today. You'll help build the first Native American-owned large-scale wind turbine, which will be located on the Rosebud Reservation. You'll have the same impact on global warming as if you powered and heated your home entirely with wind energy for a whole year! Most homes use electricity made by burning coal, natural gas and oil, which causes more CO₂ emissions than any other industrial source.

Sign up today and reduce CO₂ emissions!
Go to www.nativeenergy.com/MoJo
or call: 1-800-924-6826

The last ten years have been the warmest on record and it just keeps getting warmer. So what are you waiting for? The Timberland Co. isn't waiting. Neither is Co-op America, Ben & Jerry's or Stonyfield Farm. These agents of change and more have already become WindBuilders™ Business Partners and they've been joined by individual WindBuilders™ members all across the country. Now it's your turn.

Become a WindBuilder™ member now. It costs as little as 17 cents a day. Join us today, and help protect your children's future!

NativeEnergy
Bringing New Renewables To Market

*The average U.S. household is responsible for 12 tons of CO₂ emissions each year.

The First Native American Wind Turbine Now Stands Tall...

You can help build the next!

Joining WindBuilders is fast, easy, and costs only pennies a day!

Take a meaningful step in the fight against global warming. With WindBuilders™ you'll help keep thousands of tons of global warming pollution out of the air.

Join our WindBuilders partners, including The Timberland Co., Ben & Jerry's, Dave Matthews Band, Stonyfield Farm, CFFBC, Shawnee Corporation, NEDC, MusiMatters, Co-op America, Clean Air-Cool Planet and many more businesses and individuals across the nation.

They all helped build the first Native American owned large scale wind turbine to fight global warming. You can help build the next.

NativeEnergy
Bringing New Renewables To Market

Take Action Today
by visiting:
www.nativeenergy.com/MoJo
or call: 1-800-924-6826

Photo by Bob Searcy. The first Native American owned large scale wind turbine now stands tall at the Rosebud Sioux Indian Reservation in South Dakota.

...fighting global warming!

NativeEnergy
Bringing New Renewables To Market

www.NativeEnergy.com



www.EnergyIndependenceDay.org

Intertribal Council On Utility Policy

Offset Now

[WindBuildersSM](#)

[Products & Services](#)

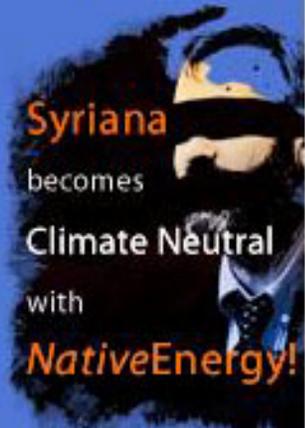
[CoolHomeSM](#)

[In The News](#)

[About Us](#)

[Privacy Promise](#)

[Carbon Calculator](#)



Syriana
becomes
Climate Neutral
with
NativeEnergy!



Welcome to **NativeEnergy!**

We're here to help you fight global warming and climate change. Take a few minutes to help build a new wind farm or a renewable farm methane project today, and enjoy a climate neutral lifestyle.

New Projects! *WindBuildersSM* helped build [MHA Nation Single Turbine Project](#), and *CoolHomeSM* helping build the [Schrack Family Dairy Farm Methane Project](#).

You'll be in good company – [see who's joined](#) us to fight global warming.

Give a special gift that saves a [ton of CO₂](#)

[Offset your Travel Today!](#)

**CREATING SUSTAINABLE
COMMUNITIES** JUNE 8-10
CLICK HERE FOR MORE



"Ben & Jerry's is excited to support the development of the Rosebud Wind Turbine. By working with *NativeEnergy* we are able to address our global warming impact and provide important social and environmental justice benefits to the Rosebud Sioux Tribe."

Andrea Asch,
Manager of Natural Resources
Ben & Jerry's Homemade

What are other leaders saying about NativeEnergy?

[Click here](#)



25 x '25 CAMPAIGN

A renewable energy vision for America.

WWW.25x25.org

"25x'25" is a rallying cry for renewable energy and a goal for America – to get 25 percent of our energy from renewable resources like wind, solar, and biofuels by the year 2025.

Increasing America's renewable energy use will:

- **Bring new technologies to market and save consumers money.**
- **Reduce our dependence on oil from the Middle East.**
- **Create good new jobs in rural America.**
- **Clean up the air and reduce urban smog and help slow increases in global warming.**



NATIVEWIND
ENERGY INDEPENDENCE
INTERTRIBAL COUP

NATIVEWIND

NATIVE WIND POWERING AMERICA

WWW.NATIVEWIND.ORG

American Indian Tribes in the nation's heart land are involved in an unprecedented effort to harness the inexhaustible wind resources of the Great Plains to generate renewable power.

Energy Independence Day Campaign:

- **Cities and Tribes Partnerships to Reduce CO2 Emissions**
- **Recharging the National Renewable Energy Grid (WAPA)**

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POLICY ISSUES

WIND DEVELOPMENT

- REC, IOU, MUNI demand and firm energy charges
- Wheeling rates for WAPA and all utilities
- Production Tax Credit
- RUS loans for wind projects outside rural area and beneficiaries
- WAPA supplemental power purchases
- Western Governors' CDEAC Goals for 30,000 MWs of clean power by 2015

Clean Energy, a Strong Economy and a Healthy Environment

Report of the Clean and Diversified Energy Advisory Committee
to the Western Governors

Western Governors' Association - June, 2006



Renewable technologies can often be combined to increase reliability and output. Photo Courtesy NREL/Pix - Warren Gretz

► Renewable Energy

- Extend the long-term (10 years) production tax credit and investment tax credit across all clean energy technologies; provide for partnership sharing of tax credits for certain entities, such as tribes; extend and raise the cap on new clean energy bonding authority for nonprofits (public power) and Native American tribal authorities; and raise the cap on the residential investment tax credit to \$10,000.
- Provide long-term (10 years), adequate funding for energy efficiency and clean generation and storage technology RD&D, Energy Star programs, state-based clean energy initiatives.

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POLICY ISSUES

BUSINESS DEVELOPMENT

- Tribal Utility Authority
- Intertribal Wind Corporation
- NativeEnergy

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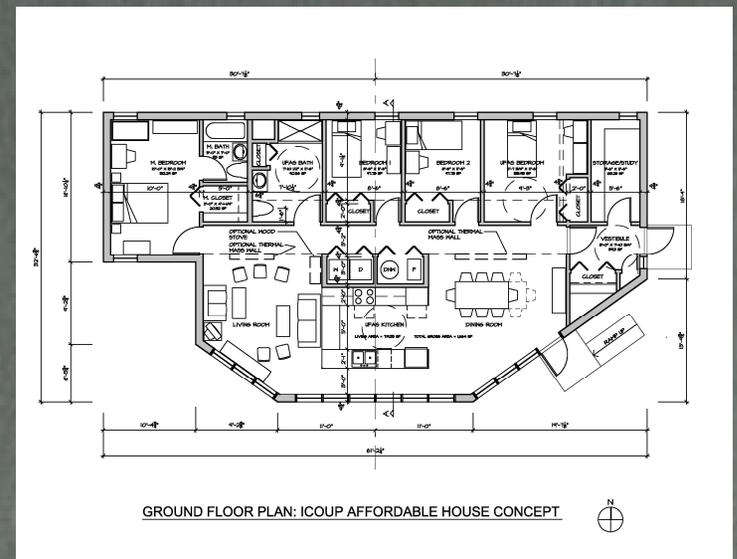
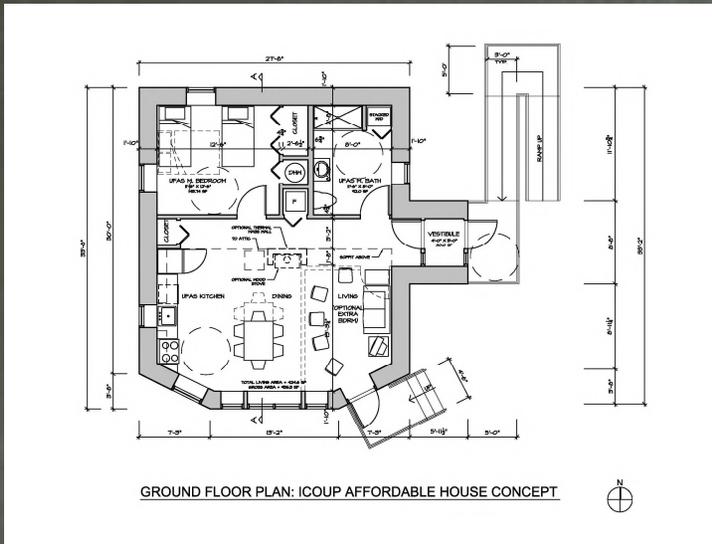
DOE TEP PROJECT STATUS October 23, 2006

EE Housing Designs

- Team of Architects, Designers, and Energy Experts
- Tribal Team
- Stick Built and Straw Bales Designs
- Housing Programs:
 - Under cost caps for HUD, BIA, Veterans
 - 1 BR, 2 BR, and 4 BR houses

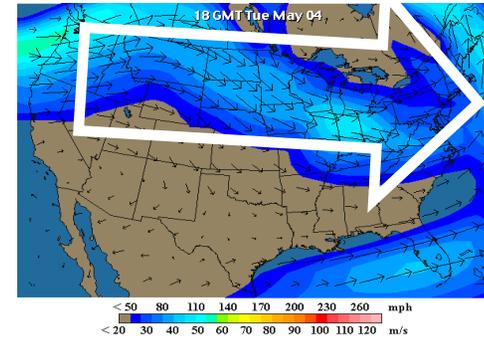
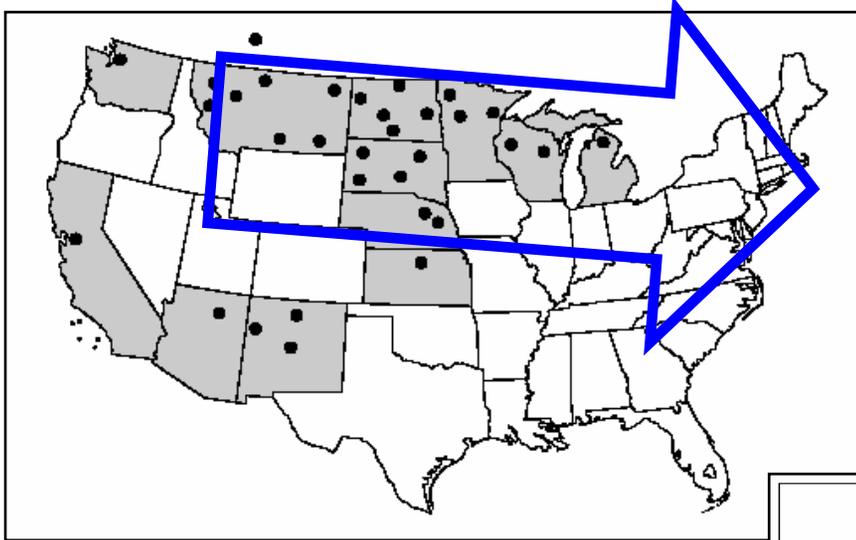
INTEGRATED ENERGY PLAN (IRP)

- WAPA requirement
- Develop model IRP



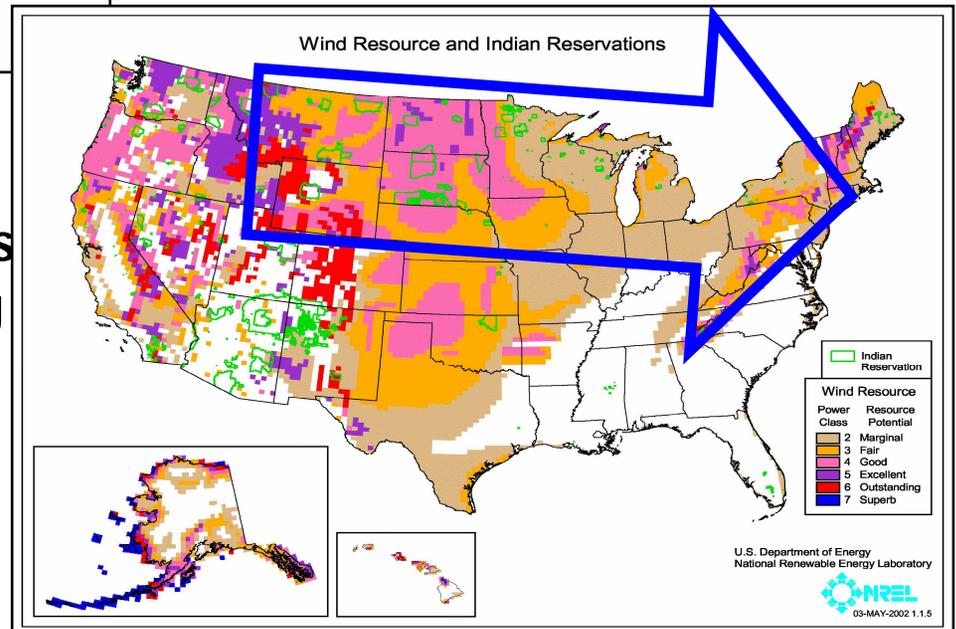
- Improvement from enhanced Fort Totten house to strawbale 1 bedroom VA house is 38% reduction in heating demand
- Wall section of strawbales provides $R = 43.5$, with ceiling at $R = 40$, crawlspace $R = 23.7$, and the good windows at $R = 3.9$, a conservative furnace efficiency at 85%, with a lowered leakage with infiltration at 14.3 sq. in.
- Strawbale construction approximately same construction costs as conventional 2 x 6 framing, thus this construction type preferred for small families or singles

Tribal Colleges and Wind Resources



Prevailing Windshed

- Climate/Natural Resource monitoring training/projects
- Meteorological Data Centers
- Wind Development Training courses for Reservation job creation and employment
- Wind Forecasting along the Windshed for value-add firm power sales into the market





Intertribal COUP Tribes Participate in WEATS and AWEA Conferences



**CONCLAVE OF U.S.
MAYORS AND NATIVE
LEADERS:**

Tuesday, Nov. 15

**NATIVE
RENEWABLES
ENERGY SUMMIT:
SOLUTIONS FOR
TRIBES AND CITIES**

Wed-Thur, Nov. 16-17

Denver, Colorado

WWW.NATIVEWIND.ORG

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PROJECT DEVELOPMENT

Environmental Studies: Avian and other flora/fauna impact

Interconnection Studies

Each site and overall grid system impact

Market negotiations

Policy development

Intertribal Corporation Business Structure

IWC Economic Model

Project Financing

IWP Expansion with other Tribes

NativeWind ... The Coming Generation!



Intertribal COUP Public Service Announcement