



**U.S. Department of Energy
Electricity Advisory Committee Meeting
NRECA Conference Center
Arlington, VA
June 16, 2014**

Summary of Meeting

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Speakers, Guests and Members of the Public:

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Xcel Energy

MELICIA CHARLES
California Public Utilities Commission

KEN COLBURN
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CARRIE CULLEN HITT
Solar Energy Industries Association

JIM CREEVY
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Western Interstate Energy Board

RON MELTON
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Welcome, Introductions and Developments since our March 2014 Meeting and Recognition of Long-Standing Members Departing the Committee

Mr. Richard Cowart, Electricity Advisory Committee (EAC) Chair, and Mr. David Meyer, EAC Designated Federal Officer welcomed the Committee and the members introduced themselves. Committee members acknowledged and thanked members that will be leaving due to term limits, with specific acknowledgement to Barry Lawson, Mike Heyeck, Tom Sloan and Ralph Masiello for their for their contributions to writing, reviewing, commenting and organizing over their tenures, and welcomed new members Marilyn Brown, Pam Silberstein, Ramteen Sioshansi, and Roy Thilly.

Mr. Cowart noted that all discussion will be recorded in transcripts and available to the public. He thanked members for their efforts in between meetings and welcomed the public to make comments at the designated time at the end of the meeting.

Update on the U.S. Department of Energy (DOE), Office of Electricity Delivery and Energy Reliability's (OE) 2014 Programs and Initiatives

Honorable Patricia Hoffman, Assistant Secretary for Electricity Delivery and Energy Reliability (OE), gave general updates about OE efforts. She welcomed new members and explained the intention of the Committee is to discuss topics relevant to industry. She expressed gratitude to the Committee for their work products, the transparent conversations, the debate on current issues, and the opportunities to engage on conversation on current electric issues. The signed letter from Patricia Hoffman and OE with DOE Responses to 2013 EAC Work Products was circulated before the meeting for review. Assistant Secretary Hoffman discussed energy storage technology as a great opportunity as the EAC moves forward. Market opportunities for energy storage will open up if the opportunity is seized.

Assistant Secretary Hoffman explained that the Quadrennial Energy Review (QER) is underway. The QER project discusses energy efficiency and the challenges associated with renewable integration.

Update on the U.S. Department of Energy (DOE), Office of Electricity Delivery and Energy Reliability's (OE) 2014 Programs and Initiatives

Kevin Lynn, Director of Grid Integration, EERE, presented on EERE 2014 Programs and Initiatives. Mr. Lynn explained that the presentation will cover EERE activities focused on grid integration efforts from different departments within the DOE.

Mr. Lynn has worked closely with Assistant Secretary Hoffman and David Meyer on the Grid Tech Team.

Mr. Lynn described the vision of the Grid Tech Team to see cost effective, reliable, clean, efficient, secure and resilient energy. The Grid Tech Team would like to empower costumers and identify what has to be done to make the grid successful.

The EERE has assisted DOE with their Strategic Plan which is comprised of eight different attributes, including affordable, safe, accessible, reliable, clean, and flexible energy.

Creating a secure and resilient grid that complies with the Clean Air Act is important. This has been emphasized by Hurricanes Katrina and Sandy. Some of the new challenges facing the grid include energy flexibility such as incorporating renewables like wind and solar. The goal of the Grid Tech Team is to narrow down some of the new challenges.

Lynn discussed the renewable integration challenges that the Grid Tech Team has identified. Challenges created by renewable integration include two way power flow and increasing grid instability due to lack of inertia on the system. Wind and solar energy generation has greatly increased over the past decade. The Grid Tech Team sees the inclusion of new technology into the grid as extremity advantageous for the seamless integration of renewables. Devices can be used at a more micro level to help

characterize use and contribute to energy usage. Solutions to the challenges of the grid include cheap and affordable sensors, energy storage, interoperability, improved forecasting and collaboration of different regulatory entities with industry for a better understanding of the market. The Team would like to examine use of devices, communication, distribution systems and building technologies.

Mr. Lynn discussed actions that can be taken to improve grid challenges include flexibility analysis, understanding stochastic events and improving forecasting mechanisms such as identifying cost savings and the impacts on the system from adding renewables. The Tech Team recommends the OE manage distributive aspects of the grid through integrated projects such as behind the meter storage, and energy system integration which tests technologies in virtual distribution systems and measures system impacts in a virtual environment.

He explained that the DOE and EERE are trying to develop a program that can measure, analyze, predict and control the grid and can support national and regional efforts for renewable integration. The Team would like to unite all departments involved and take a layered approach to accomplishing seamless integration of renewables.

Assistant Secretary Patricia Hoffman thanked Kevin Lynn for his presentation and explained that the DOE is working on improving coordination, joint budget presentations to the Hill, and taking a more holistic view of where the DOE is headed. In May 2013, the Grid Tech Team did a National Laboratory Capability Summit and is now evaluating which projects to invest in, how to structure the National Laboratory to increase computational capabilities with advanced grid modeling, and how to utilize the National Academy of Sciences to advance grid modeling activities.

Granger Morgan asked Kevin Lynn to what extent is regulatory policy analysis limited to the technology side of the distribution system? Is there analysis of policy related issues or regulatory issues?

Kevin Lynn explained that there are both market policy and business model aspects analyzed but that EPSA is a new organization within the DOE that focuses on this analysis. Solar Pathways from the Solar Department has conducted cost benefit analyses addressing metering issues on a regional basis. There is analysis being done on the policy side as well as the market guide.

Merwin Brown asked what the best way is for the EAC Biennial Storage Assessment work group to approach the EERE asking for contributions toward to the 2014 Biennial Storage Assessment work product.

Kevin Lynn expressed interest in working with the EAC and EERE is holding a targeted workshop at the end of the year that will allow them to determine the relevant work they have accomplished and what still needs to be done.

Mike Heyeck commented that distribution is the most difficult part of the grid and that collaboration with industry would be very helpful. Mr. Heyeck thought that regulating bodies need to work with industry to set new standards and asked for Kevin's thoughts on the matter.

Kevin Lynn explained that regulatory bodies are moving towards an interconnection standard but standards take a long time to change. He also posed the question of using alternative energy sources to provide voltage support.

Mike Heyeck suggested coming at the question of reducing energy fluctuations from a technical stand point.

Paul Hudson asked if there is a formal process for organized markets to funnel information and a way for organized markets to provide information to the DOE?

Kevin Lynn responded that there is no formal process for soliciting information from the markets.

Paul Hudson added that his experience with ERCOT has been that they are resource constrained and that if they are not required to comment on something they will not.

Carl Zichella discussed the RAP report on renewables integration studies. He suggested that the next steps are for the Grid Tech Team to track renewable integration and identify the successful methods. WECC has released a state compliance plan for meeting environmental regulations and offering reliability solutions. Mr. Zichella was concerned about the divide between different sections of the DOE and asked how the DOE could improve coordination between technology, policy makers, operations and standards.

Kevin Lynn expressed that there should be less emphasis placed on the development of the new technology and more emphasis placed on disseminating information to the public. The DOE could examine regional flexibility that could help them determine the next steps to take with their programs by compiling already existing information and holding workshops.

Paul Centolella suggested the DOE look to states that push the envelope with their grid design, control and architecture. He suggested looking at the market from a distribution level and coordinate different aspects of the grid across states.

Kevin Lynn explained that it is difficult to analyze something that is so integrated but the DOE also recognizes the importance of analyzing grid success across different layers of the grid.

Chris Shelton expressed his appreciate for the layered analysis approach and suggested capturing the constraints of the regulatory environment and regulatory variability as an input.

Kevin Lynn explained that different regions face different constraints and developing a core standard that can be applied across all regions is a difficult task. He would like to develop a standard that could be tailored to each regions specific needs and challenges.

Marilyn Brown asked if there is a section of the DOE that looks at electricity policy that examines investment returns on distributive resources, demand resources and management of distributive resources.

Kevin Lynn responded that there are current efforts aimed at providing cost benefit analyses for distributive resources that focus on solar energy production, electric vehicles, and other resources.

David Meyer explained that EPSA is the policy office within the DOE and that he is working with the Secretary of the office to take a holistic approach to analysis of distribution resources. After the completion of the QER, Mr. Meyer expects that the DOE, EERE and EPSA will be working more closely.

Tom Sloan suggested that outreach to state commission staff is valuable given the limited time and resources commissions and their staff often have.

Paul Centolella suggested that there should be transparent values for distribution. Currently, the values vary tremendously and utilities do not evaluate the value of their resources in a transparent manner. He explained that regional information is important for evaluating and developing tools for distribution resources.

David Meyer suggested ways to help the community evaluate the value of distribution services without being prescriptive.

Richard Cowart pointed out that even within a jurisdiction; values will change from meter to meter and substation to substation.

Mike Heyeck suggested that institutional roles are important for future distribution level services.

Kevin Lynn agreed that trying to sell high voltage support has been a challenge.

Rebecca Wagner asked Kevin Lynn to comment on how the National Lab strategy might be used to help move traditional institutional paradigms to achieve renewable integration.

Kevin Lynn explained that labs have been asked to explain their capabilities. He also would like to see the labs become more specialized so that regional industry and regulators have access to local experts.

Richard Cowart summarized the discussion by expressing his enthusiasm for the collaboration between EERE and OE.

Keynote: Larry Mansueti (DOE), Carl Pechman (director QER) Office of Energy Policy and Systems Analysis (EPSA)

Larry Mansueti, DOE Office of Energy Policy and Systems Analysis, and Mr. Carl Pechman, DOE Quadrennial Energy Review (QER) Office, presented on the DOE QER.

Mr. Mansueti briefly described that the QER focuses on transmission and storage and distribution of all forms of energy. He also went on to announce upcoming hearings to discuss the QER and informed the committee that public input will be beneficial to developing the review.

Carl Pechman went on to explain the electric portion of the QER. He stated that the industry is changing rapidly with electricity as an inflection point and that transmission and distribution is the platform over which change will occur.

Mr. Cowart stated his interest in providing concrete input for the QER and suggested that knowing the specific topics that will be addressed at each meeting will allow for more robust feedback.

Mr. Pechman responded that he would be happy to engage interested EAC members over the summer as his team develops the grid architecture.

Mr. Zichella is creating a resource for recommendations for the 21st century grid and would like feedback from Mr. Pechman as the outline that he has developed is similar to what Mr. Pechman described the QER as undertaking.

Mr. Sloan reminded the EAC that most of the work products have a timeline to be completed in December, so it would be beneficial to ensure that schedules are synchronized.

Mr. Cowart offered to provide the outlines and ideas that the subcommittees are working on to assist with the development of the QER.

Mr. Brown described his experiences with scenario analysis for addressing uncertainty in the development of grid architecture analyses.

Mr. Pechman responded that his team has not yet started the grid architecture and cannot speak to the issues that Mr. Brown experienced.

Mr. Heyeck asked if the EAC's work on grid security, grid resiliency and intersection of gas and electricity could be made available to the QER team. He noted his frustration with the QTR comment submission process two years ago surrounding the

inability to speak on behalf of the EAC outside of Committee meetings. He also asked the Committee look at sectors of industries such as the cable or financial industries to see how they package services.

Mr. Pechman responded that he is keenly aware of the unknowns and that his team will attempt to handle the surprises as gracefully and successfully as it can.

Professor Morgan asked for a clarification on the purpose of the grid architecture model.

Mr. Pechman responded that the QER is working to create a conceptual model of the grid. He will find the tool to be successful if it identifies one area that will lead to policy change. Potential areas that the tool may address including the following questions: what does the tool tell DOE about next steps in terms of R&D investment? Does the tool identify needs? Does the tool identify ways to address needs?

Mr. Mansueti added that the QER will identify the following three items: particular actions that the executive branch should take; particular actions that the executive branch should take regarding R&D; and possible legislation.

Mr. Brown wondered whether the most valuable outcome of the QER could be future uncertainty.

Mr. Mansueti replied that it could be.

Keynote: Ron Melton, Director, Pacific Northwest National Lab (PNNL)

Mr. Ron Melton, Director of the PNNL Smart Grid Demonstration Project, presented on transactive energy (TE). He briefly described the importance of TE, how it works, and the benefits. He then went on to inform the committee that his council identified the need to articulate TE to regulators and decisions makers, so they created an infographic, and his council's next steps are to create a resource to describe TE in 1,000 words and prepare for the second annual interactive TE conference.

Mr. Coe informed the EAC members that value alignment is harder to carry out in practice as it can be hard to understand rate structures to identify the right incentive to achieve the desired effect.

Mr. Melton agreed with Mr. Coe and clarified that he meant value alignment in a more architectural sense.

Mr. Morgan then added that the different factors that get included in rates, such as ownership and rights, are of utmost importance.

Mr. Melton once again agreed and inserted that ownership impacts the rate of innovation.

Mr. Popowsky requested clarification from Mr. Melton on how he has dealt with the residential customer since Mr. Melton spoke to the fact that his council has experienced that some residential customers want to be in control of their electric options while Mr. Popowsky has experienced the opposite.

Mr. Melton agreed that it's impressive if you can get a residential customer to understand how they use energy for one hour a year, so there is a need to enable them to interact as quickly as possible.

Mr. Sloan responded to Mr. Popowsky and stated that there is a faction within the residential group, the ones who install PV on their roofs and wind turbines in their backyards, that is vocal, that the system need to be able to accommodate as that segment grows.

Mr. Lawson then expressed his opinion that TE should stay as a customer choice and not become a mandate. He would like the electric utility to be available to provide service to customers when their systems are down, and many customers don't realize that there is a cost to remain interconnected, which is a point that Mr. Lawson feels is often lost.

Mr. Melton responded that he would like to understand demand elasticity a bit better.

Assistant Secretary Hoffman closed out the discussion by stating that the system requires a starting point and industry leaders should not create an elaborate market structure.

Electric Power Delivery System for the 21st Century Panel

Mr. Gellings introduced the power delivery system for the 21st century panelists including: Doug Larson, Western Interstate Energy Board, Steve Beuning, Xcel, Mike Kormos, PJM, and Carrie Cullen Hitt, SEIA.

The first panelist, Doug Larson, Executive Director, Western Interstate Energy Board, (WEIB) presented on the Western Interstate's predictions for the grid. WEIB operates a highly fragmented grid and members don't want to invest in transmission and greater levels of system interconnectivity because of the low load growth in the region driving lower rates of utilization of the existing grid. Mr. Larson explained the fast dropping cost of solar is expediting the movement towards local generation of energy. He suggested that the grid will move towards a more fragmented grid like it was 40 years ago. Challenges of moving towards a more fragmented grid include breakthrough central station technology, institutional resistance and the division of responsibilities between FERC and states. Batteries, pricing systems, new participants in the market, increased solar business, and PV improvements will accelerate fragmentation of the grid.

The second panelist, Steve Beuning, Director of Market Operations, Xcel discussed his findings that market optimization is beneficial, future integration of distributed resources will rely upon bulk electric wholesale markets for efficient results, grid access policy conflict remains and regional organizations are adopting practices that are more hostile to capacity outside their footprint which influences the evolution of regional access paradigms.

The third panelist, Mike Kormos, Executive Vice President of Operations, PJM Interconnection began his presentation with some of the top challenges that the power delivery system currently faces, which include electricity demand, the world's largest fuel switch, natural gas interoperability, integration of intermittent and demand side resources, and natural and unnatural disasters.

Mr. Kormos then went on to describe how smart inverters could be beneficial to the grid as inverter technology can help control frequency and voltage to avoid outages. He followed up by laying out reasons to research inverters including that the current mode of inverter use is not always cost effective, but inverter technology that is fully capable has a greater potential to provide cost effective solutions.

The fourth panelist, Carrie Cullen Hitt, Senior Vice President State Affairs, Solar Energy Industries Association (SEIA) presented on solar opportunities. She informed the committee that solar installations has gone up dramatically across the U.S. across all industries, significant growth is expected to continue, system prices continue to decline, and solar generation is just a fraction of total consumption. She concluded her presentation by saying that in Texas SEIA has recommended including solar as part of system planning around resource adequacy.

EAC Members Discussion of Key Power Delivery Issues

Merwin Brown asked if the grid is meant to serve societal purposes or enhance market transactions and wondered whether the industry would need to continue with its hybrid approach.

Mr. Larson responded that he plans to use the hybrid approach in the West for as long as the system allows.

Ms. Hitt added that the grid is meant to promote policy initiatives at the state level.

Mr. Heyek proposed that the resiliency of the grid depends on the diversity of resources, and that PV and energy storage are good options now while modular nuclear may be a good option in the future. He mentioned that the diversity of resources and resiliency of the grid are topics that the QER should consider and concluded his point by wondering how customers will view electricity use in 30 years.

Mr. Kormos responded that the younger generation is more technically advanced and expectations of having electricity control will be fundamentally stronger, which will

allow the younger generation to choose how to interact with the grid.

Mr. Lauby requested clarification from Mr. Kormos on how his organization plans to use the smart inverter technologies in his system.

Mr. Kormos replied that he plans to explore performance standards in the capacity market in the short term but in the long term the question is whether storage can scale sufficiently to enable a sort of internet-like paradigm for electric power production and consumption.

Mr. Beuning answered that if energy generation moves away from carbon towards renewables, your demand will become the dispatchable element and the supply side is what will become the limiting factor. The negative prices seen today are driven by situations where dispatchable units can't be de-committed and there will be a time before storage where price signals for the development of storage technologies are created.

Mr. Cowart added that conversations in Europe begin with sustainability as a goal with the rest of the discussion working to identify approaches to achieve the goals. He finds that there are good answers in this discussion with respect to the duck curve involving our knowledge on demand response, but struggles with the question of how much customers should pay utilities to provide grid-related services compared to how much the demand side services are worth to the grid. He requests feedback on whether others agree that the industry needs to address rate issues in a bi-directional way.

Mr. Gellings stated that this is an engineering problem that can be fixed.

Mr. Beuning went on to say that there are two parts to the benefits which include energy production and consumption and grid and back-up services, and that he has concerns with the industry to infer absolute benefits with current adjusted production costs.

Ms. Silberstein asked whether the committee should be looking to a system where customers pay less for less reliability.

Ms. Hitt believes that Ms. Silberstein's suggestion may be a way to think about the market, but that a challenge with that idea is the association that customers have in regards to electricity service and the ability to live comfortably.

Mr. Beuning agrees that Ms. Silverstein's suggestion could be a possibility but that administration of curtailment and management of system priority is also a challenge.

Mr. Sloan encouraged the panelists to look at the TE model and ascertain whether the model is capturing daily activities on a high level. He also reminded the committee that the regulatory community and policy makers will easily get confused if this industry continues to use different words to describe similar transactions and

relationships.

Mr. Zichella explained that he believes that the industry is in danger of losing some generation options such as CSP and asked how the industry can recognize energy in these grid services. He also explained his concern for losing value to system technologies due to inaccurate pricing and as various renewables enter the market, accurate pricing should be kept in mind.

Marilyn Brown then asked the panelists for their understanding of the value of nuclear and about the recent declining trends in demand response in PJM.

Mr. Larson responded that the major challenge is to keep the current plan for power delivery operationalized. He discussed the value of demand response and the issues that prevent appropriate allocation of value due to misappropriation of the resource on the supply side of the market.

Ms. Reder then asked where the gaps and challenges are on the standards front.

Mr. Beuning informed the committee that the new Standard 1547 will allow utilities to only incur balancing costs when it is necessary for the sake of reliability; however there are other gaps in frequency response.

EAC Power Delivery Subcommittee Papers and Work Plan

David Till gave an overview of the current Power Delivery Subcommittee activities. The Research and Development paper that the Power Delivery Subcommittee is collaborating with the Smart Grid Subcommittee on is coming along well.

Discussion of Expanding and Modernizing the Electric Power Delivery System for the 21st Century Paper

David Till thanked everyone for their discussion. He explained that there has been an outline circulated with the meeting materials and he does not expect any challenges in drafting the paper. Mr. Till explained that the largest challenge that he expects to face is determining the appropriate resources to include in the paper by September. Mr. Till explained that using an applied device to mitigate voltage collapse does not work off of a battery because when the lights go out, the transformer fails, taking out the primary and secondary substations. The device depends on the system it is supporting.

Granger Morgan explained that the low cost of gas has made justifying the cost of nuclear even more difficult. He also pointed out that there is a lack of nuclear in the discussion of the grid of the future work product.

Marilyn Brown added that nuclear power plants are being lost as their life expectancy comes to an end.

Mark Lauby agreed that nuclear is not always justified by the cost. However, there are challenges associated with other fuels and nuclear will likely become more feasible in light of the new climate change regulations.

Mike Heyeck emphasized the comment to include nuclear in the 21st Century Grid Outline. He also brought up the point that transmission will be needed to make the 21st century grid viable.

Merwin Brown pointed out that the current work product outline substitutes the words reliability, flexibility, resiliency and security, in a seemingly interchangeable manner. He suggested defining the terms better to keep their use consistent throughout the paper. He discussed the benefits of ROWs and suggested that reducing thermal and dynamic instability constraints would help the grid in the West. He further suggested replacing inflexible gas generation with ramping technology. Gas should be the focus but storage should also be included as a fast acting grid reliability source.

Granger Morgan suggested considering DC transformers if they become significantly more affordable.

Carl Zichella asked the group to consider the lifetime of nuclear and the cost of decommissioning a nuclear facility. He also highlighted that nuclear energy is part of the President's energy plan, but needs to be considered with realistic costs.

Mike Heyeck added a comment about the discontinuity nuclear paradigm, explaining that new technology needs to be developed before nuclear energy is a viable option. He also discussed that underground technology enabled through recent VSC breakthroughs will be useful.

Granger Morgan agreed that the cost of nuclear is immense and it seems unrealistic that a nuclear reactor will come into fruition in the near future. However, he agreed that climate policies are making nuclear relevant and he doubts that states will be able to meet compliance with regulations without incorporating nuclear energy.

Carl Zichella explained that he does not believe that the U.S. has the resources to produce nuclear energy and industry will not incur the costs. He suggested discussing cost effective energy sources in the work product.

William Ball asked the question if distribution belongs in the paper. He explained the next steps of distribution will most likely be radial development into a network like transmission, which would involve costly retraining and retooling. He also mentioned the evolution towards microgrids could be accelerated if the cost of transitioning back and forth between AC and DC power are reduced through a larger penetration of DC circuits on microgrids.

Sonny Popowsky suggested transmission as a backup system for the grid of the 21st century. He discussed local generation as the source of primary energy of the future.

David Till explained that transmission is a very expensive backup electricity delivery system. He did not think it would be a cost effective backup and asked the group to consider who would incur the cost of keeping transmission for a backup system.

Mike Heyeck explained that changing the grid is a long process and there are regional variations to consider. He explained the coasts have more microgrids and the mid-west has more local generation such as wind and solar farms. He also suggested that energy use could change in the future with new industrial processes and transportation needs. He also asked the Committee to consider the fact that our economy is in a stagnant state and we are moving away from oil and coal, which could change the grid of the future.

William Ball suggested microgrids could increase in size and number and eventually facilitate a much more interconnected distribution system than what exists currently. He discussed seeing microgrids as being integrated with the current system in the future which is viable due to the new technology available. He explained seeing the grid of the future as more integrated and does not believe that the advent of microgrids means the bulk system will function just as a backup system.

David Till explained that he thought protection schemes for microgrids are incompatible with what is currently in place for the existing transmission and distribution system such that interfaces will have to be planned in order to allow these systems to coexist to a much larger extent than they do today.

Chris Shelton explained that integration of transmission and microgrids should take place in the future. He also suggested that energy storage could be a significant alternative to the grid and could create an elastic flexible system that taps into the unused inefficiency resource of the grid, making the grid more reliable and flexible. He also discussed that an inverter-based grid would be more responsive and could ramp more quickly. He thought storage would make the grid more central and fully utilized.

Richard Cowart asked the group to recognize that demand response and energy efficiency at the customer end are part of the grid of the future and need to be considered in the paper. He expressed that the grid of the future will be a system that can accommodate numerous generation sources and distribution systems using technology and the paper should discuss all of the possibilities.

Merwin Brown discussed his current project of a scenario approach for determining the future grid architecture. He suggested picking the most uncertain variables; including technology development and adoption and the degree to which society will support building their way out of a problem. He explained in order to achieve flexibility; you can either build more or use technology. Both of these outcomes are very different.

Carl Zichella suggested that the best approach is to try to understand what you need, work with what you have, and start by deploying the most cost effective solutions. He discussed that you need to take into account the customer and distribution side and look at how the microgrid and transmission system can complement each other. He suggested that the AC and DC grid should complement each other as well. He suggested looking at sections of the grid and determining how

to better control it and improve efficiency. He also agreed that nuclear generation needs to be reflected in the outline.

Subcommittee Plans

Wrap-up and Adjourn Day One of June 2014 Meeting of the EAC

Richard Cowart, EAC Chair thanked everyone for their comments and adjourned the first day of the meeting.

Respectfully Submitted and Certified as Accurate,



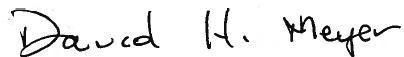
Richard Cowart
Regulatory Assistance Project
Chair
DOE Electricity Advisory Committee
8/8/2014

Date



Irwin "Sonny" Popowsky
Pennsylvania Consumer Advocate
Vice-Chair
DOE Electricity Advisory Committee
8/8/2014

Date



David Meyer
Office of Electricity
Designated Federal Official
DOE Electricity Advisory Committee
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Date



Matthew Rosenbaum
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Date