



**U.S. Department of Energy
Electricity Advisory Committee Meeting**

**National Rural Electric Cooperative Association Conference Center
Arlington, Virginia
June 6, 2024**

Day 2 Meeting Summary

Contents

| | |
|--|-----------|
| Day 2 Participants | i |
| Electricity Advisory Committee Members | i |
| Registered U.S. Department of Energy (DOE) and National Laboratories | ii |
| Registered Speakers, Guests, and Members of the Public | iii |
| Meeting Overview..... | 1 |
| OE Moderated Discussion on Secure Grid Communications | 1 |
| OE Moderated Discussion on Energy Storage | 5 |
| DOE’s Clean Energy Workforce Development Efforts..... | 8 |
| Energy Storage Subcommittee Update | 10 |
| Smart Grid Subcommittee Updates | 11 |
| Grid Resilience for National Security (GRNS) Subcommittee Update..... | 11 |
| Public Comment Period | 12 |
| Wrap-up and Adjourn June 2024 Meeting of the EAC..... | 12 |
| Signature Page | 14 |

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Meeting Overview

The Electricity Advisory Committee's (EAC) second meeting of 2024 was held June 5 and 6 using a hybrid format at the National Rural Electric Cooperative Association conference center in Arlington, Virginia, with the option of virtual participation via the video conferencing platform Webex. On the second day of the meeting, OE staff Nat Horner, Director, Grid Cybersecurity and Communications, and David Wells, Program Manager, moderated a discussion on Secure Communications. Then, Sam Bockenbauer, Acting Director of OE Storage Analysis and Ben Shrager, Energy Storage Program Manager, moderated a discussion on Energy Storage. Following that, Betony Jones, Director of Energy Jobs from DOE's Office of Policy, presented DOE's Clean Energy Workforce Development Efforts. The meeting concluded with subcommittee updates, a public comment period, and remarks from Assistant Secretary Rodrigues and Wanda Reder.

All presentations can be found on the EAC website at [Electricity Advisory Committee June 2024 Meeting | Department of Energy](#).

OE Moderated Discussion on Secure Grid Communications

- **Moderator:** Nat Horner, Director, Grid Cybersecurity and Communications
- **Moderator:** David Wells, Program Manager, Office of Electricity

The presenters noted that the grid of the future will be an information network as much as it is an energy network. They discussed the following topics:

- Grid and communications interdependencies. For example, disconnecting a communications network can have adverse effects on energy generation infrastructure.
- Grid edge integration, and the challenge of operational coordination and orchestration.
- Secure communications interoperability, and the challenge of end-to-end information security in a heterogeneous environment.

The presenters noted that reliability, resilience, security, and affordability are priorities for OE and that OE is working to educate utilities on lower-cost initiatives and activities they can undertake with resources that they already have but are not using in a fulsome way.

Presenters' presentation slides can be found online via the link provided in the Meeting Overview section above.

Discussion:

Clay Koplin asked from a remote Alaska microgrid perspective, what are some of the positive security implications on data processing and services with a local area cloud?

Nat Horner said that he agreed with the concept of operating on data within the fence where appropriate. The Guardnet project works with censored data stored and processed on the edge and returns to a remote database for data transformation and monitoring. Some analytics must be

conducted inside the fence for security. Within the communications path, there is no way to bring all the data inside the fence, and there is no reason to do so.

Nat Horner noted that a use case is a specified and detailed description of a requirement. Stakeholders need to understand who is interacting with the system. Some use cases will require highly secure data, and other use cases are appropriate for commodity cloud environments. Stakeholders need to understand requirements and match deployment with needs.

Clay Koplin noted the concept of a hybrid cloud, in which utilities keep data onsite and access the data via the cloud. Grid operators and utilities have found that the cloud is not as secure as they need so keeping data locally can be a solution.

Darlene Phillips asked the presenters to elaborate on the Inter-Control Center Communications Protocol (ICCP) data concept.

Nat Horner explained the concept of a secure pathway—ICCP is a great application of a secure pathway. In this model, there are different applications with specific requirements to meet the mission. He noted that each pathway has its own network, and every application has requirements for its respective network. ICCP is one of the pathways.

Darlene Phillips noted that one of the challenges she hears often is, because the cloud is internet-based, stakeholders are concerned about security. Additionally, everybody has a different price point. Another key conversation topic is the cost prohibitive nature of these purchases. Anything that tackles security and cost would be helpful.

Bob Cummings noted that the loss of a communications channel to a generator will trip the generator. He mentioned an example where an Arizona utility lost communications and as a result, the rebalance was disrupted. This event shed a large amount of load before shutting it down. He noted the system must be governed by operational principles and needs to follow what general operations of a regular powerplant.

Nat Horner noted that there is a lack of clarity on communications needs. This is causing people to make decisions not based on facts but how stakeholders interpret the rules. OE is striving to better understand and answer questions.

Bob Cummings noted that the abandonment of communications channels between substations can have negative impacts.

Nat Horner noted that each application is different—there is some data that is appropriate for the cloud because stakeholders will not need that data real-time. In other scenarios, stakeholders need data for real-time monitoring, and that data does not belong in the cloud.

Tom Bialek noted that utilities are deploying sensors and other technology, and that technology has its own communications controlled by third party vendors. Utilities and grid operators need to engage with those vendors to ensure that they are integrating security considerations in that technology. This is pertinent for new technology and upgrades to existing technology. Vendors consider security to be an additional cost, and utility commissions even note that some costs are for vendors, which makes them anticompetitive. Rather than custom-making infrastructure, vendors

should enable utilities to pick what they need. Utilities and vendors need to think up-front about security considerations rather than after the fact through a series of priced upgrades.

Howard Gugel said that microwaves might be different use cases, referring to when utilities are forced to go from one media to another method to use. He noted that NERC standards require entities to identify critical loads in plans. These are dependent on communications and should already be in plans. The utility experience during storm season and associated restoration is critical for this. These instances might help for use cases.

Delia Patterson asked if there are opportunities for energy sector stakeholders and the telecommunications sector to help address secure communications concerns. How can we collaborate with Canadians given the interconnected nature of the grid, and are there lessons learned to leverage?

David Wells said that Canadians have a utility spectrum from 7.5-8.5 Gigahertz, which is the same band that the Federal Communications Commission is looking for. Because of this, there is a good amount of collaboration with Canadians.

Delia Patterson asked how the EAC can learn more about this collaboration.

Nat Horner said that EAC members and the public can access whitepapers through OE's website or reach out directly to Nat Horner for David Wells.

Missy Henriksen asked what OE's needs are regarding people development and the talent pipeline, considering the increasingly complex and challenging landscape.

Nat Horner said that workforce issues are prevalent everywhere and there is a good amount of competition for talent. He noted existing recruiting programs, such as CESER's Cyberforce program that draw top talent from undergraduate institutions.

David Wells said that there is a clear line difference between communications and cybersecurity regarding the national laboratories. The communications landscape is unpredictable, there is very little training for communications, and workers generally learn communications on the job. OE is working to train and help national laboratories to educate the next group of engineers to support the grid operators and utilities in communications.

Missy Henriksen asked whether there is merit for further consideration for an education initiatives program.

David Wells said that there is a need for certification in communications.

Richard Mroz said that states do not always know their needs with issues around cybersecurity and communications. He encouraged DOE to engage with states on what they need to know regarding utilities. If the industry does not sufficiently articulate the needs and value for costs and cost recovery, the system could fall apart quickly. The industry should communicate to customers and regulators the value of enhanced cybersecurity and communications measures.

Assistant Secretary Rodrigues asked Mr. Mroz to clarify if he was specifically talking about the cost-benefit of enhanced cybersecurity and communications measures.

Rick Mroz said that he specifically referred to the cost-benefit of having enhanced cybersecurity and communications measures in a worst-case situation. A related investment would help avoid costs in the future.

Wanda Reder noted that business processes and critical operations are increasingly dependent on operations. The need for conversation and education would be appropriate for OE to address.

Assistant Secretary Rodrigues noted the wider context that this conversation is taking place in an evolving and increasingly complex environment. Stakeholders may not want to make the large investments necessary to create resilience infrastructure.

Rick Mroz responded that investment spurs questions, and then regulators do not push investments.

Lisa Frantzis noted that OE should also investigate cost allocation issues. The use of electric vehicles is increasing which will correspondingly increase data. Utilities do not want to bear the additional cost. DOE can play a key role in the communications conversation, coordinating with the Department of Transportation, and convene industry stakeholders to discuss cost allocation.

David Wells noted the lack of utility understanding on the data needed. To address this, OE is building tools to educate utilities on how to keep costs as low as possible.

Jay Morrison agreed that security measures should be built into systems from the beginning. He asked how DOE and the EAC was considering supply chains in this issue and noted that small companies do not have buying power to ensure that suppliers are secure. Regulators also do not regulate third party suppliers.

David Wells noted that DOE is educating small companies about how to close the loop on their networks by routing 'open sockets' to internal pieces of equipment. CESER has multiple programs investigating supply chain issues.

Clay Koplin noted the use case of a small remote ecosystem that is vertically integrated. In this environment, the utility must have conversations with the board of directors and local government entities to gain an understanding of where to make investments. Uncertainty and complexity are increasing, and having standards would aid these conversations. Mr. Koplin noted that in his environment, if the utility loses communications, the powerplant still must produce and deliver electricity, so it is necessary to keep the system operating and not be fully interdependent until communications are resolved. In this instance, onboard distributed intelligence would fill that gap. From a small environment looking outward, a coordinated effort between agencies (e.g. the military, utilities, DOE, and local emergency services), could be helpful.

Tom Bialek noted that another consideration is interdependency with customers. For instance, some vendors use customer WiFi.

David Wells said that OE asked similar questions when working on secure communications. He stated it is important to demarcate between the network owned by the company and the network

owned by the customer, and that is why each router has two IP addresses. He noted the difficulty of making a use case for a rare event with a high impact. Vendors will have to change the way they open networks to make progress in this area.

Nat Horner noted that grid edge integration is also fascinating. With information going through three separate vendor clouds, it is difficult to ensure they are secure.

Drew Fellon suggested conducting a survey for stakeholders to note cost-benefit. If people are going to invest in cybersecurity and secure communications, they must understand how they will benefit. Large commercial and industrial entities facing this question have similar challenges. They all fight over the same resources, and enhancing cybersecurity and secure communications would be easier if these entities collaborated. Larger organizations also face deferred maintenance and repair costs at their sites. They would benefit from technical assistance.

David Wells noted that the problem is not training; some of these issues are not as attractive to workers.

OE Moderated Discussion on Energy Storage

- **Moderator:** Sam Bockenbauer, Acting Director of Storage Analysis
- **Moderator:** Ben Shrager, Program Manager, Office of Electricity

The speakers discussed the rapid transition in the energy system and OE initiatives, including:

- Studies from DOE, including the National Renewable Energy Laboratory (NREL) and DOE storage futures study
- Long-Duration Energy Storage Liftoff Report
- Innovative funding mechanisms to support innovations, including serial and consortium based funding opportunities (serial: company specific) (consortium: multiple companies working together on common challenges)
- Notice of Intent for the Critical Facilities Energy Resilience funding opportunity
- BlueSky training Request for Information which provides battery safety training to first responders
- OE's support of states and communities evaluating storage with place-based methods and tools. There is a new technical assistance initiative which matches support with large and small community recipients. OE will invite recipients to apply in late summer 2024. Additionally, three new Energy Storage for Social Equity communities were selected for battery deployment support, which included installing batteries to support emergency shelter operations and enabling a school to have emergency shelter capabilities.

The presenters noted that the Energy Storage Grand Challenge (ESGC) is a mechanism to support technology development, manufacturing, supply chain, workforce development, investment, commercialization, and valuation. The ESCG Decadal Challenge is a competition to select impactful ideas for further development. The presenters linked initiatives back to EAC

recommendations, noting the focus to address barriers to interconnection and facilitate cost-effective deployment.

Ben Shrager then discussed the ‘Frontiers in Energy Storage’ Workshop at the Lawrence Berkeley National Laboratory, which discussed Artificial Intelligence (AI). This workshop discussed the possibility of using AI for storage materials development in the context of AI models analyzing materials datasets and predicting impact on future storage systems. The workshop also hosted a discussion on the potential of AI in grid operations, particularly in the context of managing complex energy systems with many distributed resources. The workshop also hosted a discussion on AI for policy and valuation. Summary points from the workshop include:

- Data is foundational and should be secure, available, and interoperable
- Collaboration between sectors is necessary
- Trust in AI systems must be established—to do this, stakeholder education is necessary

Presenters’ presentation slides can be found online via the link provided in the Meeting Overview section above.

Discussion:

Andrew Barbeau said that it was helpful to see the linkage from OE initiatives to EAC recommendations. He had three points:

- The next step to the 2022 report on the scale of future grid scenarios is identifying the possibility of deploying storage to meet storage needs. He asked if there is any work to identify feasibility to meet the storage need.
- Recommendation three in the Biennial Storage Report suggested that DOE support local states and regulators. Mr. Barbeau said that the BlueSky initiative is not strongly connected to that recommendation since the recommendation was aimed at how DOE can take a leadership role in establishing the value of distributed energy resources and related storage and access. This concept was missing from the presentation.
- The Biennial Storage Report expressed concern that DOE focused on battery chemistry but did not do significant work on deployment and grid integration. He noted that the market value piece is still needed to accelerate that deployment.

Sam Bockenbauer said that DOE has increasing work on the supply chain in new offices. OE has some efforts here as well. For instance, OE, in consortium with a national laboratory, is examining sodium and lithium-ion technology and related interdependencies. The markets and valuation work at DOE is growing despite differing efforts across DOE. The Office of Energy Efficiency and Renewable Energy (EERE) focuses more on how different market designs apply to different technologies.

Eric Hsieh noted that there are several states in which OE storage services have also provided deployment support.

Bob Cummings noted that pump storage is very dispatchable and quick to aid system problems. He urged DOE to push this as a priority. DOE should consider what is available now to make progress. He added that if AI is designed or operated poorly, it will not be a useful tool.

Howard Gugel noted that there are different methods for storing energy, and it seems that DOE is only concentrating on battery storage.

Sam Bockenbauer noted that studies can be constrained by cost models and expanding technology.

Shrager noted that OE studies fund research beyond battery storage.

Tom Bialek noted that in technology transfer, stakeholders developing new technologies do not always consider how their services will be integrated into the existing grid system. He also made the following points:

- AI and machine learning is powerful but only as good as the person writing the code.
- When collaborating, stakeholders should also consider academia who wants access to data. However, it is unclear how academia will keep data secure.

Lauren Azar said that she is most interested in markets and valuation, noted that long duration energy storage will be a valuable technology, and that it is difficult to model storage to ensure the full scope of benefits are captured. She noted that if energy storage is planned based on five-minute intervals, long duration energy storage may not be needed and asked if DOE is conducting any studies that improve modeling for storage.

Sam Bockenbauer responded that improving modeling of storage is a focus area for DOE. The national laboratories are conducting work in this area, as well as industry software vendors and utilities utilizing DOE funds. They are focusing on better representing storage, increasing time resolution, and more.

Delia Patterson noted that her organization is conducting work on pump storage currently at the level of 1,000-2,000 Megawatts. She asked the following questions:

- DOE has goals related to reducing costs and increasing the ability to obtain long-duration energy storage by 2030. Are there any metrics or predictions on progress to that goal?

Ben Shrager recommended the Pacific Northwest National Laboratory's Cost and Performance Report which contains current-state summaries and projections by 2030. He also recommended OE's Storage Innovations 2030 report, which OE developed with stakeholders and discusses high impact activities to significantly lower storage costs by 2030.

Mario Hurtado asked how AI is different from a significant amount of computing power.

Ben Shrager noted that while the definition of AI is evolving, the intensive computing acceleration in AI machine learning has led to new tools and interfaces with AI systems.

Sam Bockenbauer added that there are some issues where scaling is so difficult that computing power may not be sufficient. With AI, different approaches may be possible with dataset solutions.

Chris Ayers noted that the integrity of data is foundational to AI, and asked what DOE is doing to coordinate data integrity.

Ben Shrager agreed that data integrity underlies the usefulness of AI, and DOE will be exploring any AI project with data integrity at the forefront of priorities.

Daniel Brooks noted his following takeaways after talking to utilities about their needs:

- Valuation integration activities
- Technology evaluation—particularly for technologies like long-duration energy storage, utilities want to know what technology is rising to the top, and it is often difficult to obtain an answer.
- Many utilities have batteries now and are starting to focus on day-to-day maintenance and looking for guidance on how to conduct that maintenance. Operations and maintenance guides would be helpful. He encouraged DOE to help standardize specifications, operating procedures, and standards.

San Bockenbauer noted that while there can be variability, DOE does standards work to help with some of those questions.

Assistant Secretary Rodrigues noted that where storage already exists in the market, an appropriate role for OE could be documenting today's operating practices, defining best practices, and creating industry norms. This could also include OE helping utilities to identify more productive use cases for already installed and planned assets. The focus is not just what technology to use, but how to use that technology to its full potential.

Sam Bockenbauer noted that technical assistance activities do this in some ways, for example, in helping communities operate batteries. A handbook for those who have not operated batteries would be helpful.

Clay Koplin noted an issue in Alaska with battery maintenance and warranties and said he would reach out to OE.

Darlene Phillips noted that best practices including the state of charge would be helpful. She said that everybody struggles with batteries under multiple use cases, such as using batteries as transmission assets. A handbook, collection of resources, or best practices to integrate batteries more fully would be helpful. It could also include who pays for what, and the value proposition. Additionally, a timeline of expected breakthroughs and deliveries would be helpful for stakeholders to decide what to focus on for the next five years.

DOE's Clean Energy Workforce Development Efforts

- **Presenter:** Betony Jones, Director of Energy Jobs, DOE Office of Policy

Betony Jones presented on DOE's efforts in developing a clean energy workforce. She focused on the following topics:

- The Office of Energy Jobs (OEJ) mission and efforts to expand jobs and ensure a match of skills to needs
- The most recent US Energy and Employment Report (USEER), the findings of report, and potential associated actions

- Many jobs are blue-collar opportunities, and there is a need to create demand for such workers and provide on-the-job training
- Private sector investment is supporting similar goals as DOE
- Workers in the traditional energy economy can use skills to transition to new technologies (e.g. fossil fuel workers can transition to hydrogen opportunities); how we shape demand will matter, and we need to ensure the jobs are high-quality because workers will have other options
- Focusing on labor standards can help ensure project developers think of job quality up-front
- There is a need to calibrate trainings to real demand
- There is a need to remove barriers to access, since the energy workforce is not very diverse which can leave talent on the sidelines
- Broad occupational training and upskilling should be prioritized over task-based training
- Opportunities exist in growing investments in known training pathways such as apprenticeships or curricula

Presenters' presentation slides can be found online via the link provided in the Meeting Overview section above.

Discussion:

Clay Koplin asked whether the statistics in the USEER report factor in federal employment.

Betony Jones said that the statistics are economy-wide and collected through a survey of 35,000-40,000 employers in the energy sector, mainly in the private sector.

Clay Koplin noted that construction investments are short-term economic boosts. Utilities must manage operations and maintenance, which can impact customers' bills. For community equity, this is important. Finding a way to share resources rather than compete for them would be helpful. Additionally, DOE seems to start educational and recruiting efforts at the post-secondary level, although many workforce needs start at the fourth-grade level. He asked whether there are in-classroom programs that start earlier than the post-secondary level.

Betony Jones noted that there are many opportunities to begin at the classroom level, such as engaging with guidance counselors, conducting elementary school outreach, engaging with career tech programs in high schools, and more. Ms. Jones agreed on the need for those activities.

Representative Don Parsons noted that the Bipartisan Infrastructure Law is a large investment and asked Betony Jones to clarify whether all funding from that law was going towards workforce development.

Betony Jones clarified that the funding from the Bipartisan Infrastructure Law allocated \$62 billion to DOE, mainly for infrastructure purposes. Energy investments from the Bipartisan Infrastructure Law and Inflation Reduction Act also exist in the form of tax credits. Workforce development issues received millions of dollars out of the billions of dollars invested.

Representative Don Parsons noted that the money should be for the whole energy sector and not just for DOE, and questioned how the tax credit portion of the funding operates.

Betony Jones explained that the infrastructure funding does go to private sector, industry entities because they are typically the ones conducting construction activities. She also explained that investment from the private sector is driven by tax credits—if private sector entities can save money on taxes, they may be more likely to invest in workforce needs.

Tom Bialek noted that earlier education is needed to teach students what kind of employment the energy sector entails. Most graduates want to do computer work. He noted an issue during which he tried to hire linemen for utilities. However, these workers did not have basic knowledge or understanding of tools, and did not have the physical strength to conduct the work. He had to implement a three-to-six-month training program to physically build strength in workers. This is something to consider for younger workers.

Chris Ayers urged DOE to not forget about regulators, statutory consumer advocates, and people who work in the regulatory space in its workforce efforts. The regulatory space also needs people who know how the electricity system and sector works and how it's constructed; those skillsets are important, and it can be hard to find experienced people to fill those roles.

Betony Jones said that DOE has a program to place fellows in state energy offices, cooperatives, and other community energy organizations. This program is in EERE.

Missy Henriksen noted that energy is not considered a national career cluster, and that the same clusters guiding American education have existed for 25 years. This makes it difficult to teach energy concepts and skills in classrooms. She noted that the organization responsible for career clusters is recommending adding energy as a career cluster, which is an important step towards students considering energy workforce opportunities. There will be a public comment period. Ms. Henriksen said she could connect anybody interested with opportunities to weigh in.

Andrew Barbeau referenced a 2020 study looking at DOE's midrange scenarios for clean energy deployment. This study noted that 220,000 electricians and line workers are needed to support the system. However, the existing workforce will decline. This is a nationally urgent issue because progress will not continue if workers are not available.

Wanda Reder noted that not only field workers are needed; workers with higher education degrees are also needed, which is a longer incubation time.

Energy Storage Subcommittee Update

Jay Morrison provided an update on the progress of the Biennial Storage Report. The subcommittee provided comments on the prior report and had fulsome discussion about those comments. The list of analyses that the Energy Storage Subcommittee thought would be helpful from DOE include but are not limited to:

- Status and progress of emerging technologies
- Cost-benefit and value proposition definitions for energy storage technologies

- Use cases for energy storage technologies and scenarios
- Infrastructure and interdependency studies

Mr. Morrison noted the need to educate and convene stakeholders around these issues. At a high level, the subcommittee is urging DOE to work not only on the chemistry of energy storage, but also the deployment. The subcommittee will continue work on updated recommendations and will likely also focus in the areas of security, safety, workforce, reuse, and recycling. It will be helpful for the subcommittee to hear updates on the status of OE's efforts around energy storage when they reconvene.

Smart Grid Subcommittee Updates

Tom Bialek thanks all Smart Grid Subcommittee members for their contributions. He noted that the secure data portal discussion is necessary to facilitate distributed energy resource participation in markets. He added that Andrew Barbeau took notes during the June EAC meeting and created an outline of a work product to provide recommendations. He prioritized:

- Identifying use cases and convening industry stakeholders to develop a set of model uses
- Assessing current data and gaps for specific use cases
- Defining standards for data derivatives and data fusion products that protects privacy and confidentiality
- Modeling secure data portals for planning

Andrew Barbeau said that the Natural Gas/Electric Coordination work product (framed by the exchange occurring during the "Interrelationship between Gas and Electric" panel at the last EAC meeting in February 2024) is a model for how future work products should be developed because the process provides timely recommendations which are responsive to challenges raised during EAC exchanges.

Tom Bialek said that he is also looking forward to OE's Section 8009 Metrics Development Report.

Grid Resilience for National Security (GRNS) Subcommittee Update

Dave Herlong noted that the GRNS subcommittee is developing the following six whitepapers on the topic of leveraging grid decentralization for national security.

- Grid-forming inverter-based resource paper
- Resilience frameworks and metrics
- Data security and decentralization
- Commercial integration
- Workforce considerations
- Pre-planned islanding for critical infrastructure

These work papers should be finalized by the next full EAC meeting. Mr. Herlong also noted that

the subcommittee is interested in the Volt Typhoon event and having a speaker present on that topic at a future EAC meeting.

Public Comment Period

Ms. Reder opened the floor for public comments and Ms. Faith informed the group that there were no public comments.

Wrap-up and Adjourn June 2024 Meeting of the EAC

Clay Koplin re-capped the discussions from the June 2024 EAC meeting. Key points that he summarized were:

- It is important to consider the legal, commercial, and intellectual property issues on data sharing
- Governance is needed to help ensure secure AI as it grows; additionally, AI is only as strong as the person operating and the integrity of the underlying data
- Need to define the value proposition for investments for both operators and regulators
- Costs grows as data increases
- Educating stakeholders on cloud capabilities and appropriate/inappropriate use cases is important
- Continue to recognize the role of utility regulators, from operational, transition, and workforce perspectives
- Terminology should be defined and accurate
- Grids are as much an information network as they are an energy network and stakeholders should consider low-cost ways to increase security using existing or planned assets
- Stakeholders need operations and maintenance guides for existing energy storage technology, and long-duration energy technology is needed to support the energy transition
- Industry stakeholders sometimes fight over resources can be shared
- The energy workforce is losing capacity which could have impacts on the transition; earlier education engagement is needed.

Each EAC meeting should incorporate an additional agenda block to identify work products from the discussions and develop a plan to create the work product.

Wanda Reder noted that she reviewed the work products from the EAC from the past six years. She applauded the EAC for this extensive body of work products that has provided insight and guidance of national import to the DOE as the energy sector has been transitioning. She also endorsed Andrew Barbeau's recommended model for developing future work products. She noted the increasing complexity of topics over the period that the EAC has been willing to engage with and provide ways forward, as well as the group's ability to successfully collaborate by bringing together a diversity of expertise and backgrounds. She also noted the EAC's ability to break down

siloes and develop solutions that work across stakeholders and sectors as key in the increasingly complex and evolving landscape of the energy sector.

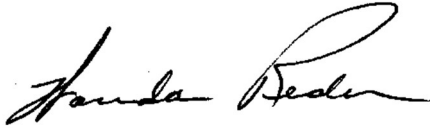
Ms. Reder expressed appreciation for DOE's support for and collaboration with the EAC, and expressed gratitude to the EAC and the continuing impact that the group has. She added to not only think about technology and innovation required but to also consider convening and collaborating. She congratulated OE on its ability to advance the culture of collaboration and appreciated Assistant Secretary Rodrigues' work to do this. She noted opportunities to improve lab coordination but noted that lab coordination has improved a lot. She also noted that she was glad to see that workforce is an element woven throughout discussions, and it is rewarding to see the workforce element advance throughout the EAC and the Department.

Assistant Secretary Rodrigues closed out the meeting expressing appreciation for Principal Deputy Assistant Secretary Bindewald's efforts with the EAC. He noted two major events: the great electrification of America, and the current energy transition underway. The current energy transition is complex and daunting, and the EAC is helping to steer EAC through those complexities. He noted the massive effort that the national laboratories make to help DOE be effective and make a difference in the world. Laboratory work should be better-known and more hands-on with the public. He also expressed gratitude to the EAC for their engagement during the June meeting and encouraged the group to remain engaged. Lastly, he thanked Wanda Reder for her exceptional leadership of the EAC.

EAC work products and DOE responses are available via DOE's EAC website: [Electricity Advisory Committee \(EAC\) | Department of Energy](#)

Signature Page

Respectfully Submitted and Certified as Accurate,



Wanda Reder
Grid-X Partners, LLC
Chair
DOE Electricity Advisory Committee

June 28, 2024

Date



Clay Koplin
Cordova Electric
Chair
DOE Electricity Advisory Committee

June 30, 2024

Date



Jayne Faith
Office of Electricity
Designated Federal Officer
DOE Electricity Advisory Committee

July 1, 2024

Date