



**MINUTES**  
 May 3, 2023

<b>Commission Members in Attendance:</b>	
Scott Bedke	Gaylen Edmo
John Wagner	Mark Peters
Roger Brown (sub)	Philip Reppert
Wendy Horman	Rebecca Casper
Tom Kealey	Hootie Langseth
James Petzke	Hannah Young (sub)
Richard Stover	Doug Sayer
Ty Blackford	Jim Woodward
Rick Aman	Steve Laflin
Paul Arrington	Dave Lent
Brady Hall	Chris Nomura

9:02 am Co-Chair John Wagner called the meeting to order.

**Horman moved to approve minutes from January 25<sup>th</sup>, 2023. Seconded by Kealey. Motion approved.**

Idaho Cleanup Project Update. Connie Flohr, Idaho Cleanup Project Manager. See PowerPoint.

*Q: Wagner – Kudos to the ICP team, especially on the wet to dry transfers. From the lab’s standpoint, this is a huge deal. We also appreciate the Governor’s Office for their role in this. Did you say that you anticipate processing 100 canisters by July?*

A: Yes.

*Q: Hall – Can you talk more about what is next? When are the shipments coming? What are the projects that this fuel is going to be used for?*

A: We should put this on the agenda for a future meeting. We have to plan around outages at plants so that they can pull and ship it. June-October/November time period. We missed the June window, so it will likely be the October/November timeframe. The rods for research purposes give opportunity for 1. fuel performance in existing light water reactors, 2. provide unique data for how they behave after coming out of reactor, 3. R&D for fuel recycling.

*Q: Laflin– Is there mixing? As you get closer to the end are there residual solids left?*

A: We do have a blend tank. There are residual solids at the end, but we rinse the tanks and clean before we declare the tank empty.

Nuclear Pathway Report, John Kotek, NEI. See PowerPoint.

*Q Peters: What are the opportunities for partnership?*

A: One of the things I am seeing is an interest in utilities and overseas partnership. There are more and more conversations about how we work together to reduce risk jointly by taking on first of their kind costs together. Around the

world, there are opportunities. There is a lot more interest in overseas markets moving beyond Russia. Seeing a lot more entities in other countries that are interested in new build and want to share costs.

*Q: Kealey – I didn't see where licensing and permitting is an impediment? How does a utility get funding?*

A: Licensing is time consuming. Many are urging the modernization of the NRC because their licensing is based on the older light water reactors. The process needs to evolve along with the technology. Design certification takes 3-4 years and \$45 to \$68M in staff time. When pre-application projects move forward to review, that will increase NRC workload almost exponentially if they don't find ways to reduce time and investment while maintaining safety. A utility gets funding by going through the rate case process. Regulated states will probably achieve this first. In GA and SC, they passed CQIP – bill ratepayers for a share of the construction costs as they go to reduce costs. ITC in the IRA is 30% if carbon-free, energy community is 40%, domestic sourcing is additional 10%. Long-term PPAs reduce exposure to the utility. There are many things being done to reduce the risk on the taxpayers, this is the chicken and egg challenge that is highlighted in the DOE report.

*Q: Casper – At the local level, we are having a hard time finding citizens willing to pay a few dollars more each month to have cleaner power. We have a new program through Idaho Falls Power to opt into this. What are your thoughts on that?*

A: Some companies are not putting together an individual proposal, it's part of a larger plan. Blend a higher cost, higher value nuclear with wind and solar so that it looks less challenging for new customers. In the Carolinas, what's driving nuclear is that there are not a lot of other options. They know coal is not a viable long-term option. They are working to convince PUC why this is needed, because the other alternatives are less attractive.

*Q: Nomura – How are other countries matching up and what is the final cost comparison?*

A: The South Koreans and Japanese were building reactors on a 5-year timeline for less than \$4,000, in Korea, less than \$3,000. New nuclear has been the most successful effort to implement low carbon energy resources in a timely manner.

*Q: Wagner – Do you recall if land use is constrained?*

A: The land use of renewables is a big deal; transmission is even worse. Makes nuclear look easy.

*Q: Woodward – What are assumptions on the “Nominal Case” slide?*

A: This is a relatively conservative estimate of electricity growth. Other projections have shown a doubling by mid-century.

*Q: Kealey – How much does a new NRC license cost? Existing site costs?*

A: Existing reactors fall under a different regime. \$6-8M a year on an ongoing basis for existing projects.

Wagner – For awareness, INL recently released a report titled, “*Recommendations to Improve the Nuclear Regulatory Commission (NRC) Reactor Licensing and Approval Process.*”

Advanced Reactor and Mountain West Energy Transition Panel: Paul Kjellander, INL, Richard Boardman, INL, Rep. Don Burkhart, Wyoming, Glen Murrell, Wyoming Energy Authority.

*Burkhart – Overview of Wyoming and Importance of the Energy Sector.* WY is the 2<sup>nd</sup> largest energy producer in the nation. Large uranium, natural gas, petroleum, coal reserves. WY's energy industry is integral to the entire northwest. The legislature is taking positive action to support nuclear. WY has 44 applications for carbon sequestration. WY has one four-year university and within it is the School of Energy Research. After Natrium was announced, legislators went to INL to open a dialogue on nuclear energy. This led to money for capacity building and continuous collaboration with INL. The WY legislature is funding research. To support TerraPower in Kemmerer, WY the legislature removed roadblocks in statutes. Wyoming changed SMR to advanced nuclear in legislation, built out CO2 sequestration economy, flue gas, rare earth demonstration project, hydrogen.

*Murrell – Wyoming Energy Authority.* Wyoming is unique in that it has the 3<sup>rd</sup> largest energy economy. It is uniquely diverse in that it has coal, oil, gas, renewables, uranium, etc. 90% of energy production is exported. The largest geo commodity market is natural gas to CA, second is coal to Texas. The WEA was created in 2020. Legislature gave WEA responsibility to create the Wyoming Energy Strategy. Wyoming has an all of the above energy portfolio. Want to protect legacy energy sources, so WY is leaning into technology such as carbon capture, hydrogen, and advanced reactors. Regional approach – WY’s energy economy does not stop at the borders. There needs to be a regional context, so WY works on a regional scale such as to establish a hydrogen hub with other western states.

*Kjellander – Overview of Regulatory Environment.* Aside from GA’s Vogtle, there are not many lessons learned by other states. There are only 21 states that have nuclear fleets. As we see more activity and interest in advanced nuclear, we need to look at the national scale. There are six states in the West that are seeing nuclear in their resource plans for the first time with PacifiCorp’s TerraPower. 23 states are part of the NASEO-NARUC Advanced Nuclear State Collaborative, 4 more would like to join. Need to bring in utilities and come up with use cases to help identify how to move ventures forward. From the regulatory perspective, we need to move away from cost per kWh and look at overall value benefits. Nuclear is dispatchable, doesn’t come with issues such as volatility, issues that come along with carbon, hydropower prices increasing. If regulators are on board, that will give investors more comfort in investing.

*Boardman – WY, ID, AK, UT as a region can launch the nuclear benefit.*

*Q: Wagner – What we should be doing in Idaho to support industries?*

A: (Burkhart) In WY, we don’t have a nuclear history. We have some uranium mines, but we start with a clean slate. (Kjellander) ID should consider exploring a nuclear partnership similar to what is occurring in WY. (Boardman) Idaho Falls Power has peaking hydrogen turbines.

*Q: Aman – Can you reflect on construction and operation of sites in WY?*

A: (Burkhart) Workforce is a challenge in WY. We are going to rely on a lot of community colleges. There’s a great migration in the workforce. We need to educate people at the level needed to operate a nuclear control room. (Murrell) There’s a disconnect between closure of the plant and the operation of nuclear. Questions about housing, daycare services. There are still a lot of problems that need to be solved.

*Q: Bedke – What is Wyoming doing that Idaho is not doing? What is neither doing that we need to be doing?*

A: (Kjellander) Wyoming’s position is based on the fact that they have an announced project. Once that happens, it’s real. The PUC in Idaho is aware of that. The near-term transition away from coal is natural gas (that’s the case for Idaho Power), but there is also awareness that that is the next thing on the chopping block. Mostly need to expose people to the possibilities of nuclear, will take time and outreach. (Burkhart) WY has looked at nuclear power over the years and thought that it’d be too expensive. Legislators got together and formed an informal caucus to take an aggressive approach and push issues as much as they can, including talking with the Governor. Legislators should take a direct approach.

*Q: Bedke – How much are we in the way?*

A: (Kjellander) Years ago, there were talks of developing a light water reactor. Was told Idaho statutes were ready. If a utility wanted to build a reactor in Idaho, there’d be local jurisdiction action and the NRC license, but the statutes are friendly.

*Q: Kealey – We have two of the most near-term projects, NuScale and TerraPower, that are in our backyard. How can the LINE Commission and state take advantage of that in terms of supply chain and workforce.*

A: (Murrell) Align with what INL is doing. Recommends that the state link up with INL, explore the Frontiers Project.

*Q: Edmo – Have there been any alternatives on where natural resources can come from in the future? Tribes need to be involved in these discussions. Oftentimes the tribes are left out of conversations until formal consultations.*

INL Facilities Past, Present, Future Panel: Carlo Melbihess, INL, Lance Lacroix, DOE-ID Manager, Craig Blakely, NRF Site Director, Co-chair. See PowerPoints.

*Q: Gaylen Edmo – Is the power being produced put on the local grid?*

A: The grid that we operate is fed by two commercial power providers. The power gets distributed to INL facilities. Projecting within the next 20 years demand will double. Is working with Idaho Power to make sure they can meet the power demands.

*Q: Kealey – Why haven't microreactors been embraced by the private sector, municipalities yet?*

A: What we put on ships is designed for battle environments. It's different than what you'd want on land or for a commercial plant.

*Q: Wagner – Much has been said about workforce and supply chain on big projects. Can you talk about workforce and supply chain and how you might be managing that?*

A: It is an important focus, work closely with Idaho State and College of Eastern Idaho.

Clean Energy Technology Proving Ground. Todd Combs, INL. See PowerPoint.

*Q: Bedke – What's the timetable on plugging microreactor into this project?*

A: There's a lot of moving parts and it's not exactly clear. There are multiple companies interested in testing at INL. The answer is that we are working with many companies. Hope to have geothermal, solar, wind, in addition to nuclear.

*Q: Weismann – What's the role of hydrogen in a carbon-free economy?*

A: Will use hydrogen for steelmaking, fuel production, energy storage. It has a significant role. Hydrogen hubs will be a \$16B (\$8B DOE, \$8B private) program for 4-6 regional hydrogen hubs.

Advanced Energy Economic Development Discussion. Bobbi Jo Meuleman, State of Idaho, Kirt Marlow, Advanced Energy Consortium.

*Marlow – Working on an annual energy report that will come out in the fall. It will be presented to the LINE Commission and State of Idaho.*

*Meuleman – To my knowledge, there are not many other states that have something like the LINE Commission. The state needs to support industry and business expansion. In addition, workforce is a big priority – Idaho Launch is a training program that can support INL. What are the regulatory burdens, laws prohibiting growth, workforce needs, what do we need to build supply chain in Idaho? The Idaho Advanced Energy Consortium is starting to have those conversations and the Governor is very supportive. Regionally, Governors have similar priorities to move these issues forward. Idaho is excited to get robust recommendations from the energy consortium.*

*Q: Marlow – What are the next steps for us to collaborate with other states in the region?*

A: (Casper) We could convene western governors to discuss collaboration on nuclear energy. (Meuleman) We have been trying to bring governors to the site and to have that conversations. (Peters) We as Idaho need to have a more coherent, focused, and coordinated view before we engage more at the regional level. Not just the state, it's everyone – the Lab, universities, etc.

*Q: How can we further the scope and mission of the Consortium?*

A: (Weissman) We need to make these technologies commercially viable to extend benefits to all of Idaho. If we plan ahead so that this sector we can mature. What can we do to prepare for when this becomes mature? (Peters) The lab can be an enabler, but it's beyond the mission of INL to do business attraction. (Casper) Need to consider policy change, tax incentives, regulations. Need for an educated public and educated public officials. Need to engage the public more. Need to consider who goes out to recruit business to Idaho. We assume that will just happen, but it actually takes a lot of planning and we need to figure out who can do that. (Kealey) It's been amazing to be on the LINE Commission. There's a plethora of options and opportunities, for example we chased NuScale. I support the Consortium.

## Commission Discussion

*Stover – Update from the State Nuclear Policy Working Group.* HB 96 was passed through the legislature with overwhelming support. This was an amendment to the Idaho Energy Resources Act, which had a definition of renewable energy. We changed the definition from renewable to clean energy to now include new technologies such as nuclear. This signals to the world that Idaho is open for business to nuclear and other emerging technologies. We also discussed a workforce development proposal. 8k grants for high school students to go into workforce training programs, such as for the advanced energy sector. There was also a discussion of a regional advanced energy working group. In addition to the Idaho Advanced Energy Consortium, through the Idaho Strategic Energy Alliance we are hoping to create a task force on advanced energy that will create a framework for how Idaho can play in the advanced energy sector.

## Public Comments

Tammy Thatcher, Idaho Falls – I was a nuclear analyst at the Advanced Test Reactor. I noticed today that Kotek spoke of challenges to nuclear construction and delivery. He's hoping these problems will be solved, but I remember when the industry said these problems were solved. Reactors are far behind schedule. The boutique reactors will not solve climate change. No one seems to mention that we need two Yucca Mountain repositories, and we only have one. Requires more canisters... The biggest problem remaining in the Idaho Settlement Agreement is getting high level waste out of Idaho, but that is on track to be missed for decades. The State takes a backseat and doesn't see any of this get addressed. The builders build and the ratepayers will bear the cost of construction even if the project ends up failing. This group is biased toward nuclear without caring about ratepayers and citizens.

## Closing Comments

Bedke – We received good news today that the movement towards the IWTU is starting and working. It is integral to many of the other things we talked about today. I think we turned a major corner as a state and for the Lab.

Peters – We have the Lab, the cleanup progress, universities, community colleges, mayors, local support. If we get a little bit better coordinated, the opportunities will come, so I look forward to the conversations.

Casper – Nuclear Now movie is coming out. Perhaps set up specialized viewing for legislators and commission members. It's informative and it takes you through history.

Wagner – The Laboratory is profiled in the movie. I encourage you to see it if you can.

**Meeting adjourns at 4:18 pm.**