

NEVADA COMMISSION ON NUCLEAR PROJECTS
WEDNESDAY, OCTOBER 26, 2022; 1:30PM

LOCATIONS:

Clark County Commission Chambers,
First Floor Government Center
500 Grand Central Parkway
Las Vegas, Nevada, 89155

Nevada State Capitol Building, Guinn Room
101 N. Carson Street
Carson City, Nevada, 89701

Commissioners in Attendance:

Senator Richard Bryan, Chairman
Michon Mackedon
M. Paul Workman
Brian Knudsen
Ross Miller
Frankie Sue Del Papa

Call to Order

Senator Bryan called the meeting of the Commission on Nuclear Projects to order.

Roll call was done.

Andy Wilson specified that the meeting agenda had been posted per the open meeting law.

Senator Bryan announced for the record we have a quorum.

We are in compliance with the open meeting law.

Senator Bryan tendered the floor for anyone who wanted to comment in respect of the agenda.
We will also do that at the end of the meeting.

Comments from the public

No comments

Approval of minutes

Senator Bryan the next thing on the agenda is the action of approval or discussion of the June 26th commission meeting.

Commissioner Knudson moved to approve the minutes and it was seconded by Commissioner Del Papa. All voted in favor.

Report from Executive Director Fred Dilger**Status of Yucca Mountain Repository Project**

- Congress has not appropriated new funding for the Yucca Mountain licensing proceeding since FY 2011
- There is a five-mile tunnel in the mountain, but no other infrastructure exists
- DOE does not own the land
- There is no rail line to Yucca Mountain, nor is there the right of way to build one
- DOE and NRC would need years and billions of dollars to prepare to participate in the proceeding
- NRC licensing proceeding continues, per 2013 Court order, because NRC still has \$295,829 in unobligated carryover funds from the Nuclear Waste Fund (NRC spent only \$420 in April 2022), but proceeding is currently inactive due to insufficient funding for resumption of hearings

State of Nevada Motions

- On 26th September 2022 the State of Nevada filed a motion before the Nuclear Regulatory Commission (NRC) requesting the NRC reopen the Yucca Mountain licensing proceeding
- The purpose is to ask the NRC to consider three motions on which there is not disagreement between the State of Nevada and the Dept. of Energy (DOE)
 - Land ownership, Air Force Operating Standards, Human caused climate change
- This offers the opportunity to end the Yucca Mountain license proceeding

We have not heard back from the nuclear regulatory, we hope to hear back from them sometime in mid-November. If the NRC favorably considers our motion we will then immediately file these three motions and if any one of these three are favorably considered then we will ask NRC to dismiss the Yucca Mountain license. This was our effort to try to lift this burden from the state of Nevada.

Senator Bryan - With the presentation as lengthy as it needs to be is there any questions with respect to our strategy and filing the motion. This might be an opportunity for a question.

No Questions.

Director Dilger - This was carefully laid out and very thoroughly thought through effort it was coordinated with the congressional delegation. It was coordinated with our social media strategy and all of those launched simultaneously. I will talk about the impact of the social media later. I know that this is something the commission has requested from this agency for a long time.

We are glad to be able to deliver that. Taken this step we believe it's the right thing to do. We believe it gives us the best opportunity to finally put a nail in the yucca mountain coffin.

Director Dilger asked if there were any questions.
No questions.

Senator Bryan – For the members of the commission when Fred initially laid the strategy Out I was a bit concerned that there would be some misunderstanding, I think Fred the legal team all our representatives in congress at the state level have done an extraordinary job at making sure the media understands our strategy here and is not a change of our position with respect toward strong opposition, so Fred an attaboy on you for that.

Director Dilger thanked the Senator.

New Developments

Three different things that have been occurring recently.

- Consent Based siting
- Inflation Reduction Act
- ANP activities

Consent Based Siting

- 2012 Blue Ribbon Commission recommended a shift to a consent-based approach
- DOE effort 2017 issued a request for comment on consent-based siting
- 2019 NWICA legislative effort to change to a consent-based approach
- DOE 2021 effort Request for Information (RFI): consent-based siting for interim storage- the DOE summarized the comments

Major Themes in the 225 Responses to DOE RFI

- Distrust of DOE and nuclear waste management
- Emphasis on “fairness” in the siting and process
- Challenges in defining a consent process
- Opposition to Interim Siting because there is no repository process
- Support for Congressional Action
- Differences of opinion about the needs and merits of nuclear technology

The most frequently mentioned theme in the comments was the distrust of the department of energy and nuclear waste management.

It's worth pointing out most of the legislation that has been proposed in the last ten years to manage this problem, removes this issue from the department of energy and establishes a new agency to manage it. Precisely because of that issue of distrust.

They talk about the problems of defining a consent process that's something that I think has been addressed effectively in the legislation.

The last thing I want to point out is the comments all highlighted the need for congressional action. Congress has to act in order to remove this roadblock.

Commissioner Del Papa - You mentioned a different agency to manage this can you just briefly tell me the formation and appointment process? I'm assuming that would all take congressional action, but do we know what the appointment process is? How exactly would that work if and when it comes about.

Director Dilger - The nuclear waste informed consent act they have a call for a nuclear waste energy agency and the head of that agency would be a presidential appointment for 6 years with the options for renewal. Then the act specifies that the agency head and Inspector General and then a Chief of staff and Chief Financial Officer. Those would be Senate approval process I believe but with the head of the agency being presidential appointment.

Senator Bryan – Any questions or comments?

No questions or comments.

Inflation reduction Act (IRA)

- The IRA's includes a Nuclear Production Credit for existing nuclear plants
- To be eligible for the production credit, the facility, which must be in service before the IRA is enacted, must produce, and sell the electricity after December 31, 2023.
- The production credit program will start on January 1, 2024 and run for 9 years until December 31, 2032.
- The production credit for existing plants could provide up to \$30 Billion to save dozens of nuclear power plants from early retirement
- This funding is in addition to the previously announced \$6 Billion Civil Nuclear Credit Program, which was contained in the bipartisan Infrastructure Bill passed in November last year.

Director Dilger - We went in and we took a deep dive into the inflation reduction act and looked at the very elaborate mechanisms for providing funding to existing nuclear power plants. The bottom line, I'm going to boil this slide down to one sentence here, and that is that the inflation reduction act combined with the Civil nuclear credit program provides 36 billion dollars to keep existing nuclear reactors afloat.

The idea is that they want to preserve existing reactors and that what the inflation reduction act mainly does. It does not facilitate the construction of new reactors.

Senator Bryan – Any questions on that agenda item?

No questions

HIGH-ASSAY LOW-ENRICHED URANIUM (HALEU) FUEL FUNDING

- New Reactor designs require different kinds of fuel. Currently, the United States cannot manufacture that fuel
- The IRA also puts forth \$700 Million to support research of HALEU fuel
- This would allow the U.S. to move its advanced reactor demonstration programs and commercialization of advanced reactors because most of those reactors require HALEU fuel

Director Dilger - The thing that it does the new reactor designs require different kinds of fuel. The innards of the fuel essentially made in Russia right now so that presents a problem. The inflation reduction act also awards seven hundred million dollars to support the construction and research into how we can have our own halo fuel production facility. The difference is the amount of enrichment in the fuel used. And if this goes forward, when this goes forward. If this is successful it will help make reactor demonstration projects happen. Not fund new reactors but make the projects happen.

ANP Activities

- Social media yuccamountainproject.com
- Motion for dismissal
- Participation in DOE/Industry conferences
- Website redesign
- Plutonium withdrawn from NNSS
- Legal team has been an integral and vital part of all of these efforts

Director Dilger – The next thing I'd like to talk about is the agency activities we launched our social media at yuccawountainproject.com that's a landing page we have already redesigned our website. The social media spiked when we filed or motion. The top three markets in which we have had our effect were the state of Nevada, Washington DC and Los Angeles. We don't know why but Los Angeles. The primary way people came to our website was through a conventional media. For example, after the Nevada independent article came out about our motions the number referrals spiked up dramatically. So that tells us something, that we need to continue to cultivate conventional media as a means of getting people to our social media.

That's been a success, I have to thank Senator Bryan for participating in that.

Next thing we didn't course was the motions for summary dismissal. These things were carefully timed through interactions with the Congressional Delegation the Governor's office and are own social media support and it went off pretty well I believe. Let me put it this way our message came through the correct way the way we wanted it to come through. So, we think it was affected. So, we filed a motion for summary dismissal we expect to hear sometime in November now.

Another item I'd like to talk about is we received notification that is Senator Masto received notification that the half ton of plutonium that had been moved surreptitiously into the device assembly facility at the Nevada National Security Site was withdrawn by September 16th. This came about because of an agreement negotiated with the with the state of Nevada and the department of energy. The agency, agency staff, agency legal team played the leading role in making that happen and we think we were going to chalk this up as a considerable win for the agency.

Senator Bryan - Are you confident in making a comment about Brad Kroll's new role? Because he was involved in these negotiations was, he not several years back.

Director Dilger - He certainly was. Brad Kroll the ex-director of the Nevada department of environment protection has moved on to become a commissioner on the nuclear Regulatory Commission. We worked very closely with the Nevada Department of Environmental Protection. On the plutonium removal we continue to maintain a good relationship with NDEP and the problem of surplus plutonium is quite a massive one and that's something we're going to continue to watch.

Senator Bryan – Marta do you have any comments about the legal efforts at all? Your part of a team that I think has done a very good job of making sure our message was clear .

Marta Adams - The summary disposition motions have not been filed yet because NRC requires that the NRC lift the suspension of the adjudicatory part of the licensing proceeding before any substantive motion can be filed and considered. We are cautiously optimistic although it appears that some of our traditional allies in the process are not probably as up to speed and as engaged as we would like them to be but we're hopeful that we can work on that aspect and get the support we need for the substantive motion to be filed with the NRC. On the plutonium matter that was a little bit outside the agency's purview, but I think it was very masterfully settled per the agreement that Fred mentioned, and I would say that Senator Masto was quite helpful with that as well. So, we were all quite relieved to see that the material was moved from the former NTS which is now the Nevada National Security Site.

Senator Bryan – Any questions or comments on Marta's report?
No questions or comments

Next six months

- Monitor Congressional activity
- Monitor DOE activity-actively participate in DOE efforts
- Monitor proposals for interim storage
- Work with western states to shape DOE policy
- Prepare a new report to the legislature
- Prepared at a moment's notice to defend Nevada in court against a restart of the Yucca Mountain License application

Director Dilger - For the next six months we're going to continue to monitor the congressional activity the department of Energy's activity. We are going to continue to work with the western states. We're particularly helping New Mexico and Texas understand what they would be up against should interim storage facilities be placed there. We're going to prepare a new report to the legislature this will be our normal very substantive report that we will have available we've begun it in draft form and probably be available for the commission's review in mid-December. So where are we at? Like a turtle on a fence post. In terms of national policy on commercial spent fuel it's like a turtle on a fence post it can't move forward can't move back and not quite sure how it got there. That concludes my report.

Senator Bryan – Any questions or comments

Commissioner Mackedon – I do have a question when the plutonium excess shipments were sent to Nevada how much notice was given to Nevada and how closely were you able to work with the government on this?

Director Dilger - that was that was kind of the issue the state was not informed before the shipments.

Senior Deputy Attorney General Dan Nubel - I was working on the case at that time I feel like I could elaborate on that a little bit. Back in August of 2018 that was when a supplement analysis was released by the department of energy regarding the shipment of plutonium to Nevada. We didn't know at that time that it would be 1/2 metric ton of it. As soon as that was released we had a short window to file legal action which we did do but during the time the legal action was ongoing the department of energy shift the plutonium without notice to the state and they only came out as we were in the middle of a hearing for our preliminary injunction that they had already done that without notification. It was done secretly during that time we were able to reach a settlement agreement.

Commissioner Mackedon - is this something that we ought to have on our social media? I mean it's surreptitious and against protocols for DOE to be doing this.

Director Dilger - We can certainly put that together we will take that onboard and talk about that.

Senator Bryan – Other comments? No questions or comments? Dan, can you give us your report from the AG's office?

Senior Deputy Attorney General Dan Nubel - A little bit of what I'm going to discuss was covered very well already by Fred and Marta so I will keep it brief. On September 20th 2022 the state of Nevada through its outside counsel Egan Fitzpatrick Mulch and Lawrence in coordination with the Attorney General's office the agency for nuclear projects in the Governor's office, filed a motion to lift the suspension of the NRC proceedings for the Yucca Mountain license application for the very limited purpose of hearing Nevada's three planned motions for

summary disposition. The purpose of these three motion for summary disposition is to ultimately result in the denial **intangible** factual issues that do not require any additional discovery or fact-finding and that's why they were chosen for these motions. The states of South Carolina and Washington filed an opposition to our motion to lift the suspension Nye County did as well. Department of energy did not file anything it didn't file an opposition or anything in support of the motion. Now that briefing is complete the NRC does not have a strict deadline for issuing any kind of decision. We hope and expect that that will come in the next month but there's no strict deadline for the Nuclear Regulatory Commission to do that.

The next update I have is just in regards to the plutonium which was covered quite a bit. We found out on September 16th, 2022, that the department of energy completed removal of the half metric ton that was shipped to the states and subject to the settlement agreement that we reached. The settlement agreement required that the department of energy remove the plutonium by 2026. So, the removal was actually completed ahead of schedule. There are other requirements of that settlement agreement that relate to no further shipments of this type of plutonium from South Carolina so we will continue to monitor that settlement agreement for compliance with all the terms. I'm happy to take any questions related to those issues or anything else thank you.

Commissioner Knudson - I didn't hear in September that all of the plutonium had been removed. I just wanted to confirm that but maybe I missed it in the news? Or should it be reported on the news?

Senior Deputy Attorney General Dan Nubel - It occurred on September 16th and there was an announcement I think the first announcement came from Senator Cortez Masto who as Marta discussed played a pivotal role in some of our discussion with the plutonium as well. We don't know exactly when the shipments out of the state occurred because of national security they won't reveal that information to us, but it happened at some point between when we entered into the settlement agreement.

Commissioner Mackedon – Asked if it was weapon grade plutonian

Senior Deputy Attorney General Dan Nubel – Yes it was weapon grade plutonian. It was to be shipped to New Mexico to be used for pit production.

Senator Bryan - Can you give us the cliff notes version of where we stand on some of the other matters that are being litigated by the Attorney General's office?

Senior Deputy Attorney General Dan Nubel - I'd be happy to run for them if you'd like but essentially there are no updates on those because all of them are being held in abeyance pending any kind of a continuation of the licensing proceedings, which you know our motion is for a very limited purpose so even if our motion was to be granted with the NRC to file our summery disposition motions then that would not result in a restart those case. They are currently being held in abeyance.

Senator Bryan – Any other litigation that the departments involved with relating to our Yucca project that we should be made aware of?

Senior Deputy Attorney General Dan Nubel – Nothing that I am aware of.

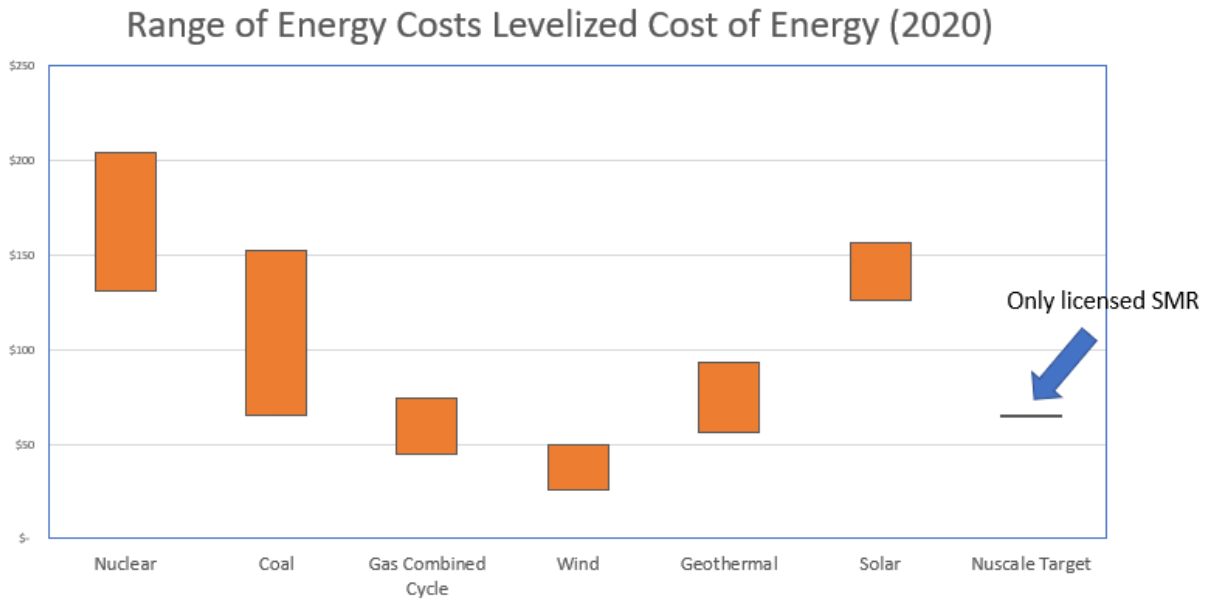
Senator’s mic not working.

Director Dilger – Presented a slide on the economics of nuclear energy and advanced reactors

Economics of Nuclear Energy/Advanced Reactors
What is the motivation for producing SMRs?

Obstacles facing Nuclear Energy/Advanced Reactors

- **Inflexible relative to other energy sources**
 - **Time to construct facilities**
 - **Cost to construct**
- **Not profitable for a long time**
 - **Cannot charge for electricity until it’s generated (in some states Construction Work in Progress)**
 - **Interest and capital charges must be borne by the investor for a long time**
- **High operating costs**
- **Waste storage and disposal**



Levelized cost of electricity (LCOE) represent the average revenue per unit of electricity generated or discharged that would be required to recover the costs of building and operating a generating plant and a battery storage facility, respectively, during an assumed financial life and duty cycle

	Nuclear 1000 Mw	Natural Gas 1000 Mw	Advanced Reactors/SMR
Cost to construct	\$5,000,000,000	\$1,000,000,000	\$5,000,000,000
Time to construct	6	2	?
Interest Rate	0.06	0.06	0.06
Period of the loan (years)	25	25	25
Simple interest	\$7,500,000,000	\$1,500,000,000	?
Total Cost	\$12,500,000,000	\$2,500,000,000	?
Annual Fuel Cost (2019)	\$64,000,000	\$450,000,000	?

Deer Park Energy Center, Calpine TX

- 1100 Mw
- Construction 2001-2003
- Construction Cost \$980,000,000

Vogtle 3 & 4

- 2200 Mw
- Georgia Power began the project in 2012
- Six years late
- Began fuel loading in 2022
- \$16 Billion over budget
- Current cost \$30 Billion

What is the motivation for producing SMRs?

- The quest for SMRs grew out of excessive costs and long construction times for large reactors in the 1990s, and safety concerns after Three Mile Island and Fukushima accidents; intended to be less expensive, safer, easier to fabricate and operate than existing LWRs; potential advantages:

-Economics: lower initial capital cost, standardized designs, factory fabrication, easier component transportation to site, shorter construction time, smaller work force, lower operating costs

-Versatility: size-customization, sequential deployment, utility applications, industrial applications, remote locations, off-grid locations

-Impacts: smaller physical footprint, reduced material requirements & land use, higher thermal efficiencies, reduced thermal discharges

-Safety: automated controls, passive safety systems, accident tolerant fuels, smaller amount of radioactive material in core, smaller accident/incident off-site radiological consequences

-Fast reactors: closed fuel systems, actinide burning, smaller amount of long-lived waste

-Metallic fuels: used fuel suitable for pyro-processing, possibly decentralized

Implications for Advanced Nuclear/SMR's

- Must address the problems of costs and time in order to compete
- No evidence new nuclear designs can do either
- Also Uncertainty
 - No NRC regulatory regime in place (NRC expects to issue new regulations for licensing non-LWR SMRs by July 2025)
 - No experience with construction
 - No experience with operation
 - Waste storage and disposal
- A National Academy of Sciences report on SMR's will be released in Dec. 2022

The chart highlights the problems. We compare a nuclear reactor 100000-megawatt nuclear reactor with 1000-megawatt natural gas reactor. The cost to construct a natural gas reactor about a billion dollars, a nuclear 1000-megawatt reactor about 5 billion if you're lucky. The time to construct a natural gas facility about two years. Nuclear at least six and then the interest rate. The total cost is much more expensive. so that means if you build a nuclear reactor in this is something I know commissioner Workman is very familiar with that the time to profit is about 16 years for a nuclear power plant. The time to profit for a natural gas facility is about 2 years. So, it's a much more attractive financial prospect. So why would anyone want to build a nuclear power plant at all?

Senator Bryan - I take it that the nuclear energy industry is pushing this in the press? There's some stuff that you know and not just in a technical journal, but things that appear in the business section of the local newspaper. Give us some idea what kind of effort we might expect to see from the industry notwithstanding the issues you presented but they may be selling to the General Public.

Director Dilger - I think they will be talking about the same sorts of issues that have been used in Europe. They will be talking about energy security will be talking to a certain extent availability of reliable baseload energy and those are true ,but the problem is of course available at what cost at what price. You can make a very strong argument that it would be better to build more thousand megawatt reactors, more large reactors with known available technology that will be expensive but known. As opposed to the new reactor designs that have all these uncertainties associated with them. With that said Bill Gates has a large investment in terra power and they have their natrium reactor the design and they're aggressively pressing this. I think that we'll see continued media advocating for nuclear power generally as an idea rather than as a business proposition. I think as a business proposition that's where the rubber meets the road and that's where they're going to run into difficulty.

Senator Bryan – Could you have the staff prepare some bullet points? We are going to having some newly elected legislatures coming in. I'm sure they read the newspapers and some of the journals. I'm sure they would appreciate it and I would as well.

Commissioner Del Papa - Fred if you would go back to the chart entitled Range of Energy Costs it's dated 2020. I don't recall where the new scale approved SMR is located.

Director Dilger – It hasn't been constructed yet. It has simply been approved by the NRC. It does not exist.

Commissioner Del Papa - New Scale received the DOE contract to do the offshore small reactors are we monitoring that situation as well?

Director Dilger – We are watching it.

Commissioner Del Papa – Speaking of the Terra Power are we aware of what states they're targeting?

Director Dilger – Yes at the Idaho National laboratory. I have spoken with the representatives of Idaho. The grounds being cleared for it. As a result of my prompting they've started up a working group to start talking to the Department of energy and Terra Power to bring the state into get informed about what they're doing there because they were moving ahead without informing State prior to that time.

Commissioner Del Papa - The next question I have has to do with natural gas. What if any impact will California's possible restriction of gas into new homes have with reference to this issue.

Director Dilger - I have to take a look at the percentage of energy use in California to see how that might affect it and where in California it might affect. So, I'll get something back to you about that.

Commissioner Del Papa - My final questions have to do with the last page. NRC regime for the new regulations. Obviously, I would think that there would be opportunities for input at some point in that process.

Director Dilger - yes

Commissioner Del Papa - Was there an opportunity for input into the National Academy of science report?

Director Dilger - No, the last two meetings were closed meetings. We have a sense of what the direction of the report will ultimately prove to be.

Commissioner Del Papa - And what is the sense if you are at liberty to say?

Director Dilger - I think they are going to be positive about SMR's. However, they are going to have to qualify that considerably.

Commissioner Del Papa – It's my understanding that MIT has a major energy initiative long-standing, and they periodically issue reports that are fairly well received. Because of the interdisciplinary nature of them and the independence of them are we monitoring, or have we made any kind of out with reference to the MIT energy initiative?

Director Dilger – We have not reached out to them, but we watch what they do.

Commissioner Mackedon - I am interested in where the nuclear waste funds stand now.

Director Dilger - In 2015 the nuclear waste fund was redesignated and used to offset the nuclear of the national debt the total amount collected is 41 billion dollars last year kicked off and it produced 1.6 billion dollars and interest.

Commissioner Mackedon – Is this a thinking proposal have you floated this idea?

Director Dilger – One of the things the agency did was we prepared new legislation that we believe fixes the problem, and part of the fix is affixed to the financing. However, we can't move forward until Yucca Mountain dies. This is kind of the problem is that Yucca Mountain has to end in order for the nuclear industry to move forward.

Commissioner Del Papa - Tell us what the status is as far as we know of the private company that is applying to do a high-level waste dump in New Mexico on top of the aquifer that services eight states.

Director Dilger – There are two interim storage facilities that are presently in the process of licensing . One is the Interim Storage Partners in Texas, Andrews County Texas and across the state line is Holtec. We have worked closely with Texas and New Mexico in this. We told them very early on that they needed to follow Nevada's lead and establish a statewide bipartisan consensus and then to lawyer up.

Texas passed a law that would address the management and possibility of developing an interim storage facility in Texas and New Mexico was planning on doing the same thing. The Texas application was much better than the New Mexico application and it made more progress but my understanding is that the ISP the interim storage partners are not going to proceed for a couple years they're waiting on a more favorable political climate in Texas. The New Mexico application I think is going to proceed.

Senator Bryan - It's my recollection that Governor Abbott in Texas expressed strong opposition to this proposal. Am I correctly informed?

Director Dilger - That is correct.

Senator Bryan – Any questions or comment? Frankie Sue I have been informed that you had a suggestion that we have another meeting after the election? So that we can brief the new legislators on the situation and the issues they may face.

Commissioner Del Papa – I think we should shoot for the last week in November. I think we should do it through Zoom. My thinking is Mr. chairman that we would have a post-election meeting. To go over and to digest what has happened in these midterms. Briefly look at where we are at the federal level where we are at our state level what the strategy is that we're going to employee with the legislators . Frankly I think that it might be good for us to go over the outreach to allies and where we are and what other things we might be doing, and we might help in terms of western states.

Commissioner Bryan- We will have a lot who have no background in this issue at all. I think that would be a good thing to do.

The next thing on our agenda comments from the affected units and local government and tribal representatives.

No comments.

Any comments from the general public?

No comments.

Next Commission meeting

November 30th, 2022

Adjournment

Chairman Bryan called for the adjournment of the meeting. Commissioner Workman moved to adjourn, and it was seconded by Commissioner Miller. All were in favor.

