MINUTES
Friday, August 10, 2012
9:00 a.m. – 3:00 p.m.
Idaho State Capitol Auditorium (700 W. Jefferson, Boise, ID)

Commission Members in Attendance

Chairman Jeff Sayer, Dept. of Commerce
Jared Fuhriman, Mayor of Idaho Falls
Roger Madsen, Dept. of Labor
Mark Rudin, Boise State University
Duane Nellis, University of Idaho
Larry Craig, Retired United States Senator
Sylvia Medina, Northwind
Bart Davis, Idaho State Senate
John Grossenbacher, Idaho National Laboratory
John Kotek, Gallatin Public Affairs
John Chatburn, Office of Energy Resources
Arthur Vailas, Idaho State University
Nathan Small, Shoshone-Bannock Tribes

Welcome and Introductions

Chairman Sayer welcomed the Commission members and special guests who will be with us throughout the day. Willie Preacher is sitting in as proxy for Chairman Small. Peggy Hinman is sitting in for Sylvia Medina - who will join us later in the day.

Chairman Sayer recapped the August 7, 2012, meeting with Assistant Secretary Peter Lyons of the Department of Energy. Chairman Sayer also thanked the Governor for meeting with the Commission that day to introduce Secretary Lyons. The Governor encouraged us to move beyond the original Executive Order, which demonstrated his commitment to INL and to the industry.

Chairman Sayer prefaced today's meeting as a discussion about opportunities. We have tried in past meetings to recognize the sanctity of the Settlement Agreement and any environmental concerns. But we have looked forward to this opportunity to have folks from the industry, and from our neighboring states, to start opening the door and have a discussion about what the opportunities are and how we move forward. We want to bring an appropriate, strategic balance to the conversation.

Presentation by AREVA, Inc.

"LINE" – Leadership in Nuclear Energy seems redundant since Idaho has been the leader in nuclear for the last 60 years. He noted that he lived in Idaho from 1990 to 2006, but that doesn't make him biased, it just gives him good, common sense. He recognized that Bob Edmonds of AREVA is also in attendance.

AREVA is the largest nuclear vender in the world – about twice the size of the next largest company. They are the leaders in high temperature gas reactors – the ultimate in safety where if you have an issue you can send people home for a couple of weeks to think about it and the reactor will be safe.

AREVA has sales in the US of about $2 billion. About $100 million of that are foreign exports. Of the 104 nuclear reactors in the US, AREVA provides some goods or services to each of those. AREVA is a partner with BEA at the INL. At the TREAT reactor restart, they did a test to survey on what it would take to restart it and put together the plan to restart that. Eagle Rock is their largest single investment in the U.S. It's about a $3 billion investment and they hope to double it to $6 billion.

Globally, in addition to what they do in France, they are building two plants in China, and there is a lot happening with 60 plants underway, 150+ planned and another 300+ proposed. Post-Fukushima, the rest of the world is moving forward even though Japan and Germany have stalled. The economic downturn has decreased demand for electricity by 15%. The marginal price for the economic dispatch of electricity is very low right now. That doesn't change the long-term pattern of growth.

Their focus in the US is to maintain a stable regulatory environment and to make sure the financing tools are in place to support the next generation of plants.

Absent Yucca Mountain, AREVA is supportive of the BRC recommendations. Whatever we end up doing as a nation - recycle for MOX or fast reactors – there will always be a need for a geologic repository.

Dr. Southworth talked again about the history of nuclear in Idaho. Because of that, they have invested significantly in scholarships for Idaho universities. They want to expand the missions of INL. The economic development opportunities associated with management of used fuel is substantial. Capturing the future of the nuclear fuel cycle is a significant opportunity. The state would need to evaluate any limitations, infrastructure gaps, participatory public outreach are all important steps to take that don't commit the state up front to fuel management roles.

The state should encourage DOE to refine its Work For Others (WFO) and Cooperative Research and Development Agreement (CRADA) efforts so that it encourages industry to do work with INL.

The state needs to explore the opportunity to leverage its nuclear training at CAES, EITC, to take advantage of the BRC recommendations. They are encouraged that they actually have an enrichment class at ISU – this is helpful for their plans in Idaho.

Dr. Southworth's final recommendation was to be flexible and open minded with regard to the Settlement Agreement. In the 17 years since the Settlement Agreement, there have been many areas of progress in dealing with cleanup. There is a need for long-term used fuel nuclear research, and if Idaho doesn't step up other states will. We want them to come to INL to do the work. If the state can find the flexibility needed, we want to find the resources to bring work here.

A question was asked about the availability of an educated workforce to meet this need. Can Dr. Southworth talk about the gap that might be there in meeting the education needs of the nuclear industry in the next 5 to 10 years?

The immediate demand will come from the current 104 plants. As they extend the life of plants, they can't extend the lives of their employees. As construction ramps back up, AREVA will have a significant demand. On fuel cycle, Southworth is encouraged that nuclear chemistry programs are reemerging. In terms of traditional nuclear engineers, universities are leading indicators. Universities seem to know before industry what the needs are. Nuclear engineering has been ramping up – even with Fukushima – enrollment is up.

Another question was why the Eagle Rock facility was delayed and when it will start back up? Dr. Southworth said he can't give a date. But the economic issues for the delay are clear. A two- or three-year delay in Eagle Rock won't cause them to miss the market. As soon as they get past these economic conditions, they will finish it. It's too good a project not to. They have already sold the capacity.

One of the Commission members visited La Hague and was impressed with the French outreach to the local population. He's interested in how a quasi-governmental organization communicated with the population to continue to do what it does? How should we in Idaho approach waste management with BRC recommendations?

Southworth indicated that consent-based is very much the practice in France with the local and regional population. In the US, we do that as well. We hold impact hearings and land use hearings that affect the process. That was not the case with congressional action on Yucca Mountain in the 80's. Looking forward, every step of the process – interim storage, recycling – should all be consent-based. There are states that are much more nuclear savvy and attractive than others. Idaho is one, South Carolina, Texas and New Mexico are others. Industry will gravitate more toward these states as we adopt a consent-based process.

Another question surrounded the 1995 Settlement Agreement. In relation to the Agreement itself, while it remains a foundationally important document, there may be a time when it deters opportunities that may not be detriment to the environment. Can you speak to that?

That Settlement Agreement was a tremendous step forward. It ended the dispute between the state and DOE and became the driving document in the DOE that we must get this cleanup done. That wouldn't have occurred without that agreement. The funding performance, has allowed a huge improvement in the site in terms of waste and environmental cleanup. I won't say it wouldn't have occurred, but it was stimulated. It's been 17 years. You didn't intend that to be the only thing for an infinite amount of time. If we make future commitments in the state, we can have the type of things that were in that agreement, no open-ended things. If we have an interim storage facility, there would be a clear path on what you are able to do and what path to follow. Relative to supporting confidence in waste disposition, Idaho has a good role. Adding to the agreement would be important. If you decide that you want to have the recycling plant here, then it would make sense to also have an interim storage site.

A final question was asked on what were the factors that led AREVA to decide to locate the Eagle Rock enrichment facility in Idaho. Are there things we can build on there that we can recommend to the Governor and state?

The support in Boise, Washington, and at INL were key. The coordinated effort, the geology and environment, adequate power and infrastructure, were important, but it was the nuclear intelligence of the state and clearly believing that this place is a good place for the nuclear industry. That was very evident in the community hearings. There were competing sites almost as good, but Idaho had the best reception.

On fuel cycle, it comes down to South Carolina and Idaho – that's where the expertise is. On storage, it makes more sense to do it from a geography standpoint in Western states.

Presentation by Generation mPower

John Ferrara, Director of Business Development, outlined the formal alliance that has been formed between B&W and Betchtel that was formed to design, license and deploy the first commercially viable Gen III++SMR.

The new B&W mPower design is more efficient and enables it to be built in a controlled environment – i.e. can be built in a factory and shipped to the site. This was not possible of traditional reactor components that had to be built on site. The goal is to have 70% built in the factory and 30% on site, which is the reverse of the traditional model. The reactor is designed to be shipped by rail or barge to the reactor site. This is a passive system – can be operated for 72 hours without human interaction. The reactor will utilize a four-year fuel cycle as opposed to the traditional 18-months and uses the standard <5% enriched uranium.

The economics support building these reactors two at a time to take advantage of economies of scale. They are built fully underground to reduce external threats and to make more efficient seismic design; utilizing a relatively small footprint. It includes an option for water or air-cooled condenser recognizing that water may be at a premium.

Ferrara presented a four-minute video that showed a three-dimensional rendering of the surface footprint and below-grade structure of a "twin-pack" plant. If built, it would require a three-year construction timeline.

The licensing strategy requires close collaboration with the regulator. The goal is to have initial plant completed by 2021 timeframe, and up and running by 2022. $100 million has been invested in the testing program as the NRC prefers to run a test in actual conditions as opposed to using a computer algorithm. The testing program tests different operating conditions of the mPower plant. The Fuel Technology Center in Lynchburg was just completed a couple of weeks ago.

DOE has expressed desire to move this technology forward. They have announced a grant for $450 million for up to five years for cost-share for up to two SMR vendors. This represents a real desire for this technology to be produced domestically.

How does this fit into Idaho's energy picture? BMW has a history of working with INL and welcomes the opportunity to continue to work with INL in the licensing of mPower – much is to be gained in partnering with INL.

A question was asked how Idaho is viewed by the nuclear industry? How can we support the INL and what role can we play to support the industry and position ourselves as well as possible? It is a matter of getting that dialogue started earlier. There are aspects of the mPower design that could be leveraged at the INL and in Idaho.

Another question was what is it about the site in Clinch River, Tennessee that makes it attractive? How many plans need to be built before the cost makes it an option for Idaho? Clinch River was going to be the site for the first breeder reactor. The site is appropriate as it had been prepped for a plant. How many before "nth of a kind" where costs begin to level out? With regard to cost, considering the "nth of a kind" by the second or third two-pack, they hope to realize efficiencies to make this affordable.

A final question was whether there are any long term purchase power agreements with DOE or DOD entities to move this technology forward? Response: There is no mystery that Oak Ridge is close to Clynch River so that is certainly within the realm of possibility. If so, it could supply 40% of DOEs "green energy" needs across all labs.

Presentation by NuScale

Bruce Landrey, Vice President, External Affairs & International Sales, introduced NuScale and discussed the evolution of SMRs and how they have become more mainstream in the past several years. SMRs are envisioned to play a significant role in energy production in the future. He also referenced the WGA policy paper on nuclear power that indicated SMRs are important to energy production and our economy.

With the NRC's new process for design certification, there is a new standardization. There are a number of drivers for SMRs including safety and reduced business risk. The acceptance of SMRs has caused traditional nuclear industry representatives to recognize that there is an opportunity to scale down and make it more manageable to build a plant – there are "economies of small."

Except for twin units, there is not a standardization of plants or reactors. With SMRs, DOE will standardize the design for 20 years. With that, we get economy. Plants were delayed and owners had to carry costs. Now there is a single license for construction and operation.

There are changes between old nuclear and new nuclear – although the business risk remains.

Old Nuclear vs. New Nuclear

- First of a kind vs. design certification for 20 years
- Separate licenses vs. combined licenses
- Capacity factor 70% vs. capacity factors exceeding 90%
- Active safety vs. passive safety

US market driver for new construction of SMR is the aging infrastructure. Half of the nation's coal plants are more than 40 years old. 230 coal plants have been canceled. 20 percent of our energy comes from nuclear now, but even with life extension all of those plants will retire by 2050.

SMR Drivers -- There is less business risk with the smaller capital cost so it is no longer a "bet the company" decision. "Economies of small" – less to design, engineer, license, build, operate, maintain, decommission. They are striving for modularity and off-site manufacturing of complex components.

It has a broad, accessible market. Their SMR design has true scalability from 45 MWe to 540 MWe in a single nuclear plant. An SMR has multiple applications – commercial power generation, desalination, district heating. Bottom line is they cost less to develop, design, license, build, operate, and maintain.

The NuScale design is a 12-module power plant that clusters multiple small modules inside the plant built incrementally. Bruce explained the design: Skid mounted, air cooled. Easily replaced. Control room simulator. NuScale offers an extra layer of safety, siting options, added barriers between fuel and environment, stable long-term cooling.

A question was asked whether at the end of the day, NuScale is interested in seeing orders for their product? Cost of capital has been a big issue, plus the time that capital is tied up. Are there things that states or federal government can do to address the cost of capital?

That's important with capital intensive projects. A change in the cost of capital can make a huge difference. A 1% change can mean a 2-cent per kilowatt hour difference. Any type of tax-free financing, or anything that lowers the cost to the owner of the plant is helpful. NuScale wants to sell the equipment, but you have to also facilitate bringing the owner operator, the off-taker, the engineering, and the procurement company together.

Another question was asked regarding cost of capital and ROI, is there a minimum ROI?

A fully built 540MWe reactor is in the range of $2.7 billion. AP 1000 single unit might be $5-7 billion. Less risk and financing of time, but on financing, every owner is different. An IOU like Idaho Power would have some ratio of debt/equity allowed by the PUC.

The question was asked with regard to working with INL, have you had any difficulty because of federal requirements regarding a private entity doing work with a public entity?

The results need to be suitable on other technology. NuScale can't do propriety work there. NuScale does have someone working with the national labs to identify research collaborations.

The final question was posed -- we could have done this (build SMRs) in the beginning, but we didn't. What's changed?

What's changed is the ability to realize the same economies or better with a small reactor than with a large. What didn't' change but needed to was the business risk. Trojan was closed because of the business risk it posed to PGE. Every time that plant went down it was a penny a day to shareholders. If you look at the capital costs today, to the market capitalization, with the exception of the two largest nuclear utilities, the cost exceeds the value of the entire company, and so it's a bet the business risk.

With coal plants going off line, they can't replace with gas. But they have infrastructure in place, so a scalable plant could make sense.

LUNCH

Presentation by State of Utah

Chairman Sayer welcomed Samantha Julian – State of Utah Office of Energy Development.

Governor Herbert has four main priorities for his administration - one of which is energy. The Governor's 10-year energy strategy included a call to increase production of electricity by 25%. They have increased 18%.

In that plan, there are five guiding principles:

1. Free market Development of all resources
2. Minimize and mitigate impacts
3. Living and evolving document
4. Utility costs
5. Energy independence

As Chairman of Western Governors Association, Governor Herbert's WGA platform will include energy Independence.

The 10-year Strategy outlined some recommendations for the state of Utah:

1. Established an Energy Office (Opened 14 months ago)
2. Develop plans to keep public lands open – only 9000 wells now, but half again have now been approved.
3. Enhance technology advancement – Research Triangle (Jeff Mues) They want to do in Utah what we've done with CAES .
4. Review role of tax incentives – they have incentives for nuclear development.
5. Increase regulatory/licensing transparency. Rocky Mountain supplies 82 percent of power in Utah. First nuclear wouldn't come on line until 2035. PUCs from other states are being invited to tell them how to diversify portfolio to include nuclear.
6. Reduce energy consumption statewide – WGA will have an energy efficiency initiative.
7. Diversity Transportation fuels. Pinion Juniper. Oil Shell, Oil Sands.
8. Lay foundation for base load growth. They want to facilitate the dialogue. Nuclear panel came to their summit last year. We do have environmental groups opposed to nuclear, and they have supporters from the California market that come in. In 1982 University of Utah did a study – that was the last comprehensive study. They want to do a new one and will engage INL to help with that.

Energy workers in Utah make 171 percent of the wage of the average Utahn. They need to look to Idaho for help with patents and other information.

Central Energy Office does all resources. They track data going forward and serve as the primary resource for advancing energy development in Utah to make energy independent, reliable, and affordable.

Strategic Objectives

1. Policy
2. Industry assistance
3. Relationship building
4. Funding opportunities – Legislature and DOE – which funds near zero - and look at USDA and DOD
5. Energy education

Samantha referenced the nuclear incentive bills in Utah approved last session.
SB 65 - If a nuclear facility is built, they get 75% of their taxes back for a 20-year period.
HB 137 - Infrastructure authority – has tax free bonding ability.

The WGA platform for Governor Herbert will also include:

- Energy education,
- Alternative transportation
- Energy efficiency
- Getting state energy plans together – take to DC as a team.

Cody Stewart was named as energy advisor to the Governor

Blue Castle project proposed in Green River. Once built, some of the power will stay in Utah, some will leave – about 1100 megawatts.

The state has some anxiety over the waste. Governor Herbert has promised to start a balanced conversation on the potential that nuclear may offer Utah. Office of Energy Development has staff dedicated to unconventional fossils and nuclear energy. We need Idaho's help to figure things out, as we look at policy pieces, we'll look to Idaho.

Utah's perspective on the LINE Initiative is that it's a worthwhile and pragmatic recognition of the multiple values of nuclear. It's important to have the dialogue. Utah meets with military installations every other month to talk about energy and other issues.

Her vision for INL is to make it a piece of Utah – not just to come down for a summit or participate n an event. Utah really needs to have an energy education piece on nuclear. They want to start a discussion with Utah's research institutions on CAES to assess collaboration opportunities.

Support from DOE in the nuclear industry. How can we get them to support more education and training? Carbon sequestration funding should be shifted to technologies that are happening and happening now.

They have traveled to the Southeast to examine nuclear, and found that there is a lot going on there. They will take trips there to continue their education. Of particular interest to Utah:

- Hybrid energy systems – how do you put fossil and nuclear together
- Electric roadways and battery vehicles, the state will be doing a lot.
- ARPA-E transportation and transmission should work with the laboratories.

Utah thinks there needs to be a 10-year regional energy plan reflecting the R&D needs and planning unique to the West. Part of that discussion will come during a WGA summit in Utah January 10-11, 2013

A question was asked about one of the guiding principles to minimize impacts.

For nuclear, they have to commission studies to understand their own environment. They'll look at water, land, animal issues. They'd like those finished this year. Sage Grouse plan is to be around 90 percent saving them. Air quality is an issue in the Uintah Basin. It's a winter-time ozone issue. They had $4 million that was dedicated to do a study on air quality this past winter, but it didn't snow!

Another question was posed regarding the GoShutes and their plans to build a waste facility – what happened?

Samantha is from that area and she doesn't think it will come back. The interest has diminished, and it's kind of a dead project. There were concerns on the transportation issue, and the fact that waste would be coming in. There's no resources for energy development. They are looking at geothermal. In the Uintah Basin, much of the production is on Indian Country.

Chairman Sayer thanked Samantha and said we are very interested in having those conversations. He paid tribute to Utah because USTAR has been helpful in collaborating with us.

Presentation by State of Wyoming

Chairman Sayer welcomed Rob Hurless, Energy Strategy Advisor to Wyoming Governor Mead.

Governor Mead appreciates the invitation. Wyoming produces about 10% of the BTU's produced in the country. They dig and ship coal, drill and pump gas, and are the largest uranium producer. There is an intrinsic interest in nuclear. Wyoming has had a nuclear energy task force in the legislature active for a couple of years. They are holding hearings to educate the public on more than just extraction. Wyoming is an exporter, so there is no demand they are trying to meet, but they have an interest in working with the INL in applying nuclear resources in hybrid energy systems to use processed heat in coal conversion.

They view INL as a great partner with the state of Wyoming. They've had a relationship for years with a number of folks, mostly on the non-nuclear side. This past session in the legislature, as an example, the legislature

funded a hybrid energy study that specified INL as the state's partner. INL folks testified to help get that bill passed. INL will do the bulk of the work, but will do it in collaboration.

At the state level, politics change, leadership changes, sometimes we're competing with each other – but if you have an institution that can be the stabilizing disinterested third party that can bring good science and process to the table, that helps states sort out their competitive advantage. CAES is a great example of that and Wyoming wants to build that relationship there.

Question – we spend a lot of time talking about production, but some people say we have plenty – it is just inefficiently delivered. Would it take a cooperative effort from states to get together to improve efficiencies? Is Wyoming working with other states to deal with transmission of energy to the users?

Wyoming infrastructure and Wyoming pipeline authorities look at those issues on a regular basis.

Question – the Blue Ribbon Commission learned about the nuclear industry back in the early 1990's when Fremont County was considering a role as repository. Governor Sullivan vetoed that application. Did you have any insight to that?

In Wyoming, there is general support for nuclear power. If you had some straw poll and asked if they would entertain the notion of having a nuclear plant, they would say yes.

Question – Thanks for your leadership across two administrations. You've talked about benefits of INL, but what are the burdens. How are those burdens perceived from Wyoming?

Hurless said the folks in Wyoming understand business, they understand energy, they want it done right, they want the environment taken care of and folks need to make money as part of that process. The citizenry does get the power business. They understand it provides good jobs. They understand a permitting process that supports development of a plant. With respect to the Lab, need to delineate the roles between the Lab and the private sector and the universities. The University of Wyoming has to get more candid about those roles becoming more discreet and complimentary.

Presentation by Partnership for Science & Technology

Chairman Sayer welcomed Lane Allgood, Executive Director for the Partnership for Science and Technology. PST members come from businesses, educational institutions, construction, and elected officials, and they have reviewed and commented on today's presentation.

On August 7, Dr. Lyons indicated INL is the lead lab for nuclear research. Lane is on the Energy Community Alliance representing communities that host national labs. They meet probably six or eight times a year. It's a competitive business. We should never neglect or take that Lab for granted. Our state needs to have the same attitude.

Idaho is one of the most pro-nuclear states. That was evidenced in the GNEP public hearing which also was noted by AREVA. Opportunities exist that require state follow through and commitment.

Allgood introduced Jackie Flowers to present their PowerPoint presentation. PST is very focused on exploring nuclear industry opportunities, including another test reactor in Idaho. PST presented a variety of recommendations that corresponded with each of the LINE Commission Subcommittees.

Their role is to serve as the spear point for identification of nuclear industry opportunities. They plan to develop unified messaging for all state and local officials for discussions with federal officials and business leaders, and produce a report that identifies appropriate incentives.

Questions - Where do you see us in 10 years?

We will have largely taken care of the cleanup. We should celebrate the success. What's next? PST wants to develop Idaho as the "Silicon Valley" of nuclear energy related business and technology development.

Public Comments

Director Sayer thanked meeting participants and provided all individuals who signed up to make public comments with time to share their thoughts and perspectives.

John McMann – Has an extensive background in Army working with nuclear materials. He does not accept the modifications that allow commercial spent fuel to come into Idaho. Nuclear waste can be stored safely at the point of origin. Idaho is recognized as a non-consent state, and it's been a great debate since 1970's that we should not store other state's waste.

Ed Keener – He is opposed to additional outside nuclear materials being brought to Idaho. He comes as a family member along with a cousin who was a downwinders. His cousin died three years ago of a very virulent form of cancer. Not only was he a downwinder, but was assured there would be no problem. He also has cancer. If you have family members who have cancer from radiation, it's a terrible thing. Nuclear storage is safe until it isn't. There will be a spill, there will be contamination.

Eric Brandt – member of the Snake River Alliance and lives in Meridian. He has been a health care professional for over 30 years. He is strongly opposed to Idaho taking in more waste. He won't accept a modification to the settlement agreement. We are a non-consent state. People of Idaho have voted no, that's for valid reasons.

Dr. David Monsees – a lot of discussion today about minimizing risk, but risk still exists.

Beatrice Brailsford – SRA work has mostly been on the cleanup. Cleanup has made substantial progress and mitigating the problems. Presenters were focused on nuclear waste and Dr. Lyons said budget growth and mission are dependent on consolidated storage. Consolidated storage moves a burden to solve a political problem. The BRC had eight key recommendations and it seems that everyone supports all of those

recommendations – but it didn't recommend reprocessing. If DOE isn't going to be the entity to solve the problem why are they rushing to pull recommendations together?

Michael Jones – Outside the focus of generating jobs, there's a bigger world out there.

Suzanne Lewis – She's a fifth generation Idahoan, downwinder, survivor of a brain growth, and a long term advocate for respect for our land and its people. Her son is an engineer at Bechtel, but he walked away rather than be a whistleblower.

Julie Hoffnagles – Opposed to any modification of the Settlement Agreement.

Jeff thanked the public for their comments. The next LINE Commission meeting will be September 21 in Idaho Falls. Discussed possibly holding the October 19 in Moscow, but another option is via Idaho Education Network teleconference.

John Kotek suggested that there is value in putting out a draft report before we deliver a final product to the Governor.

The Commission agreed, but given the short time frame we have to utilize the LINE commission website and ask the public to review them and make cogent comments in a specified amount of time. We'll have to be sure that we properly notify the public of availability.

Adjourn

The meeting was adjourned at 3:20 p.m.