

**Summary Minutes of the
U.S. Department of Energy (DOE)
Secretary of Energy Advisory Board (SEAB)
Public Meeting**

Advisory Board Members:

In attendance: Arun Majumdar, Chair, Madelyn Creedon, Vice-Chair; Trenton Allen, Priscilla Almodóvar, Norman Bay, John Dabiri, Kerry Duggan, Brian Garcia, Phil Giudice, Paula Gold-Williams, Shirley Ann Jackson, Tracy Mustin, Maria Pope, Michael Skelly.

Date and Time: July 26, 2022, 9:00 a.m.- 2 p.m. CDT
Location: Argonne National Laboratory
Purpose: Secretary of Energy Advisory Board (SEAB) Meeting
SEAB Staff: Karen Skelton, Senior Advisor to the Secretary; Christopher Lawrence, Designated Federal Officer and Acting Director of Secretarial Boards and Councils.

Meeting summary

This is the fourth Secretary of Energy Advisory Board (SEAB) convened under Secretary of Energy Jennifer M. Granholm. The meeting was physically conducted at Argonne National Laboratory (ANL) and virtually by Zoom. The meeting was called to order at approximately 9:03 a.m. CDT. The meeting was attended by Secretary Granholm, members of her staff, 14 SEAB members, members of the public and the press. The purpose of the meeting was to receive presentations, ask questions, and discuss grid resilience with members of DOE, the National Academies of Sciences, and with members of the SEAB, and to receive updates from the Place-Based Initiatives working group as well as the Clean Energy Deployment working group.

Public Meeting

Designated Federal Officer (DFO) Christopher Lawrence opened the meeting by addressing housekeeping and logistical items. He proceeded by thanking Dr. Paul Kearns, Laboratory Director of Argonne National Laboratory, welcoming the SEAB members, thanking Karen Skelton and other DOE staff members, and members of the SEAB for their attendance. Mr. Lawrence took roll call to ascertain a quorum of attendees for the record (14 members responded). Upon completion of roll call, he introduced Dr. Arun Majumdar, the SEAB Chair, for meeting direction.

SEAB Chair Dr. Arun Majumdar thanked Mr. Lawrence and welcomed the attendees to the SEAB, noting that this was the fourth SEAB meeting during Secretary Granholm's tenure. He thanked the Secretary for the honor of serving on the SEAB and proceeded to summarize the three working groups established to date by the SEAB. They are Grid Modernization, Place-based Initiatives, and Accelerating Deployment. He next summarized the recommendations

presented to and voted on by the SEAB at the June 13, 2022, SEAB meeting and forwarded to the Secretary. Chair Majumdar summarized the agenda with respect to the two groups that were to present on various aspects of the morning's topic which was Grid Modernization, noting that it was the first time in the 100 years of the grid that so many changes were happening simultaneously. As well, he noted, that the SEAB focus on the grid was in part due to the concerns presented by various members of the public during the public comment period of previous SEAB meetings. He then introduced Dr. Kearns.

Director of Argonne National Laboratory Dr. Paul Kearns began his remarks by commenting on the importance of regional outreach and partnerships among the labs and DOE. He described Argonne's contributions as being of five types: Scientific discoveries; cutting-edge research facilities; energy and climate solutions; global security advances; and developing leaders and the STEM workforce of the future. He highlighted some of ANL's contributions noting the strengthening of communities and economies in the region by the recent opening of an office, research, and collaboration center near underserved communities on the south side of Chicago, named Argonne in Chicago, in collaboration with Universities of Chicago, Illinois, Fermi Labs and the Quantum Exchange. The goals for this facility are in concert with the Place-based Initiatives and the Justice 40 concept. Dr. Kearns next described the Laboratory Embedded Entrepreneur Program (LEEP) which give entrepreneurs the opportunity to work side-by-side with national laboratory scientists for two years, while they mature their energy technologies to bring to market. He described how other national laboratories participate in the program, how important DOE headquarters is to the undertaking, noting specifically the DOE Office of Science and the Office of Energy Efficiency and Renewable Energy (EERE). Dr. Kearns continued by highlighting the various leadership programs available throughout the laboratory complex. He concluded his remarks by noting how important the Office of Science is in maturing the world class communities of talent needed by the national laboratories.

Dr. Majumdar then opened the floor to questions for Dr. Kearns by the various SEAB members. Upon the conclusion of questions from the SEAB, Dr. Majumdar introduced the Secretary of Energy, Jennifer Granholm for her remarks.

Secretary of Energy Jennifer Granholm thanked both Dr. Majumdar and Madelyn Creedon for returning to DOE in their roles as Chair and Co-Chair of the SEAB, and the SEAB in general for their continued service to the country. She also thanked Dr. Kearns for hosting the SEAB. The Secretary began her remarks by recounting the Russian invasion of Ukraine and subsequent turbulence caused to the oil and gas market. She noted that the President was using the Strategic Petroleum Reserve to attempt to fill the gaps in the marketplace, to stabilize prices in an effort to help the American citizenry. She noted that in the past 30 days, gasoline prices had dropped \$.67 which is reported to be the fastest drop in history. Secretary Granholm noted that the price was still unsatisfactory, and that the Administration was working to continue reducing that price. She noted that the current status is a foot stomp to underscore the critical need for clean homegrown energy, as it is not able to be weaponized and to guarantee our national security. Secretary Granholm stated that the US is the largest exporter of liquefied natural gas and that the US allies were depending upon the US for support. She commented further that this was the moment that emphasized the need to address climate change, commenting that the week previous to SEAB, over 100 million people in the US were withstanding a severe heat wave, with temperatures of

over 100 degrees in the Pacific Northwest. She stated further that the President had allocated money within the Bipartisan Infrastructure Law (BIL) to provide low to moderate income families with the ability to weatherize their homes, attempting to make them more energy efficient.

Secretary Granholm proceeded then to address the setbacks to the President's energy agenda and the criticality of the proposed tax credits to the building of hydrogen hubs, among other infrastructure. She underscored the recent decision by the US Supreme Court relative to curbing the powers of the Environmental Protection Agency as very disconcerting. She further emphasized that the President was looking to the full extent of his executive authority with which to continue the transition to clean energy. The Secretary highlighted the Department's movement with respect to the BIL and the \$62 billion that will flow through the Department over the next five years, and the functioning of the Department's Loan Program Office.

On a final note, Secretary Granholm noted that DOE will be hosting the Global Clean Energy Action Forum in Pittsburgh, PA, September 21-23, 2022.

Chair Majumdar then opened the floor to comments and questions from the SEAB and introduced Gil Bindewald for his presentation.

Acting Principal Deputy Assistant Secretary, Office of Electricity Gil Bindewald led a discussion of DOE's efforts on grid resilience modeling and technical assistance. He began his remarks by noting that we were in a resilience revolution, in that we are changing the ways in which we power our homes and businesses, the way we drive our economy, and the way we fuel our vehicles. He noted that the resilience discussion was changing the role and how we look at reliability, and he stated that he chose the topic of modeling and technical assistance because it was necessary to get the understanding to help the investments be most impactful and because resilience required extensive collaboration among all parties.

Mr. Bindewald defined resilience as preparing for and adapting to changing conditions as well as the ability to withstand and recover from the disruptions caused by deliberate attacks and natural disasters. The reinforcing authority for these points was a 2017 National Academies of Sciences study. He further drew the distinction between resilience and reliability with resilience being very event focused, those that were low probability but high consequence events. Reliability as described by Mr. Bindewald is an attribute describing an electric power system, such as a machine. He emphasized the importance of planning with respect to resilience, and efficient redundancies. Finally, he thanked the SEAB working group on grid resilience for their efforts to date.

Following a short break, Chair Majumdar introduced the presentation by members of the National Academies of Sciences, Drs. Anjan Bose, Sue Tierney, and M. Granger Morgan.

Grid Resilience Opportunities and Challenges identified by the National Academies of Sciences Report on the Future Grid. Dr. Granger introduced the group's brief remarks by noting that the three presenters were not representing the Academies, but rather to summarize some of the things that the Academies have done relative to studies completed by the Academies.

The first was a 2017 Congressionally requested study dealing with resilience, specifically on wide area outages of long duration. Upon completion of his remarks, Dr. Granger introduced Dr. Tierney who addressed some major policy issues attendant to the national electric grid. Dr. Tierney introduced Dr. Bose for his remarks on advanced grid protection, control, communications, automation and simulation. Dr. Bose noted that irrespective of the amount of research done on individual components, the system still had to be operated with the thousands of components being integrated into it. He closed his remarks by noting that the real challenge from his perspective was the acceptance of a set of common metrics for the grid. Dr. Granger closed the briefing with summation remarks and thanked Dr. Majumdar for the opportunity to present.

Chair Majumdar subsequently facilitated questions from SEAB members to the panel. Secretary Granholm thanked the panel members for their efforts. The meeting adjourned for lunch at approximately 12:00 pm CDT and reconvened at 12:30 pm CDT for the afternoon agenda, which included SEAB working group updates, discussion, and public comment.

Place Based Initiatives working group co-leader Kerry Duggan introduced Bryan Garcia and Priscilla Almodovar who presented the working group's update to the SEAB. Ms. Duggan reminded the SEAB that the focus of this working group was on economic development and the role DOE plays with respect to jobs and justice as they relate to climate change. Mr. Garcia next presented a summary of the working group's observations as they related to their time spent with Argonne and Dr. Kearns in the day immediately preceding the SEAB meeting. He used that experience to highlight the success of Argonne with respect to the local communities and the charter of the working group. He discussed the community engagement efforts of the working group over the past few months and the perspectives gained by those efforts. He closed his remarks by noting that in the coming months, the working group would continue their efforts with DOE to scale their efforts up and out.

Secretary Granholm solicited the working group's observations regarding DOE's regional specialists and the best ways to ensure the various DOE offices continue coordinating effectively and efficiently with respect to the regional specialists.

Chair Majumdar then introduced the Clean Energy Deployment working group for their update.

The Accelerating Clean Energy Deployment working group update was presented by Mr. Phil Giudice. He began his presentation by noting the working group co-chair Ms. Denise Gray was unable to attend the SEAB due to a professional conflict. He summarized the working group's purpose as helping move the economy to a zero-carbon output as soon as possible, globally and responsibly. He noted that the working group had been in conversation with several key people in industry as well as DOE to further the working group's efforts. He highlighted that because of the working group and DOE's efforts, there would be trillions of dollars of private sector capital mobilized, and the question became what we did to accomplish that using as little government money as possible and doing it as quickly as possible. Mr. Giudice mentioned various conversations that were had with the private sector. He closed his remarks noting that by the next SEAB meeting, the working group hoped to have some recommendations for the Secretary and DOE. Secretary Granholm noted that the inability to get Congress to act on

the tax credit issues underscored the need to get private industry involved and how might DOE use leverage in the process.

Chair Majumdar thanked the working groups for their comments and led the SEAB into a general discussion segment of other topics.

Following the discussion segment, Dr. Majumdar moved to Mr. Lawrence for the introduction of the public comment period. Mr. Lawrence received only one request from the public to present comments. Mr. Tommy Waller from the Center for Security Policy was introduced by Mr. Lawrence.

Mr. Tommy Waller from the Center for Security Policy (Co-Director of the Nationwide Secure the Grid Project) opened his commentary by recounting previous brief presentations to the SEAB. He emphasized that his organization was a completely non-profit undertaking. Mr. Waller thanked the Chair for his early remarks pertaining to the meeting organization around public comments that had been received in the past by the SEAB. He again voiced his organization's support for the reuse of spent nuclear fuel and opined that Argonne would be the perfect place to launch an 'earth shot' initiative. As in previous comments to the SEAB, Mr. Waller underscored the opinion that the most important place to have reliable backup power available is at the nation's nuclear power plants to ensure the safety of the reactors as well as the spent fuel. He also indicated that his organization agreed with a previous presenter (Dr. Tierney) relative the lack of metrics for resiliency. He asked Secretary Granholm to look at the written remarks provided to the SEAB from the June 13, 2022, meeting for a discussion of the risk of solar weather to the national bulk power system.

Mr. Lawrence thanked Mr. Waller for his comments, reviewed to see if any other comments had been received. Not finding any, Mr. Lawrence referred the floor back to the SEAB Chair. Dr. Majumdar invited the Secretary to share her comments on the meeting. Secretary Granholm thanked the Chair and indicated that she had no further comments other than what had been discussed. She thanked the SEAB, wished them safe travels.

Dr. Majumdar ended the meeting by thanking Mr. Lawrence and Ms. Skelton for helping keep the SEAB prepared for their undertakings. It was noted that Mr. David Borak would be assuming the duties of Acting Designated Federal Officer from Mr. Lawrence, as Mr. Lawrence was returning to his permanent assignment.

Meeting Adjourned

Meeting adjourned at 1:26 pm CDT.

Respectfully Submitted:

Christopher Lawrence

Designated Federal Officer

I hereby certify that these meeting minutes of the July 26, 2022 SEAB meeting are true and correct to the best of my knowledge.

Dr. Arun Majumdar
Chair, Secretary of Energy Advisory Board