



ADVANCED NUCLEAR ENERGY COMMITTEE

Tuesday and Wednesday, April 21-22, 2026

Collaborative Computing Center, Idaho National Laboratory, 955 MK Simpson Boulevard
Idaho Falls, ID 83415

Senator Dale Patten, Chairman, called the meeting to order at 7:25 a.m. Mountain Daylight Time.

Members present: Senators Dale Patten, Claire Cory, David Hogue, Tim Mathern; Representatives Dick Anderson, Ben Koppelman, Alisa Mitskog, SuAnn Olson, Mike Schatz, Don Vigesaa; Citizen Members Pam Gorman Prochaska, Claire Vigesaa

Members absent: Senator Cole Conley; Representative Macy Bolinske; Citizen Members Reice Haase, Sheri Haugen-Hoffart, Gavin McCollam

Others present: Vivek Agarwal, Richard Boardman, Kaylee Brogan, Mitchell C. Kerman, Glen Murrell, Joseph Renevitz, Ashley Shields, David Tolman, John C. Wagner, and Taylor Wilhelm, Idaho National Laboratory; Robert Boston, United States Department of Energy; Josh Gillespie, National Reactor Innovation Center; Holly Powell, Gateway for Accelerated Innovation in Nuclear

It was moved by Representative Anderson, seconded by Representative Koppelman, and carried on a voice vote that the minutes of the March 24, 2026, meeting be approved as distributed.

IDAHO NATIONAL LABORATORY AND ADVANCED NUCLEAR ENERGY INTRODUCTION

Dr. John C. Wagner, Director, Idaho National Laboratory, presented an overview ([Appendix A](#)) of the Idaho National Laboratory (INL). He noted:

- INL is 1 of 17 United States Department of Energy (DOE) National Laboratories.
- The site and infrastructure includes 4 operating reactors, 49 radiological facilities, 114 miles of high-voltage transmission and distribution lines, 8 substations with interfaces to 2 power providers, and 3 fire stations.
- INL's mission is to discover, demonstrate, and secure innovative nuclear energy solutions, other clean energy options, and critical infrastructure.

In response to questions from committee members, Dr. Wagner noted:

- He believes nuclear energy will play a larger role as electricity demands rise because it is an option for baseload, firm power.
- There are significant technical challenges associated with achieving stable fusion power.
- The President's recent executive orders set aggressive goals and specific directives to agencies, including achieving criticality for at least three new nuclear systems by July 4, 2026.
- The United States has led commercial nuclear power generation, but China is on pace to eclipse the United States in 2030 at its current construction pace.

Mr. Robert Boston, Manager, Idaho Operations Office, United States Department of Energy, presented an overview of the DOE's work with the INL. He noted:

- The DOE's Idaho Operations Office is responsible for supporting the Office of Nuclear Energy missions and operates the INL with Battelle Energy Alliance LLC, through a contractor assurance system.
- Under DOE contracts, 10 companies with 11 reactors are working toward criticality, and up to 5 may meet the July 4, 2026, deployment goal outlined in recent executive orders.
- He led the DOE nuclear regulatory reform effort, streamlining the regulations from approximately 1,500 to 600 pages of regulations in 45 days with a team of 30 staff members.

Dr. Vivek Agarwal, Distinguished Staff Scientist and Senior Manager, Instrumentation and Controls Department, Idaho National Laboratory, presented information ([Appendix B](#)) regarding an overview of advanced nuclear reactors and the state of the nuclear landscape. He noted:

- Nuclear reactor companies engaged in formal licensing or prelicensing activities with the Nuclear Regulatory Commission (NRC) for power-producing reactors use various fuel sources and coolants, including gas, water, molten salt, liquid metal, and heat pipes.
- The United States government is actively supporting advanced reactor demonstration and deployment, including through DOE programs such as the federal Reactor Pilot Program and the federal Fuel Line Pilot Program.
- Applications and challenges related to advanced nuclear development include the rising electricity demand associated with data center and artificial intelligence (AI) energy use.
- Power agreements from sizeable technology companies, such as Meta, Google, Amazon Web Services, and Microsoft, are driving nuclear energy development across the nation.

NUCLEAR FACILITY TOURS

Mr. Taylor Wilhelm, Ambassador, and Ms. Kaylee Brogan, Ambassador, Idaho National Laboratory, led the committee on a tour of various INL nuclear facilities, including the:

- Advanced Test Reactor Complex.
- Idaho Nuclear Technology and Engineering Center.
- Materials and Fuels Complex, including advanced reactor test beds operated by the DOE's National Reactor Innovation Center (NRIC) and the Hot Fuel Examination Facility.

ADVANCED NUCLEAR ENERGY PRESENTATIONS

Ms. Holly Powell, Operations Manager, Gateway for Accelerated Innovation in Nuclear, presented information ([Appendix C](#)) regarding an overview of the Gateway for Accelerated Innovation in Nuclear (GAIN). She noted GAIN was established in 2016 as a DOE initiative with a focus on initiating and completing projects that support commercial deployment of advanced reactors and technologies.

Mr. Josh Gillespie, Chief Operating Officer, National Reactor Innovation Center, provided an overview of the NRIC. He noted the NRIC works with industry and national laboratories to move advanced nuclear technologies from concept to commercialization using test bed facilities, including the Laboratory for Operations and Testing in the United States and Demonstration of Microreactor Experiments.

Mr. Joseph Renevitz, Acting National Technical Director, Regulatory Development Program, Idaho National Laboratory, presented information ([Appendix D](#)) regarding NRC regulation, licensing, and executive orders. He provided an overview of the NRC reactor licensing pathways and DOE's reactor authorization process and noted:

- 10 CFR Part 53 provides a risk informed, technology-inclusive regulatory framework specifically for advanced reactors, which will take effect on April 29, 2026.
- There are 10 DOE Reactor Pilot Program participants, with NRIC supporting much of their work.

- With the support of AI tools, the DOE is developing crosswalks to help reactor developers meet both DOE and NRC requirements without a significant rework.
- Nuclear regulations are rapidly evolving in response to the growing interest in nuclear energy.

In response to questions from committee members, Mr. Renevitz noted he:

- Supports and appreciates GAIN's efforts to engage with state legislatures and educate the public on issues related to nuclear energy.
- Does not anticipate NRC and DOE regulatory efforts merging, although both agencies are working closely to streamline requirements for reactor developers.

Mr. David Tolman, Acting Division Director, Fuel Cycle Science and Technology Division, Idaho National Laboratory, presented information ([Appendix E](#)) regarding the nuclear fuel supply chain and spent nuclear fuel. He noted:

- The nuclear fuel cycle consists of mining and milling uranium, enriching uranium, converting the enriched uranium into fuel, using the fuel in reactors, and storing or recycling spent fuel.
- Uranium purchases by country of origin include 8 percent from the United States, 33 percent from Canada, 22 percent from Kazakhstan, 15 percent from Australia, and 22 percent from other countries.
- Nuclear reactors use several uranium fuel types, including low-enriched uranium, enriched from 3 to 5 percent for use in existing commercial reactors; high-assay low-enriched uranium, enriched from 5 to 20 percent for use in many advanced reactors; and highly enriched uranium, enriched above 20 percent for use in naval reactors.
- The DOE has invested about \$3.5 billion to incentivize the expansion of long-term domestic capacity to produce high-assay low-enriched uranium from conventional feedstock.
- A number of companies are exploring fuel reprocessing using various technologies.

In response to questions from committee members, Mr. Tolman noted:

- Extensive engineering, safety, and regulatory controls ensure uranium reprocessing plants are safe for the public.
- The DOE's recent request for information invited states to indicate interest in hosting Nuclear Lifecycle Innovation Campuses, including whether there is an appetite to consolidate fuel cycle activities within a single state.
- Yucca Mountain is the long-term geological nuclear waste repository specified in law, but the project is not advancing. The DOE's request for information may help identify potential pathways for selecting a long-term nuclear waste repository site.

Ms. Ashley Shields, Senior Manager, Computational Data Science, Idaho National Laboratory, presented information ([Appendix F](#)) regarding the intersection of AI and nuclear technologies. She noted:

- The Genesis Mission is a national mission to accelerate science through AI, including using AI with applied energy, discovery science, and national security.
- The Prometheus Challenge within the Genesis Mission is an effort to use AI to help the United States reach 400 gigawatts of nuclear capacity by 2050, with technical milestones that include an AI design platform in 2026, limited autonomy demonstration in 2027, and a full reactor demonstration in 2031.
- Nuclear reactor design and licensing efforts involve extensive supporting documents and drawings that require considerable human labor and cost to review, and AI can help reduce the personnel needed to review and process the design and licensing documentation.

- The Vulcan Challenge within the Genesis Mission is an effort to use AI to create an autonomous pipeline for nuclear materials discovery, qualification, and deployment.

In response to questions from committee members, Ms. Shields noted:

- AI can take on mindless, routine tasks and enable workers to focus on more substantive work.
- Although some resistance to expanded AI use is expected, its growing use is part of the future and will require adaptation.
- Data security is a primary focus for INL's AI exploration, and software developers are dedicated to ensuring data is managed securely.

Dr. Mitchell C. Kerman, Deputy Director, Critical and Strategic Minerals and Materials, Idaho National Laboratory, presented information ([Appendix G](#)) regarding critical minerals and materials. He noted:

- Rebuilding domestic critical mineral capacity is essential for national security and should be pursued alongside environmental, societal, and technological considerations.
- Rare earth materials are critically important for high-technology and defense applications.
- INL's experience and ability to work with naturally occurring radioactive materials, often found with critical material elements, sets INL apart from other national laboratories.
- INL is planning to construct a critical and strategic minerals and materials complex to support the full critical minerals and materials innovation pipeline, from fundamental discovery to pilot and demonstration scale.

In response to questions from committee members, Dr. Kerman noted the INL:

- Considers tribal land issues when identifying areas for critical minerals research.
- Plans to issue a critical minerals policy reform report that includes creating data libraries to help researchers, scientists, and industry source materials and identify potential exploration areas.

Dr. Richard Boardman, Directorate Fellow, Idaho National Laboratory, presented information ([Appendix H](#)) regarding integrated energy systems. He noted:

- Advantages of nuclear energy include its reliability, high energy density, scalability, low land use, predictable and non-volatile output, low-emission profile, and ability to serve as a dispatchable and controllable power source.
- Heat from a nuclear energy facility could be used to support the industrial manufacturing and petroleum refinery industries.
- A laboratory is located at the INL campus to study system integration, with plans to expand research to the desert site for pilot-scale testing of nuclear integration with other energy sources.

In response to questions from committee members, Dr. Boardman noted using integrated energy systems may help reduce environmental impacts associated with energy development.

No further business appearing, Chairman Patten adjourned the meeting at 12:45 p.m. Mountain Daylight Time.

Megan J. Gordon
Code Revisor

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