

**U.S. Department of Energy
Electricity Advisory Committee Meeting
March 10, 2011**

Meeting Minutes

EAC Members in Attendance:

Richard Cowart

Regulatory Assistance Project

CHAIR

Honorable Lauren Azar

Wisconsin Public Utilities Commission

VICE CHAIR

Guido Bartels

IBM

Rick Bowen

Alcoa

Frederick Butler

Butler Advisory Services

Honorable Robert Curry

New York State Public Service Commission

Jose Delgado

American Transmission Company (Ret.)

Robert Gramlich

American Wind Energy Association

Dian Grueneich

Morrison and Forester LLP

Michael Heyeck

American Electric Power

Joseph Kelliher

NextEra Energy, Inc.

Edward Krapels

Anbaric Holdings

David Mohre (Representing EAC Member Barry Lawson)

National Rural Electric Cooperative Association

Ralph Masiello

KEMA

David Nevius

North American Electric Reliability Corporation

Irwin Popowsky

Pennsylvania Consumer Advocate

Wanda Reder

S&C Electric Company

Brad Roberts

Electricity Storage Association

Honorable Tom Sloan

Kansas House of Representatives

Richard Vague

Energy Plus Holdings, LLC

Gordon van Welie

Independent System Operator of New England

Mike Weedall

Bonneville Energy Administration

Brian Wynne

Electric Drive Transportation Association

EAC Members Not in Attendance

Ralph Cavanagh

Natural Resources Defense Council

Lisa Crutchfield

National Grid USA

Roger Duncan

Austin Energy (Ret.)

Barry Lawson

National Rural Electric Cooperative Association

Barry Smitherman

Public Utility Commission of Texas

Public Attendees

Michele Tihami

IBM

John Howes

Redland Energy Group

Eric Addsworth

Edison Electric Institute

Larry Camm

Schweitzer Bergier

Charlotte Schidmore

(No affiliation listed)

Matt Hourihem

Information Technology and Innovation
Foundation

Press Attendees

Jason Fordney

Platts

U.S. Department of Energy Attendees

Honorable Steven Koonin

Under Secretary of Science

Honorable Patricia Hoffman

Assistant Secretary for Electricity Delivery and
Energy Reliability

David Meyer

Office of Electricity Delivery and Energy
Reliability

Joe Paladino

Office of Electricity Delivery and Energy
Reliability

John Schnagl

Office of Electricity Delivery and Energy
Reliability

Larry Mansueti

Office of Electricity Delivery and Energy
Reliability

Kerry Cheung

DOE, AAAS Fellow

Caitin Callaghan

DOE, AAAS Fellow

Energetics, Inc. Attendees

Peggy Welsh

Director, Electricity Program

Cami Dodge

Energy Policy Analyst

Natalie Kempkey

Energy Policy Analyst

Katie Shay

Analyst

Welcome and Opening Remarks

The Honorable Patricia Hoffman, Assistant Secretary for Electricity Delivery and Energy Reliability, U.S. Department of Energy (DOE), opened the meeting by thanking everyone for attending and extending her appreciation for everyone's willingness to participate. *Assistant Secretary Hoffman's* comments were echoed by *Richard Cowart*, Chairman of the DOE Electricity Advisory Committee (EAC).

After EAC members introduced themselves, *Mr. Cowart* outlined the agenda for the meeting, which was to develop the EAC's work plans for the next eight months. *Mr. Cowart* explained that future meetings would focus on deliverables produced by the EAC Subcommittees and to hear presentations from DOE and the DOE National Laboratories.

Energy Storage Technologies Subcommittee

Ralph Masiello, Chairman of the EAC Energy Storage Technologies Subcommittee, presented the Draft Energy Storage Policy Questions document developed by the Subcommittee for the EAC's consideration and approval. The draft document contains policy questions which address issues on assistance in shouldering the costs and risks associated with energy storage research and/or demonstration projects; the need for a DOE policy or program that is directed specifically to utility distribution; policy guidance needed from DOE on the classification and treatment of energy storage resources; and better definitions of the products that energy storage technologies provide.

Following *Mr. Masiello's* presentation, the floor was opened for EAC members to express their views on the draft document. The discussion is summarized by topic below.

Need for Major Study on Energy Storage Technologies

Gordon van Welie said that energy storage is a valuable technology and that the application of it is evolving. He emphasized the need to be clear about the various definitions of energy storage and questioned what is needed from energy storage to keep the electric grid reliable. He stated that the Independent System Operator of New England (ISO-NE) report concluded that the opportunity for energy storage is minimal and that price differentials are suppressed for large scale wind integration. He questioned how to make the economic case for large scale energy storage. *Mr. van Welie* offered to circulate the study ISO-NE completed with General Electric and others regarding large-scale wind that addressed the issue of deployment of large scale storage. He restated his concern about the economic case for energy storage, noting that wind energy struggles to compete with low-cost natural gas.

Brad Roberts asked *Mr. van Welie* about the percentage of offshore wind that was studied for the NE-ISO report, commenting that offshore wind is expensive and drives up the price for energy storage. *Mr. van Welie* responded that the ISO-NE report examined both onshore and offshore wind. *Assistant Secretary Hoffman* inquired if there were similar studies by other RTOs similar to the ISO-NE study.

David Nevius wondered if it would be useful for the EAC to review the need for gas storage for electric reliability. In response, *Mr. Cowart* asked if this point should be an issue for the EAC to examine in a way that delivers recommendations to DOE.

Mr. Roberts emphasized the need for a major study on energy storage. He suggested that Renewable Portfolio Standards (RSP) cannot be achieved without energy storage. He also stated that energy storage is not trying to compete with other forms of energy on the system and that it would be a huge success if 10% of capacity could be achieved by 2020.

Wanda Reder suggested that it does not matter where energy storage is located and that classifying benefit streams in studies would be helpful.

Dian Grueneich suggested that in order to spend money wisely, there is a need to understand existing energy storage projects. She argued that there is a need to combine all the information being collected under the American Recovery and Reinvestment Act (ARRA) and other information on energy storage project that exists outside of ARRA. She further suggested that such an effort will achieve an understanding of who is collecting the information, how it is being collected, and if it could answer any of the questions in the Energy Storage Technologies Subcommittee's policy document.

Mr. Masiello suggested a report with recommendations on energy storage be disseminated to regulators. He suggested that it would be good for DOE labs to work with for-profit entities.

Need for DOE Research and Development of Energy Storage Technologies

Mike Heyeck believed that the energy storage technology focus for DOE should be on technology development, getting the prices down and he argued that it is too early to classify energy storage. He further expressed the need to reduce impediments at the wholesale market as that will reduce the cost of energy storage. *Mr. Heyeck* agreed that there is a need to demonstrate new energy storage technologies.

Ed Krapels indicated that as a developer, in his opinion, the on/off peak spread is non-existent. But, he acknowledged that the peak shaving service that storage provides is important, particularly in urban applications. He also noted that storage is very important to demand response.

Jose Delgado expressed worry that storage is not economic and that the industry will lose interest in the technology if results from the ARRA-funded storage projects do not produce results quickly. He encouraged the DOE to publicize the economics, costs, and benefits of the ARRA projects as soon as possible.

Mr. Cowart suggested DOE help regulators understand the options they have with regard to energy storage. Current models do not show how to deal with storage. DOE labs could look into improving modeling with storage and share their conclusions.

Role of the States in Energy Storage Technologies

Commissioner Robert Curry offered to coordinate with his staff on starting a dialogue in New York to address energy storage technology questions. He suggested that state government may have more flexibility to address such issues.

Representative Tom Sloan argued that there is no need for further storage demonstration projects, but questioned how energy storage would be handled in a regulatory environment. He encouraged the EAC to provide a definition of the role of energy storage.

Commissioner Lauren Azar agreed that states need to focus on energy storage technologies, but regulators do not know how to classify storage. She said that electricity stakeholders are still attempting to understand what energy storage can provide and there is a lack of existing models that have the ability to model energy storage. *Commissioner Azar* suggested it would be good to bring energy storage to the attention of modelers.

Suggestions on What the EAC Energy Storage Technologies Subcommittee Should Address

Fred Butler commented that wind energy on the electric grid depresses the price during the day, which is a problem for energy storage. He questioned if the EAC should examine current grid demand curves rather than looking ten years ahead. *Mr. Butler* suggested that the EAC could possibly address how the grid will operate in twenty years with high penetration of electric vehicles and what role energy storage would play in that scenario.

Mr. Cowart agreed that state regulators do not know how to handle energy storage and suggested that the EAC recommend that DOE commission a study to assist states on this issue. He also suggested that the concept of “storage” should extend to the storage of energy in end-use applications, such as thermal storage in hot water, heating and cooling applications, and the smart charging of vehicles. He recommended that this topic also issue be included in the Energy Storage Subcommittee’s report to the DOE. Finally, he suggested that a report from PNNL be circulated to the EAC.

Mr. Masiello recapped the discussion:

- Regulators need information, particularly on how to categorize storage and remove barriers to its deployment;
- EAC should address gas storage; and
- There is a need for R&D cost/benefit analysis on energy storage and the linkage from results of ARRA-funded projects.

ACTION ITEM:

The EAC agreed unanimously by voice vote to approve the Energy Storage Technologies Subcommittee Policy Questions Report. On behalf of the EAC, *Mr. Masiello* will work with Energetics to incorporate the suggested changes to the Report, put it in the correct format, and send it to DOE. The EAC may address other issues raised during the discussion on energy storage technologies in future deliverables.

Energy Storage Technologies Activities Report

Mr. Roberts presented the draft Energy Storage Technologies Activities Report to the EAC. The Report outlines the status of activities in the United States of various energy storage technologies, including a

status report on ARRA-funded projects. The purpose of the Report is to publish an outline of energy storage technology development and progress.

ACTION ITEM:

The EAC approved unanimously by voice vote the Energy Storage Technologies Activities Report. *Mr. Masiello* will work with Energetics to finalize the Report and post it on the EAC website.

Smart Grid Subcommittee

Mr. Butler reported that the EAC Smart Grid Subcommittee held one conference call on February 25, 2011 to initially discuss its annual work plan and to hear a presentation by Joe Paladino, Senior Advisor in the DOE Office of Electricity Delivery and Energy Reliability, on the build and impact metrics analysis that DOE is conducting on the ARRA Smart Grid projects.

Joe Paladino, Senior Advisor, DOE Office of Electricity Delivery and Energy Reliability

Mr. Butler introduced *Mr. Paladino*, who presented an abbreviated version of his presentation to the EAC. *Mr. Paladino's* presentation slides can be found on the EAC webpage at: <http://energy.gov/oe/downloads/metrics-and-benefits-analysis-arra-smart-grid-programs>

Mr. Paladino provided a status update on the DOE's metrics and benefits analysis of the ARRA-funded DOE projects, which addresses 141 smart grid projects and 16 energy storage projects. He emphasized that DOE's approach to this analysis is technology neutral; therefore DOE can empirically assess the benefits of the smart grid technologies being deployed by the ARRA-funded projects and measure their impacts on improved grid performance.

Computational Analysis

Mr. Paladino reported that to analyze the benefits and impacts of ARRA-funded smart grid projects, DOE has used as its computational tool an analytical methodology developed by the Electric Power Research Institute (EPRI). As part of its analysis, DOE will examine the build and impact costs and benefits of ARRA projects at the project-specific level and at the aggregated level. *Mr. Paladino* described the algorithm used to map Smart Grid assets to functions. He indicated that DOE will measure overall system efficiency program results. Key components of the DOE analysis include job creation statistics, asset investments and build metrics, baseline performance, and performance and impact metrics.

Consumer Behavior Studies

Mr. Paladino discussed the consumer behavior studies that DOE is conducting with a subset of the ARRA-funded smart grid projects to analyze consumers' acceptance of dynamic pricing, implementation of consumer technologies and other consumer-focused benefits. Focus groups meet regularly to discuss progress on the consumer behavior projects.

Stakeholder Outreach

Another important aspect of DOE's benefits and impacts analysis is its outreach to affected parties. *Mr. Paladino* outlined the DOE effort to work closely with stakeholders and the strategic outreach effort with various trade associations and other groups that has taken place.

Request for EAC Input on DOE Smart Grid Project Analysis

At the closing of his presentation, *Mr. Paladino* requested that the EAC comment on the DOE's impacts and benefits analysis work on ARRA-funded smart grid projects. He offered the following questions for the EAC's consideration:

- Is the DOE analytical approach sound?
- What should the objectives or stakeholder strategies be?
- How should DOE convey the progress and impact of ARRA programs?
- What should DOE's communication strategy be?
- How should DOE integrate the ARRA programs with its base corporate R & D program?

Questions and Answers Regarding Mr. Paladino's Presentation

Defining Smart Grid Technologies

David Nevius indicated that synchrophaser applications will be a major issue for bulk power. He inquired whether capacitor controls and phase shifters should be considered smart grid assets. He said better voltage control provides greater benefits to the smart grid than the level of benefits *Mr. Paladino's* presentation suggested. *Mr. Paladino* answered that the deployment of sensors on the system provides system operators with the ability to make better real-time decisions, helps to deploy more technologies and communications systems and increases advanced information available to operators. He acknowledged that lots of technology under smart grid is "off the shelf" technology, but the DOE efforts will help deploy more needed technology.

Commissioner Azar expressed caution with the concept of smart grid, arguing that utilities do not use the term. She indicated that state utility regulators would be more comfortable with smart grid if the discussion were put in terms of specific technologies, with an understanding of how much can be saved through deployment of smart grid technologies.

Mr. Heyeck said that phaser measurement units (PMUs) provide important data, but they must be secure from cyber attack. On the customer side, he argued that all customers really want is no power outages.

Richard Vague expressed the need to reduce impediments to innovation, adding that rapid innovation cannot occur under the currently existing structure.

Mr. Cowart complimented the DOE for its well-structured analysis of the ARRA-funded smart grid projects, particularly with respect with consumer behavior studies, which he finds to be very important. He expressed concern that the analysis might be too limited in time, and he hoped that the study

funding is secure so that the research can be completed and can include sensitivity analysis on successes and failures. *Assistant Secretary Hoffman* responded that ARRA is fully funded and that DOE will be collecting data for the entire five years. She urged the EAC to review the DOE *Smart Grid Systems Report*.

Reaction to DOE Smart Grid Project Analysis

Mike Weedall suggested that DOE look beyond pricing signals as an analytical tool and that a number of tools are required to thoroughly assess the smart grid projects. He suggested building off of the EPRI model in order to provide customers the information they need to make wise investments.

Ms. Grueneich suggested possibly including in the DOE analysis those smart grid projects that are not receiving ARRA funding. She inquired if DOE is analyzing behavior change and if smart grid implementation is driving demand for energy efficiency retrofits. *Ms. Grueneich* ended her comments by suggesting that not every benefit of smart grid should be viewed as providing equal benefits.

Consumer and Stakeholder Engagement

Guido Bartels commented on the issue of communications with consumers and stakeholders. He suggested that DOE leverage what is already known about communicating aspects of the smart grid in its outreach efforts to stakeholders.

Mr. Heyeck discussed the backlash in rural communities to the smart grid. He emphasized the need to remember the condition of today's economy and how it affects the consumer.

Mr. Butler encouraged EAC members who are also members of the National Association of Regulatory and Utility Commissioners (NARUC) to push for consumer behavior studies in their states.

Mr. Cowart commented that a greater percentage of variable generation is being deployed onto the grid and must be balanced going forward with the integration of electric vehicles. He argued that these changes to the grid are important for DOE to consider in its analysis.

Mr. Butler thanked Mr. Paladino for his presentation and asked that he return in six months to provide the EAC with an update of the DOE analysis.

ACTION ITEM:

The Smart Grid Subcommittee will consider the questions posed by Mr. Paladino on the DOE's build and impact metrics analysis of ARRA-funded smart grid projects and report back to the EAC. If it is determined by the Subcommittee that the EAC can contribute something meaningful, a paper will be drafted to answer some or all of the questions for approval at the next EAC meeting.

Environmental Regulations and Reliability Working Group

Mr. Cowart, acting as Chair of the Environmental Regulations and Reliability Working Group (Working Group), reported that the Working Group held conference calls on December 17, 2010 and January 18,

2011 to discuss issues with regard to the impact on grid reliability of the soon-to-be-released EPA emissions regulations and what DOE's appropriate role should be with regard to such regulations since the Department plays an important role on reliability.

As a result of the Working Group's discussions, a draft memorandum was circulated to EAC members for review and members were asked to discuss the draft. *Mr. Cowart* outlined the draft memorandum, which includes two possible actions by DOE with regard to the new EPA regulations that were discussed by the Working Group as appropriate for DOE to undertake. The first possible DOE action is to request the Secretary of Energy convene a formal consultative process among FERC, DOE, and EPA so that the federal agencies could collaborate on reliability and other issues. The second DOE action is to suggest that DOE recommend that FERC and planning coordinators consider broadening the planning process to be more forward-looking. The purpose of recommending such broadening is to have reliability and emissions implications be considered as part of the system planning process so that plant retirements can be anticipated and planned for

Concerns Raised about EPA Regulations

Mr. Nevius expressed concern that EPA regulation 316b could affect nuclear plants without cooling towers.

Mr. van Welie believed that there is a need to better understand the potential problems with EPA regulations and how to address those problems. He suggested that EPA regulations would accelerate the closure of oil-fired units, create reliability issues and that stakeholders should be educated about the effects of retiring large fleets of units. He argued that the issue of resource adequacy is a transmission security problem and planning authorities already have mechanisms to address this.

Commissioner Azar suggested that the EPA regulations will impact restructured states differently from cost of service states and that different market structures need to be regulated separately, without being plant specific.

Mr. Heyeck stated that the date for implementation and compliance for the EPA regulations remains uncertain. He argued that planning authorities need guidance, but nothing too granular.

Assistant Secretary Hoffman emphasized the importance of building time requirements into the regulations, while *Irwin "Sonny" Popowsky* reminded the EAC that states have authority over generation adequacy.

Mr. Bowen stated that asset investments are being delayed until the EPA regulations are published. He argued that better coordination among FERC, DOE, and EPA and communication to the public to make assessments on impacts of the regulations could help alleviate this issue.

Discussion Regarding EAC Memorandum to DOE

Ms. Grueneich asked how DOE will communicate the EAC's recommendations to the FERC. *Assistant Secretary Hoffman* responded that DOE will need time to consider the most effective form of

communicating the EAC's recommendations. However, she noted that DOE and FERC are in communications on a regular basis on a variety of topics.

Joe Kelliher asked if the EAC would be recommending FERC change regional planning and tariffs governing regional planning. *Mr. van Welie* explained that the memo would request planning coordinators expand the scope of their roles and in a timeframe that suited the preferences of each region. The EAC's recommendation would simply call for a discussion among DOE, EPA and FERC.

Assistant Secretary Hoffman thanked the EAC for their comments and ensured the members that the recommendations would receive the attention of Secretary Chu.

ACTION ITEM:

The EAC approved unanimously by voice vote the memorandum on DOE's role with regard to the upcoming EPA emissions regulations. *Mr. Cowart*, on behalf of the DOE, will work with Energetics to format the memorandum and submit it to DOE Secretary Chu and Assistant Secretary Hoffman.

Presentation by Dr. Steven Koonin, DOE Under Secretary for Science

Dr. Steven Koonin, DOE Under Secretary for Science, made a presentation to the EAC on the Department's Energy Technology Strategy through its newly announced Quadrennial Technology Review. Under Secretary Koonin's presentation slides can be found on the EAC webpage at:

<http://energy.gov/oe/downloads/does-energy-technology-strategy>

Dr. Koonin set the stage by discussing the three major energy challenges facing the United States today: oil imports, environmental impacts, and economic competitiveness. The Obama Administration has set goals to reduce greenhouse gases by 83% by 2050 and reduce daily consumption of oil in 2020 by 3.5 million barrels, from a baseline of 19 million barrels.

Six Strategies to Meet Clean Energy Needs

DOE has identified six strategies the U.S. needs to implement to address technology issues: Developing and deploying clean energy sources for stationary sources; Continue investing in advanced biofuels for mobile sources; Investing in building and industrial efficiency; Continue investing in advanced battery systems; Modernizing the grid; and Investing in vehicle efficiency.

To help achieve the six clean energy strategies, DOE will undertake a Quadrennial Technology Review process which will assess ways to fully deploy current clean energy technologies; accelerate innovation in clean energy technology through facilitation of efforts to discover new technology solutions; and lead the national conversation on clean energy through sound information on energy systems. *Dr. Koonin* urged the EAC to review the DOE Strategic Plan for Fiscal Years 2011- 2016 and provide comment.

Q&A of Under Secretary Koonin

Quadrennial Technology Review

Mr. Cowart inquired why the Review was called the “Quadrennial Technology Review.” *Dr. Koonin* responded that a process is needed which rises above politics to help facilitate the advancement of clean energy technologies and provide a coherent framework for discussion.

U.S. Domestic Energy Policy

Mr. Heyeck suggested the DOE undertake an effort to bring manufacturing back to the U.S. to ensure energy security. *Dr. Koonin* responded that innovation would be the driver for manufacturing in the U.S.

Representative Sloan commented about the need to educate people to buy American to spur domestic job creation.

David Mohre inquired if the U.S. needs some form of an industrial policy and *Dr. Koonin* agreed there needed to be a discussion about industrial policy.

Mr. Wynn stated that the government is the “buyer of first resort.” He believed that concept should be applied when considering the government’s consumption of energy. He stated that the federal government can be a leader in purchasing innovative technologies. *Dr. Koonin* questioned the effectiveness of government purchasing power. He provided the example of the notion of the Department of Defense (DOD) driving demand, which he believes is minimal.

Assistant Secretary Hoffman thanked *Dr. Koonin* for presenting the DOE’s Quadrennial Technology Review.

Establishment of the EAC Transmission Subcommittee

Mr. Cowart announced that *Commissioner Azar* has been appointed Chair of the newly formed EAC Subcommittee on Transmission. *Commissioner Azar* commented that her goal for the Subcommittee is to provide a very select set of actionable recommendations to DOE.

Discussion of 2011 Study Topics

The discussion then turned to the study topics that the EAC has been asked by DOE to consider addressing in 2011. *Dr. Meyer* explained that the DOE will benefit from the EAC’s thoughtful consideration of each of the five study topics outlined. However, it is up to the EAC to determine which study topics it wishes to address.

Study Topic #1: Long-Term Funding for Electric Infrastructure Analytic and Planning Capabilities

Mr. Krapels asked if DOE saw this question as a continuation of the process currently being undertaken by the Eastern Interconnection States’ Planning Council. *Dr. Meyer* answered that DOE is not wedded to a specific process, but that the Department believes it is important to undertake a broad geographic scope on planning over a twenty year period.

Mr. Heyeck discussed his concerns with regard to the security of the grid and the analytics being used in present studies.

Jose Delgado suggested that the interdependence among regions is not clear among state public utility commissions. He suggested it would be beneficial for DOE to help fund studies on the interdependence of different states and regions.

Ms. Grueneich raised the issue of travel costs for state regulators to participate in interconnection planning, and the bigger issue of how to fund skilled consultants and modeling to do the work on a long term basis. *Dr. Meyer* answered that DOE understands the funding obstacles, but the Department believes that there is value in the process of bringing together via a collaborative process that facilitates the states, Federal government, non-governmental organizations, ISOs, and utilities to create a long term plans. Such processes will result in worthwhile mechanisms such as common databases, establishment of realistic options and a better understanding by all stakeholders on how to move forward to modernization the grid. *Assistant Secretary Hoffman* added that an open and transparent process was important.

Commissioner Azar suggested that one of the questions the EAC may wish to consider under this study topic is whether the current process has been valuable; recognizing that the current Eastern interconnection process may not produce actual results. She pointed out, however, that it is tremendously helpful to have 39 states reach consensus on what needs to be modeled.

Mr. van Welie asked what DOE's view of success is with regard to the current interconnection planning efforts. *Dr. Meyer* answered that one of the basic premises that DOE recognizes is that the industry is in transition, that planning for such a transition is a massive undertaking that requires a collaborative process. If not done collaboratively, he noted, there is a tremendous capacity to stalemate. *Assistant Secretary Hoffman* agreed, indicating that it is important to get the right stakeholders together to create a forum that does not have a "gotcha" afterwards.

Representative Sloan said the Council of State Governments is examining how to get states to adopt interstate compacts on siting and is developing a list of best practices. He stated that the Transmission Subcommittee could partner with organizations to bring people to DOE-sponsored workshops and panel discussions. This could serve as a means to educate state policymakers. *Mr. Popowsky* agreed, indicating that state consumer advocate and consumers can participate only if travel assistance is provided.

Ms. Grueneich said that the current interconnection planning process has been valuable in identifying data gaps. She believes the process is more valuable in that regard than just bringing people together. She wondered what the cost is for maintaining the databases being developed.

Dr. Meyer noted that the U.S. Department of Defense (DOD) has been absent from any discussion on electricity grid modernization and system planning and that is a gap that needs to be fixed. The DOD owns a large amount real estate that requires electrical power and has expressed a strong interest to be at the table, but does not have the staff to participate. *Dr. Meyer* stated that the DOE and DOD are now communicating on these issues.

Mr. Cowart discussed the need to ensure funding continues to make electric infrastructure analytic and planning capabilities possible. *Commissioner Azar* cited a model used by the Eastern Interconnection to collect money, but she pointed out that there are no Regional Transmission Organizations (RTOs) in the West, which could present challenges to ensuring funding. *Ms. Grueneich* suggested that the Western Electricity Coordinating Council (WECC) could be a source of funding.

Mr. Mohre stated that when a new transmission is being planned and sited, Federal government agencies do not communicate with each other. *Dr. Meyer* answered that base case lists have been established in both the East and West that cite which projects will likely come on-line in both a base case and/or a speculative scenario. The Federal government has found those lists useful because it helps prioritize even though states and others are somewhat uncomfortable with such lists.

Study Topic #2: What Broad Public Policy Objectives Should Electric Infrastructure Planners Seek to Achieve or Keep in Balance?

Dr. Meyer asked the EAC for its input on what public policy objectives planners ought to be looking to address. *Mr. Krapels* commented that FERC's Notice of Proposed Rulemaking (NOPR) supports greater interregional integration efforts.

Mr. Heyeck believed the EAC should support an effort by DOE to engage the Department of Homeland Security (DHS) and the DOD on issues such as grid security and resiliency. Such an effort is currently not being done by any RTO.

Mr. Popowsky thought that the EAC could comment on Study Topic #2 if the focus was on national public policy objectives, versus state/local public policies.

Mr. van Welie and *Mr. Kelliher* expressed concern about what the EAC could address under this topic in that they do not see how the EAC can provide advice on this topic and that system planners should be asked to do the impossible.

Commissioner Azar suggested that it is appropriate for the EAC to opine on which federal, regional or state agency should address the topic. *Mr. Cowart* agreed, but suggested the EAC could address how to empower the planning process, noting that planning that looks only at reliability is too limited.

Study Topics #3, #4, and #5: Right-Sizing New Transmission Facilities; Respecting or Furthering the Interests of "Pass-Through" Areas and Communities; and Rights of Way (ROWs) Compensation

Dr. Meyer discussed right-sizing new transmission facilities (Study Topic #3) by expressing that it is an issue that comes up in many discussions DOE has with stakeholders. He stated that planners have one chance to correctly site a new line, so it is important to get it right the first time.

Mr. Heyeck emphasized that right-sizing new transmission facilities is an issue that must be examined from all angles, with particular emphasis on upfront costs. Direct current lines have very strong opportunities underground in urban areas and along interstates. The proposition will be apparent during the planning process, but he suggested there could be an economic model to help determine upfront costs. He suggested that the efficiency of the grid be addressed by planners since \$350 b/kWh

are lost annual due to inefficiencies. *Mr. Heyeck* suggested that the EAC look at the transmission section of the 2009 EAC report on electricity adequacy to ascertain if it could be updated and possibly address some of the questions raised in the study topics #3, 4 and 5.

Mr. van Welie expressed doubt that the EAC could be of use on these study topics until the first two topics are determined.

Mr. Delgado reminded the EAC that the electric industry deals with excess capacity and the rate of growth can be an unknown. He argued that when a large investment of transmission is required to cut across a state, the people in the middle should to be compensated.

Mr. Weedall stated that planning authorities are under unprecedented scrutiny partially due to the push back on transmission lines. Planners need to put the best case forward about why additional transmission lines are needed.

Ms. Grueneich did not believe the EAC should advise the DOE on study topics 3, 4, and 5. She argued that the EAC should focus its efforts on a select number of key topics, stating that Topic #4 is an issue for FERC and #5 is a state-level legal issue.

Mr. Cowart stated that the DOE has a public policy role, including advancing policies to other federal agencies, assisting states, and directing national laboratories. He indicated that he believes study topic #3 on right-sizing transmission lines is appropriate for the EAC to consider, suggesting the EAC could provide advice on the national policies that should be advanced in the planning processes. He believed that Study Topic #4 on pass-through areas is a generic issue and one that the EAC could comment on. However, study topic #5 on ROW compensation he agreed was too narrow for the EAC's consideration.

ACTION ITEM:

Since the study topics focus primarily on transmission issues, *Commissioner Azar* closed out the discussion by indicating that the Transmission Subcommittee will meet to further discuss the study topics and agree on which topics to address.

Public Comments

There were no comments from the public.

Adjournment

Mr. Cowart thanked the EAC members and other attendees for contributing their comments to the discussion and adjourned the March 10, 2011 Meeting of the EAC at 3:34 pm EST.

Respectfully Submitted,



Richard Cowart
Chair
DOE Electricity Advisory Committee

May 10, 2011
