



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

**Advisory Board Members:**

**Present via video conference:** Arun Majumdar, Chair; Madeline Creedon, Vice-Chair; Trenton Allen; Priscilla Almodóvar; Norman Bay; Roxanne Brown; John Dabiri; Noah Deich; Kerry Duggan; Bryan Garcia; Phil Giudice; Paula Gold-Williams; Denise Gray; Shirley Ann Jackson; Tracy Mustin; Maria Pope; Adrianna Quintero; Michael Skelly.

**Date and Time:** October 28, 2021, 1:00 PM – 2:30 PM EST

**Location:** Virtual Meeting held via WebEx for SEAB members, DOE staff, and the public.

**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.

**Speakers:** Secretary of Energy Jennifer M. Granholm  
Deputy Secretary David M. Turk  
Acting Under Secretary for Science and Energy Dr. Kathleen Hogan

**Meeting summary**

This is the inaugural Secretary of Energy Advisory Board (SEAB) convened under Secretary of Energy Jennifer M. Granholm. Due to the COVID-19 pandemic and travel restrictions, the SEAB meeting was conducted via WebEx. The meeting was attended by approximately 70 attendees, including the SEAB members, public, and members of the press. SEAB members heard from Secretary Granholm, Deputy Secretary David M. Turk, and the Acting Under Secretary for Science and Energy Dr. Kathleen Hogan who presented on DOE's Energy Earthshots Initiative. The meeting adjourned after opportunity for public comment.

**Public Meeting**

**Designated Federal Officer Christopher Lawrence** Mr. Lawrence opened the meeting, thanked the SEAB Members, recognized Karen Skelton, Senior Advisor to Secretary Granholm for her efforts in forming the current SEAB, acknowledged other the DOE Staff for attending, reviewed the meeting agenda, and provided brief logistical comments regarding the WebEx format. He then introduced SEAB Chair, Dr. Arun Majumdar to give opening remarks.

**SEAB Chair Dr. Arun Majumdar** Chair Majumdar welcomed everyone and thanked the members of the SEAB for their service to DOE. He highlighted the expertise and diversity that this SEAB brings to the table. He noted that the SEAB's goal is to assist the Secretary and her team to execute on behalf of the American people. He continued by stating that DOE is at a very historic moment.



He highlighted the Department's four key missions: 1) Pushing the frontiers and building the foundation of science and engineering research that permeates the United States; 2) Catalyzing energy, clean energy economy via Research Development, demonstration and deployment that creates pathways for clean energy jobs; 3) Enhancing national security, including stockpile stewardship, nuclear non-proliferation, naval propulsion, cybersecurity, and biosecurity; and 4) cleaning legacy waste from lands contaminated by past nuclear activities. He noted that all these missions are important, and the department will carry out these missions.

Based on the President's priorities and the needs of the time we live in, Dr. Majumdar stated that some of the missions get emphasized and elevated. He went on to say that President Biden has signaled his emphasis on relying on science to accelerate the creation of a clean energy economy and address climate change with the fierce urgency of now, create millions of well-paying union jobs making us globally competitive, and elevate the issue of equity and environmental justice in a just transition. He noted that the Department of Energy is at the center of the President's mission.

He concluded his remarks by stating that the nation is very fortunate to have Secretary Jennifer Granholm leading the Department of Energy given her proved track record as governor of Michigan. With that, he introduced Secretary Granholm.

### **Secretary Jennifer M. Granholm**

Secretary Granholm expressed her excitement in being able to introduce the SEAB and its members to the Nation. She is very excited about the brainpower that the group possesses and noted that she is looking forward to learning from them and gaining their insights as the Department seeks to accomplish the ambitious goals set out by the Biden Administration. She reiterated that the Department has several important areas of focus and highlighted a few in her remarks.

The first was deployment. With the climate crisis that is upon us, we must deploy proven clean energy technologies that we already have. She gave the example that DOE set new goals to power 5 million homes with community solar by 2025 as well as cut solar costs in half. Further, she mentioned another goal of deploying 30 gigawatts of offshore wind by 2030.

The second area of focus she mentioned was the Department must innovate our way over around the rest of the obstacles to our clean energy goals. The goal is to get to 100% clean electricity by 2035 and a net zero carbon economy by 2050. The Secretary mentioned that to do that, the Department must utilize the combined resources of its 17 national laboratories and the program offices along with the partners that we have in academia and the private sector.

The third area of focus she noted was that we must ensure that America is competing in and leading the global clean energy markets so that we can create millions of good paying jobs for



American workers.

The fourth area of is to lift communities that have been left behind. The Secretary noted that as the Department invests in these clean energy technologies, it will direct 40% of the benefits to the communities that ought to be at the front of the line such as communities that have borne the burden of the fossil fuel industry and have experienced climate change impacts.

The fifth area of focus she noted was the need to upgrade and modernize the electricity grid to ensure all Americans have access to clean and reliable and affordable power. She noted that as we add more renewable power capacity, the grid needs to be able to efficiently transport that clean power to high demand centers and to and to rural communities alike.

The final area of focus is to invest in all forms of science, from basic curiosity driven science to applied science. She continued by stating that we must diversify our science, technology, engineering, and math (STEM) talent pool because by opening the doors to STEM careers for underrepresented groups, we can ensure that America's scientific community is pursuing the broadest range of questions and generating the most effective and inclusive answers.

The Secretary concluded by mentioning that all these goals must be accomplished while also making sure that our country is protected and that our nuclear arsenal is safe and secure.

With that, she reiterated her excitement to begin the work along with SEAB.

#### **SEAB Chair Dr. Arun Majumdar,**

Chair Majumdar provided an overview of how the remainder of the meeting would progress. He noted that Deputy Secretary Turk and Acting Under Secretary for Science and Energy Hogan would discuss the Earthshot Initiative and then there would be an opportunity for public comment. He also described the role of the SEAB in advising the Secretary. He stated that the purpose of SEAB is to help the Secretary of Energy and her team be as successful as possible in achieving the goals and mission that Secretary Granholm just laid out. He continued by stating that the help comes in the form of constructive feedback, independent views, and broad advice on matters that are important to the Department and to her. Furthermore, he stated that sometimes there are reports or letters that are publicly shared and sometimes these are verbal feedback in a discussion. Secretary Granholm has signaled that there's an urgency to all the issues that we're dealing with. He concluded by saying that due to this urgency, it is important for the SEAB to act quickly on some of the things that she brings up to share.

#### **Secretary Jennifer M. Granholm**

Prior to Deputy Secretary Turk providing remarks, the Secretary summarized the statements President Biden made regarding the economic framework that he just announced earlier I the day. She noted that the framework focuses significantly on mitigating climate change. Much of



the framework, she continued, contains tax incentives for the build out of clean, renewable energy. She noted that these credits could be applied to hydropower, or geothermal or clean hydrogen in addition to solar, wind, and offshore wind. She stated that another major chunk of the proposed funding in the framework is devoted to improving the transmission grid, which is needed to unlock the renewables being developed. She also mentioned that the resilience of the grid must be improved to avoid events such as the Texas blackout in February brought on by extreme weather events.

The Secretary also highlighted that the framework includes funding to improve home efficiency via weatherization. She also mentioned that the framework has many other provisions to help American families, such as expansions to Medicaid, as well as expansion of the child tax credit for an additional year. She concluded by reiterating that the Department of Energy will see a big infusion of money to be able to send out to do demonstration projects and advanced technologies as well as to make sure that it also does weatherization.

### **Deputy Secretary David M. Turk**

Before introducing Dr. Hogan to discuss DOE's Earthshots initiative, Deputy Secretary Turk wanted to highlight four propositions regarding the Earthshots initiative which provide the foundation the initiative. First, the cost of clean energy technology is instrumental in any progress that the industry will have at scale. The lower we can get the costs, the easier it will be for all parts of the electric sector to implement them. The second proposition is that despite lowering costs of technologies such as PV in the electric sector, we must lower the costs in all sectors. He noted a project he worked on in the International Energy Administration that concluded that only 6 of 46 sectors were able to successfully implement technologies which would lead to lowering global temperatures. The third proposition is that DOE is an R&D powerhouse. DOE has access to the 17 National Labs, the Office of Science, and the Advanced Research Project Agency – Energy. The final proposition the Deputy Secretary noted is that DOE has had success about making sure that its fully coherent around key technologies that matter. He noted that a key success is externally messaging in a way that moves the market along. At this juncture, several participating members exchanged comments and thoughts while awaiting the Acting Under Secretary of Science and Energy.

He concluded by saying with the Earthshots, DOE aims to have internal and external coherence. The goal is to invest money in the technologies that will matter most and do the most impact while also messaging those technologies and getting outside stakeholders excited.

He then introduced Dr. Hogan.

### **Acting Under Secretary for Science and Energy Dr. Kathleen Hogan**

Dr. Hogan's PowerPoint presentation (which is available on the SEAB website) provided an overview of DOE's Energy Earthshots initiative, which provide a roadmap of technology



research, development, and deployment investment over the next ten years. She spoke about the first of the Earthshots: The Hydrogen Shot and the Long Duration Storage Shot. The goal of the Hydrogen Shot is to decrease the cost of emissions-free hydrogen by 80%. The goal of the Storage Shot is to achieve 10 plus hours of storage at 90 percent lower cost within the next decade. She noted that the Department stood up an Earthshot working group.

Following Dr. Hogan's presentation, some members of the SEAB and Dr. Hogan exchanged comments and questions.

**John Dabiri** asked if the Earthshots have a structure to include collaboration between academia, private sector, and the National Labs working on these issues. Dr. Hogan answered by saying that is exactly what the Earthshots aim to achieve. She continued by saying there will be increased engagement via workshops and solicitations. She asked Dr. Dabiri to share any gaps or other things that the Department could be doing to enhance collaboration.

**Bryan Garcia** noted one thing to look at as the Department tries to lower costs to bring technologies to scale is looking at the cost effectiveness impact to rare payers. He cited Connecticut as an example that they set Justice 40 as the number one priority at the Regulatory Commission. He noted that the state has a 1000-megawatt storage target by 2030 and due to the Justice 40 priority, the ratepayers will benefit more than the cost to run the program. The benefit is reducing peak demand thereby reducing electric rates. He asked the Department to think about the measures it uses to analyze cost reduction. Dr. Hogan agreed that the Department must use the freshest methodologies to analyze cost reductions provided by the technologies the Department invests in.

**Phil Giudice** highlighted the efforts the Biden administration is using to bring the entire Federal government to bear to address the many goals it has set out. He believes the Earthshots are a good example of that kind of collaboration, and it can be done across many cabinet agencies. Deputy Secretary agreed with Mr. Giudice and noted a conversation he had with a Deputy at the Department of Defense and they have scale that can be useful to the Department.

**Shirley Ann Jackson** stressed the importance of looking across all sectors, not just the energy sectors to implement these technology advances. She gave the example of the cement and steel industries contribution to greenhouse gas emissions. Those industries can also be instrumental in demonstration projects. She stressed that DOE must take a holistic and integrated approach to be successful. She also asked if the Department is looking to move away from lithium-ion batteries for advanced storage. Dr. Hogan stated that DOE is looking to reduce the cost and broaden beyond lithium ion. Deputy Secretary Turk highlighted the importance of partnerships with universities that the Earthshots are attempting to strengthen. Arun Majumdar noted that for long duration storage, lithium ion may not make it from a cost perspective.

**Paula Gold-Williams** expressed her excitement for long duration storage to last 10 hours or



more, especially in the wake of the incident in Texas. Dr. Hogan clarified that the Earthshots will serve as a “North Star” for where the Department will spend its research funding. The goal is to go beyond 10 hours of storage. The Department will be focusing a lot of knowledge and discovery into getting to a longer duration. Deputy Secretary Turk noted that a variety of storage solutions will be needed to improve the resilience in the system.

### **Public Comment Period**

There were four requests for public comment.

**Michael Mabee** Mr. Mabee is an independent security professional. He commended the members for their service to the country. He highlighted that Secretary of Energy Granholm confirmed in a CNN interview, the U.S. adversaries have the capability to shut down our power grid. He argued that it is unacceptable that after decades of federal reports, studies, and congressional hearings on various threat to the grid that the grid is still very much susceptible to man-made and natural disasters. He continued by stating the security of the electric grid against known threats as a true national emergency. The U.S. must immediately make protection of the critical electric infrastructure against these known threats mandatory. His recommendations are that the DOE and the administration immediately through an executive order and Department of Energy emergency order, mandate protection of the entire electric grid against known threats. Congress at the administration's urging, should enact legislation mandating that reasonably prudent actions on cybersecurity, physical security, EMP and GMD protective measures and hardening from some severe weather events to be taken by all entities, public and private sector that are part of the critical electric infrastructure. He provided details and references in his written comments.

**Joe Weiss** Mr. Weiss is the managing partner at Applied Control Solutions. But I'm also the managing director of the International standards on control system cyber security. Mr. Weiss focused his comments on the lack of security in the sensing aspects of the grid. He compared sensors on the grid to that of human body, such as the sense of touch or taste to inform the brain. He continued by saying there is inadequate cybersecurity as conventional practice to protect measuring pressure, temperature, voltage, current etc. on the grid. He said these sensory measurements are the starting point for situational awareness cybersecurity. At this stage, Mr. Weiss argued, the protection of these sensors is inadequate, and our adversaries know this and are waiting to exploit that weakness. He argued incidents like SolarWinds demonstrated that securing IT and OT networks is an intractable problem. He concluded by saying that a shift in focus and paradigm is needed to protect critical infrastructures.

**David Bardin** is a retired member of Fox LLP. He expressed excitement by the leadership Secretary Granholm bring and the diversity of the SEAB. His comments focused on the grid and the resilience of the grid. Mr. Bardin stated that to protect the grid, we must protect the supply



chain, which means that more manufacturing must occur within the United States. He stated that one issue to address is the costs of manufacturing products in the U.S. He highlighted that electric utility companies will usually find the lowest cost products, which are usually sourced overseas. This becomes a vulnerability. He also suggested the name of a person who could assist. He also provided written comments.

**Tommy Waller** Works for the Center for Security Policy, which is a nonprofit, nonpartisan, educational organization focused on encouraging national security policy to preserve freedom for this generation and the next. Mr. Waller's comments focused on what he considers is a major gap: there's no whistleblower protection presently afforded to members that work in the electric power industry, whether it's in the utility industry or even in government. He and his group see this as a problem because most oftentimes, it's going to be the employees, whether they're government employees or their industry employees, who are going to first witness either safety or security vulnerabilities that need to be mitigated. He referenced several examples of issues surrounding whistleblower protection and safety in his written comments.

The comment period concluded, and Arun Majumdar moved to adjourn the meeting.

### **Meeting Adjourned**

Meeting adjourned at 2:35 p. m., EDT.

Respectfully Submitted:  
Christopher Lawrence  
Designated Federal Officer

I hereby certify that these minutes of the October 28 SEAB meeting are true and correct to the best of my knowledge.

Dr. Arun Majumdar  
Chair, Secretary of Energy Advisory Board