UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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MEETING

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TUESDAY,

DECEMBER 12, 2023

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The Commission met in the Commissioners' Hearing Room, at 9:58 a.m. EST, Christopher T. Hanson, Chair, presiding.

COMMISSION MEMBERS:

CHRISTOPHER T. HANSON, Chair

DAVID A. WRIGHT, Commissioner

ANNIE CAPUTO, Commissioner

BRADLEY R. CROWELL, Commissioner

ALSO PRESENT:

TOMAS HERRERA, Acting Secretary of the Commission

BERNICE AMMON, Deputy General Counsel for

Licensing, Hearings, and Enforcement

NRC STAFF:

ROBERT LEWIS, Deputy Director, Officer of Nuclear
Material Safety and Safeguards

EXTERNAL PARTICIPANTS:

MANUEL HEART, Chairman, Ute Mountain Ute Tribe

DR. MICHAEL GOFF, Principal Deputy Assistant Secretary, Office of Nuclear Energy, U.S. Department of Energy

KYLE WENDTLAND, Land Quality Division Administrator, Wyoming Department of Environmental Quality

KIRK SCHNOEBELEN, President, URENCO Inc

RICH AUGI, LWR Fuel Product Director, Global Nuclear Fuel

NICKOLAS ROTH, Senior Director, Nuclear Materials Security, Nuclear Threat Initiative

PROCEEDINGS

9:58 a.m.

CHAIR HANSON: I will now call to order today's Discussion of the Administration's Short- and Long-term Domestic Uranium Fuel Strategy.

All right. Good morning, everyone. Thank you for being here. I think this is a great opportunity. I understand Mr. Augi may be slightly delayed on the Metro. But hopefully by the time we make our way down the table to him, he will have overcome Washington area mass transit issues and will be here to join us. I look forward to a good discussion.

There's, of course, a lot going on in this space, both on Capitol Hill and in the Administration. And it's a great opportunity for the Commission to engage directly with our agreement state partners, our government-to-government Tribal partners, other parts of the administration as well as those from the nonprofit and private sectors to discuss the uranium fuel strategy and NRC's readiness to support licensing and oversight. I'd like to extend a special welcome to Manuel Heart, Chairman of the Ute Mountain Ute Tribe. And Chairman Heart, I'd invite you to open us with a prayer if you'd like to this morning.

CHAIRMAN HEART: Thank you for that. I really appreciate that. So if you just bear with me, I'd like to stand. I'll say a little bit in my own language. (Native language spoken.)

Creator, thank you for this day, this time of the year that we -- Thank you for all the blessings that you've given upon us and our families and our children and our elders, wherever we may live. Continue to bless us

in that way, Creator.

Help today open the hearts and the minds of us talking at this table that we may better understand you, Creator. That we may better understand that your children here that work together for a better future for things that'll be good for all of us. The holiday seasons are upon us.

Your son is born end of this month, Creator. We thank you for your son, what he has done for us, that he's helped us, a better understanding -- a better understanding about love, a better understanding about trust, a better understanding about respect for all of us that things will be good for us, Creator. I put this prayer to you this morning in a good way from my heart, from my mind and how I think today for everybody and everything, not only us as human beings and taking care of one another but everything that you've created from the winged ones to the four legged to the fish that live in the water, and everything grows through Mother Earth.

Thank you for all the different seasons. As we look upon water, water is life for everything. Creator, thank you for all these things that you've given us, the day, the night, everything that we see in our daily struggles.

Forgive us for our shortcomings as your son was born to help us out on that day and that time and this time of the month. Creator, I ask all these things, to care for the ones in the hospitals, in the nursing homes, all of our armed forces of all branches, wherever they may be. Take care of them that they'll be good and strong in heart and mind, things will be good for them, Creator.

If there's anything I have left out or forgot, Creator, forgive me. But take care of it in a good way for all of us that we may be open to everything that we talk about today. We have these to listen, to talk, to notice and acknowledge things, Creator.

But we can't do it without your blessing and your acknowledgment, Creator. So through this prayer, I ask all these things that things will be good for all of us, our families, our relatives, our coworkers, and everybody, even new friendships that we have today and the ones to come in the future that we have not met yet. So I ask these things as we're here in the Nuclear Regulatory Commission building, that everything will be good for all of us in a good way so help us to open our hearts and minds to a better tomorrow. (Native language spoken.) Thank you.

CHAIR HANSON: Thank you, Chairman Heart.

CHAIRMAN HEART: Thank you.

CHAIR HANSON: I want to thank everyone in advance for supporting the meeting today. It's good to have you all here. I look forward to really engaging and thorough discussion. Before we begin, I'll ask my fellow Commissioners if they have any remarks they'd like to make.

(No audible response.)

CHAIR HANSON: Okay. I intend to proceed in the order in which you all are listed in the public notice for the meeting. We'll hold questions until the end. And then we'll hear questions from Commissioners. So with that -- ah, Mr. Augi, glad you could make it. Sorry about the -- welcome to Washington, D.C.

(Laughter.)

CHAIR HANSON: Let's just suffice to say. Well, with that, we'll begin with Chairman Manuel Heart of the Ute Mountain Ute Tribe offering his perspectives on uranium milling. Chairman Heart?

CHAIRMAN HEART: Good morning Chair, Commissioners, everyone here today. I really appreciate it. It's an honor for me as a Chairman of the Ute Mountain Ute Tribe.

Hello and good morning to all of the Commissioners today, December 12, 2023. I am Manuel Heart, Chairman of the Ute Mountain Ute Tribe from Toyak, Colorado. Today is an important meeting for the Ute Mountain Ute Tribe and all of our enrolled members of the Ute Mountain Ute Tribe.

I only have a short time to discuss the Ute Mountain Ute Tribe's concerns, although it could take a long time to talk about it. But we need to keep moving on. I want to make sure that we have given all the information that we need to give you today.

We do have some packets that was handed out to all the Commissioners. So here's my brief summary of where we are with the White Mesa Mill in southeastern Utah. I hope this discussion continues so that we may resolve some of these very big issues that we have on the Ute Mountain Ute Tribal Reservation.

Before I move forward, I want to clarify our discussions. There is a White Mesa community which is within the Ute Mountain Ute Reservation in southeast Utah. There is also a White Mesa Mill four miles

north of the tribal reservation in southeast Utah owned by Energy Fuels.

So White Mesa community and White Mesa Mill, I'll only pertain to the Mill as the Mill without saying White Mesa Mill. So the Ute Mountain Ute tribal reservation is located in three states. The majority of our reservation is southwestern Colorado and northwestern New Mexico and a small community in southeastern Utah.

Our tribal membership is right around 2,100 enrolled members, and we have 600,000 acres of tribal land. In southeastern Utah, reservation lands are located within the White Mesa community and the surrounding areas. This is where Ute people lived since time immemorial.

The state of Utah is named after us, and these lands are a part of us as we are the mountain people and it was handed down to us through our ancestors. In fact, at one time, San Juan County, Utah was designated as the Ute Mountain Ute tribal reservation at one time. In the past, the majority of us were forced back into Colorado by the state of Utah.

The ranchers and people that lived there didn't want to live next to the Ute people. So they asked the governor to talk to the governor of Colorado and they moved us back into Colorado. So that's where our main office is in the state of Colorado.

Today, we have a small tribal community called White Mesa on both trust land and allotment lands in southeast Utah. This community consists of 150 of our Ute Mountain Ute tribal members. In the 1970s, the current Mill that started the operations around that time is now owned and ran by Energy Fuels today.

Our Ute Mountain Ute tribal community and our tribal lands are located only four miles south of the Mill. This uranium mill site was located on aboriginal lands of the Ute people, rich in culture and sacred sites to our Ute people. All of these lands that the current Mill is located on are an area designated as White Mesa Archeological District which includes hundreds of archeological sites eligible for listing under the National Historical Register.

Many sites were destroyed during the construction of the Mill and large portion of the Mill's lands, 2,560 acres, was acquired in 1985 through a federal land exchange remains subject to a cultural resource study easement reserved by the U.S. Bureau of Land Management, BLM, who was supposed to ensure continued protection of cultural sites. Obviously, we have a lot to protect. And only one of us is recognizing that.

We were told that the Mill would only be around there for 20 years. So we supported that for the community of White Mesa. It'd bring employment for our tribal members and educate them in the field of nuclear energy as a possible benefit to both our two sovereign nations during the Cold War.

But the Mill did not close within the 20 years like we were told. In fact, the Mill has expanded since then, not shut down or reclaimed its legacy tailing cells as we were promised. Then with the blessing of the state of Utah and the federal government regulators, the Mill became a radioactive waste dumping site, the only wet mill in the United States that is allowed to receive and dispose of radioactive waste shipped from all over the United States and foreign countries.

This Mill has received uranium cleanup waste from two tribes in the country, one out of Oregon and one out of Oklahoma, and is now ready to receive uranium waste from a third which is the Navajo Tribe. This Mill has not done what it can do to ensure that there is no contamination. The shallow groundwater beneath the Mill is seriously contaminated and continues to degrade. A USGS study found radioactive dust on land and vegetation near and around the Mill.

We have fought against this negligence in every way we can. We have a post-issuance of licenses that lacked adequate environmental controls. We urge that the Mill's inadequate reclamation bonding be substantially increased so the Mill site does not become a massive environmental liability like Moab and Monticello, Utah uranium sites.

We have urged the closure of the Mill's three legacy tailing cells which lack modern dual liners and leak detecting systems. These liners have outlived their life, and they could be leaking as of today. We have urged aggressive action to stop ongoing groundwater contamination.

We have urged construction of a wildlife fence around the Mill facility to protect the wildlife hunted by our Ute Mountain Ute tribal members from being contaminated. We have attended public meetings. We have spoken with the present and past Utah state governors directly and personally.

Last spring, I flew with the lieutenant governor over the White Mesa Mill and she could actually see a visual of how the environment has receded back away from the Mill from where the Mill is at. So there is visual

of the site. We have brought to the attention of Region 8.

We have had meetings at office in Denver. We have met with the national EPA office. We have offered reasonable settlements and conditions to resolve our petitions, and we have spoken with the owners of the Mill several times, but to no avail.

The Mill neglects and demands that we stop talking about it in a negative way and stop the publicity opposing its existence. The Mill doesn't think it's doing anything wrong to harm or to hurt anyone. And in fact, it promotes uranium as an important tool in fighting diseases.

I don't think I need to point out the irony of that. Yet despite all this, the United States is helping them. And let me repeat that, the United States, our trustee through treaties between our sovereign nations and the trust responsibility that they have to protect Tribal nations through the United States government.

Just last week, I was at President Biden's Tribal Nation Summit in Washington, D.C. at the Department of Interior. President Biden signed an executive order in front of tribal leaders. And that executive order said on reforming federal funding and support for Tribal nations to better embrace our trust responsibilities and promote the next era of tribal self-determination, that was dated December 6, 2023, last week.

So I asked today why? Why is the United States helping them, Energy Fuels? Why is the United States paying them millions and millions of dollars to continue to bring in more ore and uranium tailings for processing to have expanded and purchased more land around the mill?

We should be working toward protecting the health and wellbeing of people today and into the future, especially for the Ute Mountain Ute tribal community members of White Mesa, Utah and including the surrounding communities and towns. Today, I come before you to this meeting with the NRC, Nuclear Regulatory Commission. It is the first step forward for my Ute people.

I know none of us want to harm -- any harm come to our communities across this land. So let us work toward a better future of domestic uranium production. We need to make sure that the Ute people, the Ute Mountain Ute tribe, are protected and live productively and healthy lives in White Mesa, Utah.

A few years ago at a public hearing in Blanding, Utah just north of the Mill, non-Indians living in the community of Blanding supported the Mill, even though some of them said they've had cancer more than once in their families. Yet we have brought it up also for our Ute Mountain Tribal members in the White Mesa community. We have also noticed that there was an increase of cancer in our Ute elders and some have already passed away due to the cancer.

So today, I ask, where's the United States in assessing the impacts of the Mill on my tribal members' health? In our treaties with the United States, it is said that we'll be prosperous on our lands and that our health and welfare will be protected. My question today to you from the Ute Mountain Ute tribal members is, who from the United States federal government can say that the health of my tribal members in White Mesa is

actually being protected?

Who can say that living in the shadows of a uranium mill is good for prosperity? Only the state of Utah for they are the one to gain the revenue. Where is the equity of access to good health for my Ute Tribal members living only four miles from a mill owned by Energy Fuels and their uranium mill?

I ask, is these 150 human beings' lives not important to you? The Indian Health Service, IHS, has an epidemiology center in Albuquerque, New Mexico. That is our regional health service for my tribe.

They have recently started looking into an epidemiology study for the White Mesa community. But today, Indian country, a lot of programs for the United States federal government are not fully funded through the United States Congress. At times of struggle or challenges like today for all our tribal nations across this country, all 574, we always bring it up, the lack of and the shortfalls of funding to meet our needs and programs of our grown nations -- grown tribal nations.

Yet state of Utah does have funding also to implement an epidemiology study in White Mesa community and the surrounding areas. I am a Ute Mountain Ute Tribal member, and I'm the chairman of the Ute Mountain Ute Tribe. I love my people and I fight for them every day to protect every one of my Ute Mountain Ute Tribal members.

I come before you today to make a request while it is still in its early stages of expanding. The Mill has three legacy cells and two new ones, 4A and 4B. Close them and reclaim the land.

I want to believe that we can work together. But I also want to ensure from you that my tribal members are safe from any future contamination of their aboriginal tribal lands and their inherent tribal right as a human being and citizens of this country that they may receive 100 percent quality of great water and access to clean water. We know that these current cells will be there forever but funded to keep them protected from future impacts of contamination.

We request that you help and to advocate to relocate this uranium mill to a place that will have no impacts to people, the environment, and any water resources. The budget for Department of Interior, DOE just got approved for an increase for future nuclear development. Utilize these funds for the best interest of everyone and everything that our Creator has created here on Mother Earth.

Help to protect and serve the different trial governments, state governments, and the federal government. I pray you will join me in this endeavor. Thank you for this opportunity, Ute Mountain Ute Tribal Chairman Manuel Heart.

CHAIR HANSON: Thank you very much for your remarks, Chairman Heart. Next we'll hear from Dr. Michael Goff. He's the Principal Deputy Assistant Secretary in the Office of Nuclear Energy at the Department of Energy. Mike?

DR. GOFF: Good morning. And thank you very much for the opportunity to be here and talk to you about the front end of the nuclear fuel cycle, a topic that we focused on significantly in the Department of Energy.

The Biden Administration and Energy Secretary Jennifer Granholm are unequivocal advocates for nuclear power in both domestic and international engagements.

Nuclear energy is a key element of our strategy to put the United States on a path to net zero carbon by 2050. At almost 50 percent, nuclear energy is the largest source of emissions free electricity in the United States. And we see the need for approximately 200 gigawatts of new capacity by 2050.

At COP 28 last week, 22 countries launched the declaration to triple nuclear energy by 2050. The declaration recognizes the key role of nuclear energy in achieving global net zero greenhouse gas emissions by 2050 and it encourages shareholders of international financial institutions to include nuclear energy in its lending policies.

To achieve these targets, we'll need our existing fleet to continue operating. And we'll need to deploy new reactors which, depending on technology, can use today's low-enriched uranium or LEU or could require high-assay low-enriched uranium or HALEU. Given the unprovoked attack on Ukraine, the world recognizes that Russia is not a reliable energy partner.

We are working to reduce our dependence on Russian enrichment capabilities, including the production of HALEU. To that end, we are working with like-minded partners including Canada, the United Kingdom, Japan, and France to support a secure and stable supply of fuels for the operating fleets of today and tomorrow. These five countries announced at COP 28 last week their collective intent to expand nuclear fuel production

across trusted high-quality suppliers free from manipulation and influence.

They will work to mobilize at least 4.2 billion in government led and private investment in the Five Nations' collective enrichment and conversion capacity over the next three years. Along these lines, in October, the Biden Administration submitted a domestic supplement budget request to Congress that included 2.16 billion dollars to support this effort. The House has also passed a mark that included a significant increase of this to 3.5 billion dollars.

The requested funding will improve long-term domestic enrichment capabilities for low-enriched uranium and HALEU. This is a national security priority as a dependence of Russian sources of uranium creates a risk to the U.S. economy. To be successful, this initiative would also require a long-term ban on enriched uranium product from Russia.

The Office of Nuclear Energy is engaged in both near- and long-term actions along these lines. The Department of Energy selected American Centrifuge Operating, a subsidiary of Centrus Energy, to demonstrate HALEU production at the Department's enrichment facility in Piketon, Ohio. Starting up HALEU enrichment at the Piketon facility is a significant step in securing domestic fuel supply for advanced reactors.

On November 7th, Centrus announced production of its first 20 kilograms of HALEU, a significant step in securing our advanced reactor supply chain. This demonstration will be producing hopefully 900 kilograms per year starting next year. The Energy Act of 2020 authorizes the Department of Energy to establish a program to support the availability of

HALEU for a civilian domestic research development demonstration and commercial use.

In the short term, DOE is working to provide small quantities of HALEU from recycling limited DOE inventories and by leveraging the HALEU enrichment capability at Piketon. In the long term, DOE will work with the private sector to establish a commercial U.S. HALEU production and supply chain capability. The Inflation Reduction Act of 2022 provided 700 million dollars to support the activities under the HALEU availability program.

DOE is now in the process of implementing the next steps in establishing a commercial supply of HALEU in the United States with these funds. Earlier this year DOE collected feedback on two draft requests for proposals or RFPs to establish a HALEU supply chain. One RFP focuses on acquiring services for enrichment and storage of HALEU material and a second RFP focuses on deconversion activities to convert enriched uranium hexafluoride gas into metal or oxide forms needed to fabricate fuel for the various advanced reactor developers.

The deconversion RFP was released and issued to the public on Tuesday, November 28th. Proposals from that are due on January 30th. We expect the enrichment RFP to be released within the next month. DOE is also finalizing a transportation funding opportunity announcement that will provide an NRC licensing pathway for HALEU transportation packages.

The Office of Nuclear Energy is additionally developing a novel technologies funding opportunity announcement that will focus on lowering energy inputs, lowering capital costs, and developing technologies

that will provide significant economic advantages to the front end of the fuel cycle. DOE has also established a HALEU consortium to help inform activities carried out by the department to secure a domestic supply of HALEU. The roles of the HALEU consortium of which HALEU recipients need to be a member, include providing HALEU demand estimates, carrying out demonstration projects, and developing a schedule for cost recovery for commercial use.

With respect to advanced reactors, Congress established the Department of Energy's Advanced Reactor Demonstration Program or ARDP in 2020 to support the most mature advanced reactor technologies to be demonstrated on an aggressive schedule. The two awardees selected for a demonstration project, X-energy and Terrapower, have reactor designs that require HALEU fuel to achieve optimum operational efficiency and economic competitiveness. DOE led the -- the Office of Nuclear Energy led the establishment of an advanced reactor demonstration program, but those two demonstrations are now under Department of Energy's Office of Clean Energy Demonstrations or OCED. These two initial demonstration projects require approximately 22 metric tons of HALEU for their initial cores. X-energy's fuel manufacturing process requires HALEU in the oxide form while Terrapower's fuel manufacturing process requires HALEU in the metal form.

Other ARDP projects, primarily the risk reduction and the concept development ones, remain within the Office of Nuclear Energy. And several of those projects do require near term HALEU needs that we're working and tracking closely. And I should note, I was pleased to actually be here on

the day where you did the affirmation for the Kairos construction permit, one of the ARDP award winners as well.

So appreciate the speediness and timelines of that. Realizing the potential of nuclear energy can meet our climate targets will require coordination where appropriate with the Nuclear Regulatory Commission to ensure these technologies are available while continuing the safety standards the public expects. NE and NRC have routine and productive interactions on various aspects of expanding the domestic nuclear supply chain.

Additional interactions occur as part of interagency review process as well. DOE and NRC coordination has focused on activities which intersect both of our agencies, including on coordination on activities under the National Environmental Policy Act, on new or expanding capabilities that will require new NRC licensing like enrichment and deconversion or fuel fabrication facilities, and new transportation packages for HALEU forms. We have also begun an in-depth coordination on criticality safety benchmarks as required by Section 2001 of the Energy Act of 2020.

As part of this, we have established a joint management structure to plan and execute a program that aims to achieve higher throughput fuel cycle processes, higher capacity transportation packages, and reduce licensing uncertainty. Together, we've developed a program management plan in this area and are planning a public workshop toward the end of February of this year -- of 2024. Additionally, DOE is preparing an environmental impact statement that will analyze the impacts of DOE's

proposed action to facilitate the domestic commercialization of HALEU production and acquire HALEU for commercial use on demonstration projects.

DOE and NRC engaged early on their respective NEPA responsibilities to support the new HALEU supply chain and decided to coordinate in these efforts but not be formal cooperating agencies. DOE expects to announce the availability of the draft EIS in the Federal Register by early '24. And once the EIS is published, there'll be a 45-day public comment period as well.

Finally, again, to summarize, expanding nuclear energy to help address climate change is a key priority for the administration. This can only be achieved through the development and deployment of innovative technologies across the nuclear fuel cycle. At the same time, we must reduce our reliance on untrustworthy sources and improve the security of fuel supply.

There are clearly challenges ahead. Establishing new supply chains is complex, time consuming, and of course, costly. At the same time, commodity and service prices continue to arise amongst the uncertainty of fuel supply.

Congress has indicated bipartisan and bicameral support to address these issues. And I'll note they even passed a ban last night from the House side as well. But we still lack some of the key tools, including funding to enhance the LEU supply chain, an enduring import ban, and a revolving fund to manage that funding. So we look forward to continued engagement with the Commission and the NRC to address these critical issues. Thank you.

CHAIR HANSON: Thank you, Dr. Goff. Next we'll hear

from Kyle Wendtland. He's the Land Quality Division Administrator with the Wyoming Department of Environmental Quality. Mr. Wendtland?

MR. WENDTLAND: Mr. Chairman, thank you, and members of the Commission, for the opportunity to be here. And I had a presentation for you. Just move to the next slide right away, please.

This slide outlines the current license holders in Wyoming to give you a sense of what we have. The category on the left is the six conventional mill tailings sites. They're often referenced as Title II sites.

And on the right are the eight in-situ recovery sites. And I would just add that the in-situ sites represent the current and most modern commonly used extraction technologies in Wyoming for uranium. Next slide, please. Slide 3 outlines the status of the Title II conventional sites.

I would make two notes on this slide. One is the Sweetwater Mill still does hold some license capacity around 4.1 million pounds. So that's just something of note.

And then I would also note in this slide that the Split Rock site at the bottom. And this was a site that was recently transferred to the Department of Energy through license termination. And I would just add that the NRC staff was extremely helpful in this effort for us and very cooperative.

And it led to the conclusion of this site being moved to DOE and long-term care and maintenance. And it really exemplifies the spirit of the cooperative federalism between the agreement state and the NRC. Slide 4, please. This slide starts and on into slide 5 also outlines the current status of the Wyoming in-situ recovery sites or ISR sites.

As you'll note and you look at this table, the majority of the facilities are in restoration or standby right now. As the state of the industry, we kind of understand that, I think, at the table here. The producing sites in Wyoming right now are Strata Ross and Lost Creek, and then there are six sites that are yet to be constructed.

So moving on to the next slide. This slide represents the -- sorry, one more. This slide represents the current license capacities of the Title II conventional and the ISR sites. And like I noted earlier, the 4.1 million is on the one Title II site or conventional mill site.

And then we have 22.2 million pounds that is available to be produced through the ISR facilities under current licensed capacity. And the two operations that noted earlier, Strata Ross and Lost Creek, their license capacity is 5.2 million pounds. So hopefully, that gives the Commission a good sense of kind of what we have, what we are licensed to produce today.

Then I'd move on to slide -- I had one more side in there, slide 7. This is the one I want to spend the most time on. And this outlines the challenges from our regulatory perspective regarding the increased license production.

The first bullet point I'd like to go over is aquifer exemptions are key with the in-situ sites. If Commissioners have not been to Wyoming and seen an ISR site and understand how this ties into the groundwater aquifer and how we mine these, I would encourage you to come. And we certainly have an open invitation for any Commissioner that would like to come out.

We will cater to you to come out and see us. But what I

would say on this key point is that the EPA and the aquifer exemptions is a pretty arduous process. And it could use some streamlining and some clarity.

And in this regulatory space, that line between EPA and NRC authority is somewhat blurred as to how that plays out. So some clarity there would be helpful. The second bullet point, I'm going to bring up EPA again. They need to stay in their lane.

We have clear authority that's been granted to the NRC through the Atomic Energy Act. And again, we can use the CERCLA 108(b) process that EPA was bringing up where these lines are being blurred again. And it's adding confusion and uncertainty to the industry.

So some clarity there with NRC's role and EPA's role would be really helpful. And additionally, and it's not a bullet point in there. But I do want to bring up the recent activities of the Bureau of Land Management and their resource management plans and using ACECs which is a new conservation tool.

There's a push to have conservation as a higher priority in the multiple use category. And they are essentially working to withdraw mineral without a formal mineral withdrawal through their regional resource management plans. And that is also a concern moving forward.

If you've not looked or heard about the Rock Springs RMP, I would encourage the Commissioners to do so. There's a New Castle RMP that's coming out with BLM that will also overlap in these areas of mineral leasing and locatable minerals moving forward. The NEPA process in my third bullet point, I've spoken to this to other federal agencies as well recently

is somewhat broken.

There was bipartisan laws that were passed recently that you got one year for an EI, two years for an EIS. We see agencies not adhering to that on the EIS process. So adhering to those, that streamlining and requirement of the NEPA process is important moving forward.

Supply chain. Supply chain and labor. I don't think Wyoming is unique that labor issues are tough and getting high quality specialty valves and things that are difficult in the marketplace today. So if we are going to tool up our industry and move towards a higher production limit or capacity, both of those aspects are probably things that are going to impact that. And there's going to be a little bit of a time lag to get the labor and those supply chain things online, specifically on the labor.

I'm going to use one example here. Right now, Colorado State University is really the key one for us to get a health physics professional out of. And we're all recruiting for those health physicists. They're being recruited as juniors out of CSU.

And if we're going to look at increasing or improving the capacities of the uranium mining, we talked about the HALEU fuel just now. Wyoming has the Natrium project coming online in the small mod reactor space. We have to be bringing -- these technical professionals have got to be in the system as part of this.

And it's clearly an area that we're going to have an issue of supply with. Technical challenges, difficult geology in the ISR fields, that happens and takes some time to understand and work through and can cause

some delays. And if new increased production is desired, encouragement of the exploration space is also going to be important.

And there could be some considerations on how best to incentivize that moving forward. A couple of the other outliers are Endangered Species Act issues. And I don't think there's any secret here that the sage grouse in Wyoming is a hot topic and can certainly impact how this works out.

Again, the BLM is due to release its multi-state EIS on sage grouse. So see how that works out. And litigation and protected litigation in addition to that is an area of continued concern in how that works through.

So with that, I'll move to my last slide. I always use these forums to put out there, this is an example of reclamation in Wyoming. This is -- everything you can see in this photo is reclaimed ground.

And we're pretty proud of Wyoming that we do reclamation as good or better than anybody else in the country. So being that was a core part of my work ethic moving forward, I take that chance to show off Wyoming's reclamation. So we believe that there is value in producing uranium domestically and as referenced earlier.

And its licensed operators are definitely prepared to meet that domestic production requirement. Limitations to increasing production exist, and some additional time may be needed in the supply chain and labor to come online as those production increases are realized. But long-term stability in the uranium industry would also help buffer the supply chain and labor concerns.

If we increase this production and having some stability in that market to hold those people will help continue this space as well and make it more sustainable. I would also just in closing like to recognize the role the NRC has played in Wyoming's standup of its agreement state. The NRC has been a valued partner.

And this is holding true with the standup of the new Wyoming source material program as well. The NRC staff has been helpful, and they have been encouraging. And they have demonstrated a cooperative federalism spirit that I wish other agencies would work with us the same way in Wyoming. So I wanted to make sure that you knew that your staff is doing the right things. And Mr. Chairman, I'm just happy to stand for questions later with that and hope that you come see us soon.

CHAIR HANSON: Thank you, Mr. Wendtland, for your remarks. Next we'll hear from Kirk Schnoebelen, and he's the president of Urenco. Mr. Schnoebelen?

MR. SCHNOEBELEN: Good morning, Chair Hanson, Commissioners Wright, Caputo, and Crowell. Did I get your name correctly pronounced?

COMMISSIONER CROWELL: Close enough.

MR. SCHNOEBELEN: Good, okay, yeah. Same for me. I appreciate the --

(Laughter.)

MR. SCHNOEBELEN: I appreciate the opportunity to be here today to discuss industry perspectives on enrichment capacity. My

name is Kirk Schnoebelen, and I am the president of Urenco, Inc. and head of sales for Urenco. Urenco operates the nation's only commercial enrichment facility for the production of low-enriched uranium.

The facility is located in southeastern New Mexico kitty corner from your tribal lands, sir, and does business as Urenco USA. Following a three-year licensing process and a four-year construction program, Urenco USA began producing enriched uranium in 2010 and over the next seven years ramped up its capacity to 4.6 million separative work units per year or about one-third of typical U.S. annual demand. Development of Urenco USA costs just over 5 billion dollars and highlights the capital-intensive nature of investment in enrichment capacity.

Such investments are not undertaken without a solid base of sustainably priced long-term contracts for the sale of enrichment services. Regulatory certainly on the future role of Russian fuel supplies to the west is essential for investors and customers to agree on the degree of western enrichment capacity expansion. I have some slides. Yeah, this one, perfect.

The Energy Information Administration publishes annual statistics about U.S. fuel market based on mandatory reporting by nuclear fuel suppliers and users. In 2022, the last year for which statistics are available, U.S. utilities purchased 14 million SWU. Of that total, the largest share, 27 percent, was delivered by Urenco USA.

An additional 49 percent was delivered by friendly nations allied with the U.S. Twenty-four percent of 2022 purchases by U.S. utilities were of Russian origin. The volume of Russian origin enriched uranium

permitted for use in the U.S. is restricted by an agreement between Russia and the U.S. that suspends an antidumping investigation launched in 1989.

In 2023, Russia was permitted a roughly 24 percent market share, but that share will drop to 20 percent next year through 2027 and then to 15 percent from 2028 to 2040. Can I get the next slide, please? Russia's war in Ukraine has had a significant impact on nuclear fuel market activity around the world since February 2022.

To our knowledge, no new contracts for delivery of Russian origin enriched uranium have been concluded by any nuclear power operator in North America, Europe, Africa, Japan, or Korea. Prices for enrichment services today, which have approximately doubled since the war started, already reflect price for non-Russian fuel. In spite of this, however, there have been no disruptions in deliveries of Russian nuclear fuel to Europe, North America, or Korea under contracts that were signed before the invasion of Ukraine.

In two areas of the world, countries in Europe that operate VVER reactors and were 100 percent reliant on Russian nuclear fuel and in the United States, nuclear power operators have taken a variety of actions to mitigate against the risk is disruption in Russian fuel deliveries, including signing significant new contracts and building inventories. Next slide, please. The industry is fairly well positioned to help mitigate against Russian fuel supply disruptions in the near term.

Prior to the invasion, a non-trivial fraction of total western capacity was operating in an underfeeding mode which means that more

enrichment work was being used to produce the enriched uranium required by customers than they were paying for and less natural uranium was being used than customers were delivering. Reversing this underfeeding mode of operations means the same enrichment capacity can be used to produce more enriched uranium. There is a catch, however, insofar as this strategy requires more natural uranium.

Happily, this requirement has coincided with the return to service of the uranium conversion facility in Illinois and the debugging of operations at the brand-new uranium conversion facility in France. Another way to mitigate against Russian fuel supply disruption in the near term is to boost production of enriched uranium by refurbishing existing cascades of centrifuges. Although centrifuges are designed to be extraordinarily long lasting, they do fail with some statistical certainty.

Failed centrifuges are left in place and don't affect the safe operation of the associated cascade but do diminish the cascade's output of enriched uranium. By replacing failed centrifuges, the cascade's original enriched uranium output capacity can be restored. Finally, there are known inventories of enriched uranium that can be used to help immediately replace disrupted Russian fuel deliveries.

Between available U.S. government and U.S. and Japanese nuclear power operators, inventories of enriched uranium are estimated to be equal to about one year of total U.S. demand. Next slide, please. Western capacity to enrich uranium is based entirely on centrifuge technology. And one of the benefits of this technology is that capacity can be added

incrementally without affecting existing operations.

In the longer term to replace Russian deliveries of enriched uranium, western capacity must increase. Some of the necessary increases have already been announced. In July, Urenco USA announced a 15 percent expansion of capacity, an additional 700,000 SWU per year to be entirely online by early 2027.

Expansion of Urenco's capacity is always based on contracted commitments to deliver enriched uranium at sustainable prices. And based on current license limits, there's a potential for further expansion of four and a half million SWU per year in New Mexico if sufficient contracts are established. Centrus -- as Dr. Goff noted, Centrus has successfully started its production of high-assay LEU based on its own centrifuge technology and has announced a production target of 900 kilograms in 2024. Next slide, please.

In Europe, although Urenco has not yet announced any expansion plans, there's potential for another 3.6 million SWU per year under current licenses at its three existing facilities. Orano has already announced an expansion of its existing plant in France. Beginning in 2028, Orano's expansion will result in an additional two and a half million SWU per year when it is complete.

Both Urenco and Orano have publicly stressed the need to underwrite the significant capital investments required to expand enrichment capacity in Europe with long-term contracts. Next slide, please. As other panelists have and may explain in greater detail, there's future demand for enriched uranium at U-235 concentrations of about 5 percent. Urenco USA

is taking a phased approach to production of these fuels in line with demand.

The Commission may be aware that Urenco USA submitted a license amendment request to produce enriched uranium with up to 10 percent U-235 concentration less than two weeks ago. Thanks to pre-application engagement with NRC staff, we expect this licensing process and associated site work will result in an ability to ship commercial quantities of up to 10 percent U-235 from our existing facilities in New Mexico in 2025. These deliveries will help support deployment of accident tolerant fuels.

It's for the light water reactor fleet and fabrication of fuels for some specific advanced reactor designs. The second phase of high-assay LEU production will focus on production of enriched uranium with up to 20 percent U-235 concentration which is needed by many of the advanced nuclear concepts, including, as was mentioned, TerraPower's Natium and X-energy's XE100 reactors. While the exact same centrifuge technology will be used, the arrangement of these centrifuges in a cascade will be configured differently than existing cascades to optimize production of high-assay LEU.

Because very little enrichment work is needed to boost concentrations of U-235 from around 5 percent to 20 percent, dedicated HALEU production facilities are anticipated to be co-located at our existing facilities and would have a much smaller footprint than LEU production facilities. Urenco USA is working toward putting together long-term takeoff contracts in place to underwrite the required investments. Final slide, please.

In summary, disruptions in Russian nuclear fuel supplies have and can be mitigated through optimizing and refurbishing existing

enrichment capacity through use of inventories and ultimately by adding new enrichment capacity. While there is adequate physical and regulatory space to add sufficient additional capacity at existing sites in U.S. and Europe, final investment decisions in such capital-intensive industry will require establishing a robust portfolio of sustainably priced long-term contracts with customers. Having regulatory certainty on the role of future Russian fuel imports to the west is an important prerequisite to those contract negotiations. Thank you again for the opportunity to participate in today's meeting, and I look forward to your questions.

CHAIR HANSON: Thank you, Mr. Schnoebelen. Next we'll hear from Mr. Rich Augi. He's the light water reactor fuel product director for Global Nuclear Fuel.

MR. AUGI: Good morning, Chair Hanson. Thank you very much and Commissioners. On behalf of GNF And GE, I'm happy to be here and have this opportunity to brief the Commission.

On the next slide, as we look at the environment that we saw in the mid-2010s, we had nuclear plants shutting down. We had investing in plant upgrades was paused. We find ourselves facing new challenges today.

NEI performed a survey of domestic reactor operators earlier this year and published the Future of Nuclear Power. Some of the key statistics from this report point to the commitment to keep the existing light water reactor fleet operating well into the future. The projections include 4 license renewals and 20 potential subsequent license renewals within the next 10 years.

And then tied with the IRA that has sparked interest in power uprates, there's the potential for 19 power uprate applications over the next 10 years that will drive the continued need for uranium to support the existing fleet. We also need to have regulatory infrastructure that aids licensees, including fuel suppliers, in developing and employing enhanced technologies more efficiently. This will help the industry to better utilize constrained LEU materials. Next slide, please.

So to improve the safety and efficient operation of the existing fleet, the industry has been working on the accident tolerant fuel program. As an industry, we've taken some pretty big swings and have been able to make some significant achievements. Starting in 2018 with the insertion of the first ATF rods, the fuel vendors and utilities have been making progress in the development of ATF concepts.

The Vogtle LTAs planned in 2025 will represent the first domestic reactor to receive greater than 5 weight percent U-235. Next slide, please. The industry has also been working very closely with the NRC to achieve some significant milestones. The license amendments for Constellation and Southern Nuclear will allow the industry to push forward with high burn up and increased enrichment.

The fuel vendors have also been proceeding in license submittals. Each vendor has submitted fresh fuel shipping container. And I believe all three have now received their license there for higher enrichments.

And we are also working on facility licensing to handle the high enrichments. This is based upon seeing early demand signals within the

industry for higher enrichment. Next slide, please. So specifically for GNF and our advanced fuels program, we're continuing to innovate, working in conjunction with a wide industry and national lab team.

We've been setting up the infrastructure for higher enrichments, up to 8 percent. In August of this year, we received our fresh fuel shipping container license for the RAJ-II container which increased the allowable contents up to 8 percent. And for fabrication, we submitted a license amendment for our Wilmington, North Carolina fabrication plant in June of 2022 to process enrichments up to 8 percent.

And that is on track, my understanding to be issued by the end of this year. We've been pushing to develop new technologies like our armor coated cladding and advanced materials research to provide accident tolerant benefit. We've been successful in installing and operating lead test assemblies of both ARMOR and IronClad, our iron, chrome, and aluminum cladding at Plant Hatch and Clinton Power Station and have successfully transported irradiated material from reactor site to the Oak Ridge National Lab.

These early installations and ongoing examinations provide key performance information needed to drive technologies to industrial application. And with the development and licensing of advanced methods and materials, GNF is embarking on developing the next generation of fuel product. I also want to highlight the benefit of pre-submittal application meetings.

We've taken advantage of that, both within the methodology for our engineering methods and also for the RAJ-II and for our facility license.

We find those to be invaluable, having the time to get in front of any issues, to review it with the staff and find that to be a very healthy relationship and look to continue to do that, to give the NRC the opportunity to see where our plans are heading and where our technologies are heading. One challenge that we do see within the higher burn up program, the industry faced it with Reg Guide 1.183, recently issued Rev. 1, addressed the PWR issue for dose.

But there are some issues with BWRs that still need to be addressed. And we're happy to see Rev. 2 has been started. That should address those issues and take care of the calculation of dose, especially for the control room that we've seen. Next slide, please.

As Dr. Goff pointed out, underneath the ARDP program, GNF is developing advanced fuel manufacturing capabilities. In 2022, GNF and TerraPower announced an agreement to build the Natrium fuel facility at our existing site in Wilmington. The Natrium fuel facility will be jointly funded by TerraPower and the U.S. DOE through the ARDP program and represents an investment of more than 200 million dollars into advanced fuel fabrication.

In 2021, TerraPower announced its intention to build the first Natrium reactor at a retiring coal facility in Kemmerer, Wyoming. As TerraPower's senior vice president and Natrium project director Tara Neider noted, the Natrium fuel facility will create a reliable source of fuel for our first demonstration plant and additional Natrium plants in the future. The construction of the Natrium fuel facility was anticipated to begin this year.

However, due to the lack of HALEU availability, the construction has been delayed until 2025. As part of that, we did have the

opportunity to participate in early engagement meetings with the NRC to discuss the project plans and have been in constant communication with the NRC to update -- to provide those updates around the delays. In regards to HALEU availability, the IRA authorized 700 million dollars related to supporting availability of HALEU nuclear fuel for research, development, and construction and demonstration.

This is a big step to greatly advance U.S. capacity to make HALEU available for the two ARDP demonstration projects and the commercial plants that will follow. GNF supports the DOE to establish a diverse domestic market-based HALEU supply chain. And establishing a U.S.-based HALEU supply chain supports energy security, nuclear technology innovation, and achievement of climate goals.

GNF was pleased to see the DOE release the final version of the HALEU deconversion RFP. And we are very interested in adding HALEU deconversion at our site in Wilmington. And I believe it's an excellent complement to the future Natrium fuel fabrication operation.

We have over 50 years of providing safe and reliable commercial scale deconversion services to support the light water reactor industry. And we're well positioned to support the advanced reactor and advanced fuels market. Next slide, please. So while GE has partnered with TerraPower for the development of the Natrium reactor, we also have our own SMR which is the BWRX-300.

It is our 300-megawatt, 10th generation reactor, represents our most competitive and fastest-to-market SMR. We've leveraged the

ESBWR, NRC approved design certification and proven BWR components and fuel to bring the BWRX-300 to market quickly. We're very focused on using proven technologies.

All of the components in the pressure vessel have been already demonstrated in the fleet. The vessel is about the same size as the KKM plant that just recently shut down in Switzerland after decades of safe service. And most importantly, we have a proven nuclear fuel in the GNF2 product.

We've delivered more than 25,000 bundles to the fleet. It's been utilized in more than 70 percent of the BWR fleet. We've fabricated it both in U.S. and in Europe, has an existing supply chain, and does not require HALEU.

It can be operated with LEU up to 5 percent enriched fuel. Qualified fuel is significant because it can take 10 years to qualify a new fuel type. This does give us an advantage we feel, and we're currently targeting to have the first reactor operational by 2029. Next slide, please.

From a commercial point of view, the BWRX-300 is being well received. In Canada, OPG has signed a contract for the first reactor along with the Ontario government. They've announced plans for a total of four units at the Darlington site.

OPG along with TVA and Synthos Green Energy have teamed up with GE Hitachi to develop the standard design of the BWRX-300. And last week at COP 28, OPG announced their fuel contracts for the upcoming Darlington reactor, further establishing that Darlington BWRX-300

as the lead SMR. And we continue to draw interest around the globe with announcements from TVA, Sask Power, and multiple European nations.

We see the demand is out there for the X-300 and we're very excited about it. Next slide, please. I would just like to acknowledge the DOE for their continued partnership on the ATF program and also thank the NRC for your time today. Thank you.

CHAIR HANSON: Thank you, Mr. Augi, very much for your presentation. Next we'll hear from Nickolas Roth. He's a Senior Director for Nuclear Materials Security at the Nuclear Threat Initiative. Mr. Roth?

MR. ROTH: Thank you. Good morning, Chair Hanson, Commissioners Crowell, Wright, and Caputo. Thank you for providing me with the opportunity to discuss safeguards and nonproliferation issues associated with domestic uranium supply chain and international nuclear fuel dependencies. To begin, the nonproliferation regime faces historically significant headwinds.

The failure of last year's nonproliferation review conference to achieve a consensus document ushers in the longest period in the history of the nuclear nonproliferation treaty without a successful review. Adding to the challenges, since Russia's invasion of Ukraine, relations between the United States and Russia have been under enormous strain. Nuclear weapons are at the forefront of policy in a way they have not been for decades.

Russia's occupation of the Zaporizhzhia Nuclear Power Plant raises new questions about the extent to which countries believe their right to peaceful uses of nuclear technology are protected under the NPT.

And it goes without saying that a disaster in Ukraine at a nuclear facility would have repercussions throughout the world. Beyond Ukraine, there are other stresses on the nonproliferation regime, increasing stockpiles of plutonium, interests in reprocessing and separation of plutonium in some countries as well as increasing stocks in some countries of highly enriched uranium as well.

All of this provides context for last week's announcement at the conference of the parties of the United Nations Framework Convention on Climate Change 28, where more than 20 countries pledged to triple nuclear energy capacity by 2050. Such a rapid and large-scale expansion of nuclear power would be unprecedented in the history of nuclear technology deployment. Not only would it mean a dramatic increase in the deployment of reactors but could require a significant expansion and production of new types of reactor fuel production.

The expansion of nuclear power has the potential to play an important role in mitigating the risk posed by climate change. But any expansion should be supported with effective measures to prevent the proliferation of nuclear weapons and technologies capable of developing nuclear weapons. Some of the new technologies currently being explored could change many aspects of nuclear energy systems in ways relevant to proliferation and to terrorism risks.

The implications for both need to be carefully considered when evaluating the deployment of any new nuclear technology. I'd like to focus on two important nonproliferation issues that should be considered when evaluating new reactor designs and fuels. First, how might new reactor

designs and new fuel types impact state-based proliferation?

International safeguards are the foundation of the nonproliferation regime, helping to detect the misuse or diversion of nuclear material, and providing assurances that non-nuclear weapon states are meeting their legal obligations for peaceful use under the NPT. Small modular reactor designs currently being considered could potentially have important nonproliferation advantages. Yet these new reactors do present some challenges.

The deployment of a new fleet of advanced reactors will require new approaches to safeguards than what currently exist today. As an example, some new designs include reactor cores that would last ten years or more or even for the lifetime of the reactor. Eliminating the need for shorter refueling times has clear benefits but will also require new approaches to ensure that a country does not divert material.

The development of new approaches will be required for these designs to ensure that reactor cores exported to non-nuclear weapon states are not opened. New seal technologies will likely need to be developed and approved and potentially many different reactor seals will be needed for different designs. Other designs being considered like pebble bed reactors that require the tracking of thousands of objects will require entirely novel approaches to safeguards.

Another important issue that will need to be resolved with regard to the new small modular reactor designs is related to high-assay low-enriched uranium which is defined as Uranium-235 enriched greater than 5

percent and less than 20 percent. The Department of Energy projects that more than 40 metric tons of HALEU will be needed to meet U.S. demands before the end of the decade. From a nonproliferation perspective, a once-through approach using HALEU is certainly preferable to fuel cycles that use weapon usable material.

But there are questions that will need to be answered with regard to the use of HALEU like how the use of higher enriched uranium will impact the ability of IAEA safeguards to engage in timely detection of diversion. A recent National Academy study argues that a case can be made for reducing the timeliness detection goal for HALEU from the current period of one year. Developing new safeguard arrangements for new reactor designs and fuel types will require planning that needs to begin as soon as possible.

Each reactor design will require a tailored approach to safeguards based on its own unique features. The safeguard arrangements for these designs will need to be agreed upon, tested, something that will take time. Complicating the matter, the IAEA has limited experience addressing issues related to safeguarding newly proposed reactor designs and has no experience safeguarding newly designed fast reactors, little opportunity to demonstrate safeguards at pebble bed reactors, limited experience with safeguarding new molten salt fuel reactors, and limited experience with pyro processing.

Any export of a new advanced reactor to a non-nuclear weapons state should be dependent on the development and approval of an effective safeguards approach. Once these new approaches are adopted, the

resources to expand the safeguards regime would also need to be identified. If the preferred technology for such an expansion of nuclear power were newly designed advanced small modular reactors that have been receiving much attention in recent years, this would likely mean the deployment of hundreds upon hundreds of small modular reactors around the world before 2050, most of which would need to be safeguarded.

The IAEA will likely need significant additional financial and personal resources to safeguard the number of reactors that are to be expected. The next question, how might a new fuel impact terrorist risks? In addition to safeguard implications, there's a need to look at what security requirements will be needed for new HALEU fuels.

The deployment of new reactors with HALEU fuels should be done so in a way that does not increase the risk of sabotage, theft, or malicious acts. HALEU should be secured to a level consistent with the potential terrorism and proliferation risks, threats that it could potentially pose. While it may be difficult to build a -- prohibitively difficult to build a nuclear bomb from HALEU, there's potentially greater risk than with traditional LEU.

This should mean that HALEU would likely require a new security requirements beyond what has been adequate for traditional light water reactors. That could mean the need for requirements -- this potentially means the need for a requirement to protect against the design basis threat and the potential for the requirement of installation of additional access controls, security patrols, and communication at sites that require HALEU. Another question is if HALEU does require more stringent security than

traditional LEU, what does this mean for exports?

Many of the countries with whom the United States might engage in trade could have very difficult security -- more difficult security environments than the United States. The NRC would need to determine what security is needed for HALEU exports in order to allow to make a determination that any exports or imports made under the general license will not be inimical to the common defense and security. From a policy point of view, it may also be necessary for the United States to negotiate within the context of 123 agreements, specific pledges for higher levels of security than have been previously required.

It also may be prudent for the United States to increase the frequency with which it inspects security conditions around U.S. origin fuel. While there are nonproliferation and security challenges associated with new fuel chains, they are not insurmountable. It will, however, take time, resources, and leadership to ensure that they are adequately addressed.

These are just some of the considerations that need to be considered when thinking about nonproliferation implications of uranium supply chains. There are others as well. Thank you for your time, and I look forward to your questions.

CHAIR HANSON: Thank you, Mr. Roth. And we'll finish up with Rob Lewis. He is the Deputy Director in our Office of Nuclear Material Safety and Safeguards. Rob?

MR. LEWIS: Good morning. Thank you for including the Nuclear Regulatory Commission staff on this panel and for the opportunity to

present our preparedness to support licensing and oversight of the administration's short- and long-term domestic uranium fuel strategies. The NRC staff has been entrusted with the important mission of protecting public health and safety and the environmental for milling, conversion, enrichment, and fuel fabrication for commercial uranium uses in the United States.

By conducting independent, clear, open, reliable, and efficient regulation, the NRC staff affects the overall stability of the global uranium supply chain and enables private sector and governmental strategies related to uranium fuel cycle facilities. Our role as I see it has three aspects. First, we want to ensure whatever is decided and proposed to us benefits from a thorough safety and security review by our experts, second, to be prepared when there are changes for our workload, and third, to frequently and clearly communicate our regulatory expectations and anticipated timelines which benefits everyone's planning. Next slide, please.

This slide illustrates external drivers. The images from top to bottom on the left evoke the increasingly global nature of the uranium market, the demand for new fuel types due to advanced reactors, and the increasing interest in carbon neutral solutions like nuclear power to support climate change -- to combat climate change, excuse me. On the right are all the steps in the nuclear fuel cycle.

A working understanding of these external drivers and how they affect each step in the fuel cycle is essential to effectively plan NRC's work and skills needs. As you've heard from other panelists, the domestic uranium fuel strategy must consider complex, evolving geopolitical shifts,

technological advancements, and changes to energy policies at the national and local level. The administration has identified improving long-term domestic enrichment capabilities for low-enriched uranium and for high-assay low-enriched uranium as national security priorities and noted the risk of current dependence on Russian sources of uranium. Next slide, please.

This slide covers how the NRC staff collects information to keep our situational awareness high. Letters of intent, pre-application engagement, and routine interactions with licensees and applicants are our main tool to plan our work and to understand the external factors that they see could impact the timing and scope of their submittals. I cannot underscore the importance of meaningful, extensive pre-application engagement, especially for new technologies.

Those help lead to high quality complete applications and an efficient NRC review. My team always makes time for those important interactions. At the very beginning of the fuel cycle uranium recovery, most of the licensees are in agreement states as you heard from Kyle, like Wyoming, where the state, not NRC, has regulatory responsibility.

To keep awareness of those plans, we work closely with the states. Uranium in-situ recovery facilities are actively considering increasing their production as we speak. Many of the licensing actions that will be needed at several facilities are interconnected.

Enrichment of high-assay low-enriched uranium, for example, supports several downstream activities and facilities with separate but linked NRC licensing actions. And often these commercial activities are

existing alongside DOE activities that can supply some uranium -- some enriched uranium for those facilities as well. Our ability to see and track the big picture and identify which licensing actions are interconnected is an important factor we count into our work prioritization.

We're developing some tools to track these permutations. Regarding feed material, today's reactor fuel requirements can be met from primary supplies such as uranium recovery facilities or secondary sources such as stockpiles and downblending. These various secondary sources make uranium unique among energy minerals.

Feed material can come not only from the USA but from around the world and can enter the domestic fuel cycle at several steps. Finally, the staff benefits greatly from our interactions with the Department of Energy. We meet at all levels to keep awareness of DOE programs like the high-assay low-enriched uranium availability program and the advanced reactor demonstration program.

Both DOE and NRC also participate in a White House led interagency policy committee on domestic uranium strategy along with several other departments and agencies. While the NRC is an independent agency and does not participate to further any administration's political priorities, the NRC staff's participation in the interagency policy committee process does provide regulatory and technical expertise to help inform those discussions. At the international level, the staff notes as did Dr. Goff that in April 2023, there was an agreement by Canada, France, Japan, and the United Kingdom and USA to leverage their civilian nuclear power sectors to ensure a stable supply

of nuclear fuel for existing and future reactors.

We have worked with our DOE partners and Dr. Goff's organization on some of those activities. And we've recently engaged counterparts in some of those countries. Together, we use all the information that this slide represents to make the best decision we can at any given moment to manage our workload, workforce, and innovation risks.

Next slide, please, shows, I think, that we've been successful to date. There has been increasing NRC licensing work related to domestic uranium strategies. NRC has recently issued 11 major licensing actions and 2 authorizations, including the licensing of the high-assay low-enriched uranium demonstration at Centrus' American Centrifuge Plant.

We've also issued several nuclear criticality methodology amendments to support accident tolerant and advanced reactor fuels. We've met the “need by” dates for all of these cases, all while performing thorough and transparent, safety, security, and environmental reviews. We are currently reviewing three major licensing actions, including the TRISO-X new fuel facility review and an amendment to increase capacity at Centrus.

Over the next three years, we anticipate between 12 to 14 additional major licensing actions. Topics include, as you've already heard, enrichments up to 20 weight percent for enrichment facilities and fabrication facilities, and amendments for downblending high-enriched uranium. In addition to these higher certainty future actions, we have had many informal discussions with potential new enrichers, fuel fabricators, and reprocessors.

While the number of actions we've completed and the

number that we anticipate are similar, the future actions are more complex, including completely new facility licenses. In these areas, we're putting extra attention to ensure we have the critical technical skills and regulatory research identified and in place when it's needed. Final slide, please. NRC's enrichment, conversion, and fuel fabrication inspection activities are centralized into NRC's Region II office in Atlanta, Georgia.

NMSS and Region II work closely with each other. And we also ensure activities like fuel cycle construction inspection is coordinated with NRC's parallel work on advanced reactor construction inspection. New facility construction, new types of fuel, and inspections for Category 2 fuel facilities are the current focus areas for us for inspection as those areas are the least reflected in our current inspection guidance. NRC's regulations in 10 CFR Part 70 covering accident analysis and mitigation was added in the early 2000s after the currently operating fuel fabrication facilities had already been built for many years.

That rule, nevertheless, gives us a good basis for applying risk information, balancing regulations and guidance, and offers flexibility for a wide range of new facility types. But there surely is lessons learned for applying that regulation for the first time to a ground up new facility. Also, before 2023, NRC had licensed only fuel facilities for Category 1 and Category 3 quantities of special nuclear material.

With several facilities intending to possess Category 2 quantities, the staff recently formed a working group to assess Category 2 core inspection procedures for construction and for operations. That work is

ongoing. Let me end with the importance of communications and transparency.

They increase public confidence in our competence for new inspection activities and more broadly. We held public meetings on August 15th and November 8th to have initial discussions on fuel cycle construction oversight, and additional meetings are being planned. We're also sharing the draft inspection procedure language publicly to ensure a good dialogue.

And we have recently also been increasing our interactions with Tribal nations. Historical uranium mining and milling practices have caused contamination and other concerns. And Tribal nations bring valuable perspectives to our decisions that we do not hear from elsewhere.

The NRC's Deputy Executive Director for Operations along with my NMSS team went out west in August to meet with the Ute Mountain Ute tribe and other Tribal nations. And I'm very honored today to share the panel with Chairman Heart as I believe our recent interactions demonstrate our commitment to ensuring our trust responsibilities, and engaging going forward on a government-to-government level. Commissioners, thank you again for the opportunity to speak at the meeting, for your time today, and I look forward to responding to any questions you may have.

CHAIR HANSON: Thank you, Rob. Thank you, everyone, for your remarks and your presentations this morning. We'll begin the questions with Commissioner Caputo.

COMMISSIONER CAPUTO: Thank you all for being here today. I want to give a special thank you to Chairman Heart for opening us

with a prayer and reminding us of the importance of public safety and environmental protection and also to Mr. Roth for reminding us of the importance of common defense and security. Friday marked the 70th anniversary of President Eisenhower's Atoms for Peace speech where he advocated the peaceful uses of nuclear technology for the benefit of humanity.

Now more than ever, U.S. international policymakers recognize the need for significant growth in nuclear energy to meet the objectives of both energy security and to mitigate climate change. As Mike mentioned, agreements were signed at COP 28 among 22 countries to triple nuclear generation and another agreement to invest 4 billion dollars, bolstering the global supply chain for nuclear fuel. Here at home, DOE Secretary Granholm toured TVA's Clinch River site and said, quote, we basically have to build 100 Hoover Dams in nuclear. We've got to do it, and we've got to be serious about it.

Similarly, Congress has shown strong bipartisan support for legislation expediting nuclear energy development in order to meet energy security needs, achieve climate objectives, and support foreign policy goals. House Energy and Commerce Committee passed multiple pieces of legislation last week, one similar to the Senate's ADVANCE Act and in particular with a vote in committee of 47 to 2. Similarly, both chambers have advanced nuclear fuel security legislation aimed at securing a robust domestic nuclear fuel supply chain, both for LEU and high-assay LEU.

So again, remarkable bipartisan support for expanding nuclear energy. And this is all in the last ten days. This reflects a powerful

sense of urgency at home and abroad.

This global momentum is far bigger than the NRC. But the NRC is a gatekeeper of the nation's success in the is effort. As an agency, I believe we need to conduct our work with a comparable sense of urgency.

Today, we heard about the administration's domestic nuclear fuel policy and many company plans to develop or expand domestic nuclear fuel capabilities. Many of the actions taken by DOE and the industry will involve NRC licensing reviews. A year ago in a Commission meeting, I raised questions about whether a strategic workforce planning was effective at ensuring we have the necessary personnel to execute timely licensing reviews.

If we don't have enough people with the right skill sets, we relegate our staff to struggling under a growing wave of incoming work. Across the agency, we are continuing our staffing efforts, having hired hundreds of new employees in the last two years. We also continue to be well resourced as demonstrated by ending fiscal year 2023 with over 100 million dollars left over.

However, out of our 929 million dollar budget, licensing reviews were budgeted at only 73 million dollars. At a mere 8 percent of the total budget, licensing must compete for management attention with the other 92 percent. Given the mounting sense of urgency outside the NRC and the expectation of 12 to 14 fuel facility application submittals in the next few years, I'm concerned about whether or not we are on track to have the skilled people we need, trained, qualified, and prepared to execute predictable and timely reviews.

So we've learned a lot this morning about the plans for what is coming down the pike in terms of expansion of domestic nuclear fuel chain. But I'm going to focus on our regulatory responsibilities since that is the role that we play. So both the House and Senate versions of nuclear fuel security legislation have language directing the NRC to, quote, prioritize and expedite consideration, end quote, of the programs enshrined in the bills. So Rob, what are you doing to prioritize licensing work over other activities and ensure we will have the necessary skill sets to conduct expedited reviews?

MR. LEWIS: Thank you, Commissioner. We are prioritizing our work. We have a priority scheme that we have applied which includes things like is there a safety issue, obviously, safety or security issue that work would get done at the top of the pile.

Also, when each application comes in, we sit down with the applicant at the time of the acceptance review. And we talk about a mutually agreeable schedule for that work and level of effort. We give a schedule and a cost estimate for each application at that time. We hold ourselves to that.

Licensee need by dates which are a little bit different than the agreed upon schedule in some cases are also factored into our priorities. And then another issue would be, for example, as I mentioned in my talk, a high-level -- a high-enriched -- a high-assay low-enriched uranium application for enrichment that supports several downstream activities of various fabricators or advanced reactor technologies. That would be in our priority scheme put higher because it enables other things downstream.

In terms of the actual amount of licensing work, we have

done a lot of hiring in this division. And the division that does this work is approximately 90 people. We hired 15 people into that group in the last year, so it's a very high turnover.

Nine of those 15 were external hires. About 60 percent of our work in that group is licensing. There's additional work related to Homeland Security, inspection support, guidance development, supporting research activities that makes up the balance, event response, another category. And we had actually burned and executed to the budget in that group in the past year.

COMMISSIONER CAPUTO: So one of the things I think we're often good at, at an agency is spending a lot of time focusing on meeting and planning, perfecting rules, regulations, guidance ahead of time, et cetera. When I look at the fuel for this, for fuel cycle facilities, only one-third of the resources for this office are actually spent directly on licensing and inspection work. So that means two-thirds of the office is supporting that one-third, right? So that means that we're engaging in things like reconsideration of construction inspection which the industry has questioned whether or not that's really driven by a safety concern and the level of resources dedicated to that. So can you ensure me that activities like that are not done at the expense of actual license reviews, that you can ensure a proper balance between focusing on what's actually mission direct and the work that should support mission direct execution?

MR. LEWIS: Yeah, I can ensure that. And it's on top of our list. And if we have troubles with that, we would engage the Commission in a

reprogramming space to make sure we had the resources for the key priorities.

So I would say as well if there is a national priority to license a new capacity. So for example, if Russian uranium goes away, there's ability to -- on the enrichment and the conversion facilities, I think those are kind of the pinch points in supply chain in the situation where Russian uranium goes away. The existing plants can increase their capacity some, but it may not be enough to replace -- it may or may not be enough to replace.

So in the case where it was not enough, there would be a national priority for a new capacity. The NRC staff would do our part to re-prioritize and put work in place. Bring people from other groups. We would cancel developing guidance or some knowledge management activities or something to make sure those cases got done.

But given it's a national priority, we need to be told, though, that's a national priority. And we would treat the same for an evolving safety issue or an event that happened. We would reprogram our resources to make sure we got that work done.

And we would do add, shed, and defer work to ensure that the other work gets tabled. The one other thing I would say, kind of a luxury of this business line, there's only eight operating facilities, a quarter of which are here today. And we sit down every six months, NRC and the industry, with all eight represented and any new applicants are coming to that as well.

And we prioritize work together, and that's worked well. And over the last several years, we've been able to prioritize our work with them. I would say it's a -- I said it's a luxury for us to have that small group

and ability to set joint priorities which in the advanced reactor side, there's many more applicants. It's harder to do.

COMMISSIONER CAPUTO: All right. Thank you. Kyle, it's good to see you again. I very much appreciated my visit out to Wyoming and your hospitality in showing me the Nichols Ranch site. So thank you for that.

The people of Wyoming are clearly very proud of their contribution to our nation's energy security needs, and it really shows. So thank you for that. Thank you also for the reminder on the need for health physicists.

This is something I've raised with Dr. Goff's boss on a couple different occasions. The need for health physicists is certainly something that challenges the entire industry and certainly us here at the NRC. So thank you for raising that.

So my recollection from early in my career was that the existing nuclear fleet uses roughly 50 million pounds of uranium. It looks like from your slides that Wyoming is capable of producing roughly half of that, although not actively producing that much right now. So can you tell me, are you confident that your agency is going to be able to handle the workload associated with facilities resuming production and any potential new facilities that might be slated for development?

MR. WENDTLAND: Mr. Chairman, Commissioner Caputo, thank you for that question. That's a good question.

Yes, we believe that we are staffed up in our agreements

stateside. And we do believe that we have the capacity and the expertise to go ahead and move those licenses forward.

The one thing that we would say that might be helpful would be in the NRC training classes for staff there's kind of limited spacing. There's a high demand for those spaces. And getting our agreement state staff into those spaces would be really helpful, or more offerings there.

And that goes back to that do we have the technical staff to support that? If we have that training side addressed, I believe we do.

COMMISSIONER CAPUTO: Thank you.

CHAIR HANSON: Thank you, Commissioner Caputo.

Commissioner Crowell.

COMMISSIONER CROWELL: Thank you, Mr. Chair.

Thank you to all the panelists for being here today. There's a lot of information presented, and 10 minutes isn't going to do it to get through all of, all of what I think we each want to ask.

I think I'll start with going back to I believe, Rob, where you and Commissioner Caputo left off. One takeaway I got from the whole panel today is a related concern of mine about timing and how long things will take to do once they are received and ready for review and action.

And this chicken and egg issue really comes back to top of mind in terms of advanced reactors and the need for advanced and higher-enriched fuels.

On your Slide 4, Rob, you have some statistics about, you know, licensing actions previously, ones in action now, and then it says, you

know, from 12 to 14 are expected between 2024 and 2026. If that materializes, do you have the staff to manage that workload, and to do so in a timely way that doesn't necessarily have to rely on a potential national priority declaration of some sort?

MR. LEWIS: Yes is the, is the answer. And I'll let it lie.

We, we work with the licensees to understand the schedule needs. We factor that into our combined integrated schedule.

For example, if there's, like, only a couple of nuclear engineers or structural reviewers, and they have to work on several applications, they become the pinch points in the schedule for our overall reviews. And using our branch chiefs we, we work to manage those and add people as needed.

If there was a priority issue, if there was a safety issue we can call upon people that previously worked in that group to come back, things like that. We could shed other work.

But, I do think that we're confident that going forward, because of, again, the small size of the industry, the business line, that we can manage all the work to meet the schedules. We've met them all to date, the need-by dates.

And although there's increasing complexity going forward, when we sit down to do the application, the acceptance review meeting, and at that time we have an agreed-upon schedule and an agreed-upon estimate of our resources that we'll spend on their review, that's the time when we'll engage with the industry if we're not meeting their needs, and add resources

as we need.

COMMISSIONER CROWELL: I mean, the work that NRC is going to do in this space is not only relevant to our domestic needs and imperatives, but also will be a benchmark or a baseline for the international community, you know, advanced on these issues as well.

But that might, you know, it gives me concern that if we end up in a scenario where we're pushing things through under a national priorities designation where you're, you know, not necessarily having as much knowledge management and knowledge transfer in those kinds of baseline information, how that impacts, potentially undermines the international community in replicating best practices or things like that.

So, I hope that doesn't come to fruition.

Mr. Roth, your testimony was compelling to me particularly, you know, given how you've highlighted the complexity and the seriousness of some of the proliferation and safeguards issues. And, you know, you mentioned that they are all manageable issues. But manageable issues need to be managed. And we need to take into account how long, I mean how much time and how many resources are needed to manage.

And so, I hope that the NRC is looking at this through a prism of what really needs to be managed here and are we ready to do it?

So, appreciate that.

I'm going to switch gears here a little bit and go down the other end here.

Chair Heart and Mr. Wendtland, both of you evoked

memories of my past life today that gave me chills at some level. I haven't had to deal with mining, and reclamation, and sage grouse, and BLM and all of those fun things since my former life as a state regulator. And, you know, before coming to the NRC I was the head of the Nevada Department of Conservation and Natural Resources, which included our environmental Division of Environmental Protection. And so, Kyle, give my best to Todd Parfitt who I worked with closely.

But, you know, I would say the same thing about Nevada that, you know, I'd put their reclamation process up against anybody else's as well. And part of the reason Nevada's has been a success over time is our, you know, historical engagement on these issues, but also because we set up a very strong state-based surety and, you know, bonding requirements that were adequate.

And if you look at the work with, you know, what Nevada's success in reclamation looked like before we had that more robust bonding requirements, it doesn't look so good.

But as you look at the reclamation activity after, it looks great.

And, yes, new technologies and new ways of doing reclamation lead to great outcomes, like the picture you showed up there. But those outcomes are only, you only achieve those outcomes when you have adequate financial assurance to make sure that the outcome can be achieved.

So, Mr. Wendtland, I guess my question is how are -- can you talk a little bit about in Wyoming how you are approaching this issue to make sure you avoid issues like the Ute have experienced in Colorado and

Utah?

MR. WENDTLAND: Mr. Chairman and Commissioner, Wyoming has been a full cost bonding state since the Environmental Quality Act was stood up. And basically, though, you would have to go back in our history a little bit.

We had primacy of our coal program in 1982, so we spent a lot of time on the financial assurance space in that.

And you also have to remember Wyoming is the number one producer in coal, uranium, trona, bentonite. So, we have vast experience in bonding across multiple industries.

We've also established in 1996 a guideline. It was called Guideline 12. And I'd hate to say my age here, but I was one of the original authors of that. Because we wanted to standardize how a reclamation bond is calculated so that there's standard procedures about doing that.

That guideline's been updated annually, and revised and tweaked every year since its creation. And it's now considered a benchmark document. We actually have two provinces in Australia that are using parts of our guideline. We have other states that use pieces of our guideline on how to calculate, you know, equipment productivities, et cetera, to right down to getting to a solid calculation on a bond.

So, that's the first piece. Do you calculate the bond correctly?

Do you have high confidence in that number?

We do.

Secondly, we updated our bonding provisions in 2018. Governor Mead at that time signed those into law. And we have a very robust side of how we do the full cost bond and what we'll accept as far as surety. We even go as far as using the Circular 570 out of Treasury for reinsurance on our sureties.

We don't allow standby letters of credit, they have to be fully funded letters of credit.

We could go on through the list, but we're very confident in our ability to calculate the bond, how we hold the bond. And if we have to collect a bond, we're confident in that process as well.

Hopefully, that answers your question on that.

COMMISSIONER CROWELL: Yep. I think it does. And then, hopefully, you know, those funds will be put to good use at the appropriate time.

So, you know, one of the other, when I was in shoes similar to yours, one of my major frustrations in working with the Federal Government was, you know, a lot of the federalism worked well when you were doing a one-off, oftentimes when you were doing a one-off engagement with a single federal agency.

But then when you have multiple federal agencies involved with overlapping jurisdictions, or complementary jurisdictions, having those, having multiple federal agencies talk to each other in a constructive and timely way was a huge point of frustration.

So, can you take a minute just to talk a little bit more about

your point you highlighted about NRC and EPA coordination and how that can be improved?

MR. WENDTLAND: Commissioner -- Mr. Chairman and Commissioner, I think the best example of that is, you know, when we talk about, like, the CERCLA 108(b) that I mentioned in my presentation and, you know, I think that, you know, EPA's role needs to be clear, NRC's role needs to be clear. And I know that's been a discussion with the Commission for a long time.

And some rulings on that would be helpful. And I think that the EPA is, it continues to have its tentacles reach beyond probably its lane in a lot of cases. The aquifer exemptions, again, that's going to be key. If you want to increase production in our licensed capacities, you know, those aquifer exemptions are key because we have to be able to do those to get to that resource and that ore. And doing those timely is a big tie-in here.

So, those are frustrations in those overlaps. And I think where those lines are blurred, some clarity there between the two agencies would be extremely helpful.

And I do have to add that I always am a little uncomfortable, if I seem a little nervous, because these meetings are always a long way from an 8th graduating class in rural Wyoming with 22 kids in it.

So, I appreciate your comments from Nevada as well.

COMMISSIONER CROWELL: Thank you. I'm out of time, but if I had more, I have questions for all of you.

Thank you, Mr. Chair.

CHAIR HANSON: Thank you, Commissioner Crowell. And, again, thanks, everybody, for being here today. I think the discussion has been, has been really robust.

Chairman Heart, I wanted to thank you in particular, because I think as we talk about, and we've really covered the gamut today, right, we've covered global changes, you know, wars halfway around the world, et cetera. And I think your remarks, Mr. Chairman, really helped us remember that there are communities where a lot of these issues really start, and that's it incumbent on us as regulators, along with our state partners, to help protect those communities and the environment.

But I really wanted to give you an opportunity to comment on some of the other presentations that you've heard here today. And I might have a couple of other questions as well.

CHAIRMAN HEART: Thank you, Chair, and Commissioners. I really appreciate it.

As I look around the table, everybody is knowledgeable about the nuclear field and energy, and what we're facing today through climate change. It's here. We need to address it.

I agree. I wholeheartedly agree on that that we've only done this to ourselves, through the fossils fuels and what happened to them, but now we have to change, to modify, to make things better.

But two sides that are not having a negative impact to people around you, I look at this whole room, everybody has children, or grandchildren, or a relative. And if they're drinking water that smells like sulfur

or looks greyish, then you should feel that empathy in what's going on and what we're building today. That's what my people are seeing today in White Mesa.

I have to go to the Department of USDA to get money, $2 million, to put in a treatment facility in White Mesa. We did it, state-of-the-art facility. But once you get it and you get that water coming out of the faucet, it still smells like sulfur.

Our infrastructure, glad that we've got the infrastructure bill that past. I need to replace all of it.

Yes, as we start to look at how things are moving into the future, and with bipartisan support from the Congress, and 22 countries looking at the nuclear industry, then really look at where we put these sites. Energy Fuels in Wyoming, 22 million pounds of yellow cake. I don't know what their projection is for White Mesa and what they're planning to do.

Russia is probably bringing in a lot of the uranium ore that you guys have utilized today in these facilities.

Things are really challenging for each and every one of us. All I ask is for accountability.

I had one of our cells, 4B, had no liquid cover. That's how we got a hold of the Nuclear Regulatory Commission because there were about 40 percent liquid cover over that site, over that cell. That's how they stepped in and said, well, we're going to go out there and take a look.

Thank you, Mr. Lewis, for coming out and really looking at that in that way. Really appreciate that.

As we start to look at HALEU, I don't know what that is. I'm just a person that was elected to be the Chairman for the Tribe to advocate for them in the best interests of the youngest to the oldest, and to the future for the children that are not here yet.

We don't want to be moved off our aboriginal lands. We've been moved around too much as Tribes across this country. They've taken a lot away from us. And we end up on these small reservations, and we end up having the challenges to face what we're put on.

And we want to reach out. We want to partner. We want to work together. If that's the true future that we're moving toward, then let us come to the table.

Yes, we might not agree. We might choose to disagree. But at least put us here, that I know in my heart that I can take back to my people and say this is the direction the United States is going, or the world. But work with us, too. Work with us to say, yes, we'll hold everybody accountable.

I heard a couple times that Nuclear Regulatory Commission is a standalone. I deal with 40 different departments, if I say, all right, departments, if you're going to be standalone, is that a silo that's going to stay on its own? Or should I break the silo down and say, I want to work with EPA? I want to work with Department of Energy. I want to work with USDA. I want to work with whatever department there is under the Federal Government.

We can't say I'm a silo by myself, because that's only working toward just their goals and objectives. I need to be able to look at it across

the board and say, how can we work together to make things better?

Yes, we're working toward a better future. Yes, we're working toward looking at what global warming has happened to us. I have 574 Tribes last week meeting with the President. And a good example is the Transportation Department. And I'm just putting this out as an example.

To fly from Alaska costs about $600 to $700 to Washington, D.C., Dulles. Within the state of Alaska, to move from one village to another is $1,200 to $1,500, just within their state.

Where is the United States Government really helping that?

On law enforcement, I have 600,000 acres of land and I only have four officers to cover the whole reservation.

I have a tribe in South Dakota, Sioux Tribe, has only five officers for over a million acres.

Where is our collaboration? Where is our communication? If we're all under the United States Government and we're all citizens of the United States, then feel that empathy. Feel that empathy. Step into my shoes. Step in the shoes of my people so that you know where we're heading to, that we may both understand.

If that's a true area that we're moving forward to, nuclear, because the hydropower plants are going away because of lack of water on the western side of the United States and the Colorado River Basin, then where do we actually move toward? Global warming is here, everyone. We just need to be able to work together.

I appreciate all the panelists, and I appreciate the

Commission, Chairman. Appreciate you just sitting down with me and talking to me and giving me that opportunity to pray for all of us, because that's what it's about: humanity.

Here to here. The road of life is not measured in miles. It's not measured in any measurement, but only from here to here, to understand where you're going in life. Then back to here, and then back out to here, so that people truly understand who we are and where we're at. Whether you're Tribal nations, citizens of a state, citizens of a country, anywhere around this world, we have to have that empathy to see where we're heading.

So, with that, Chairman, Commissioners, I really appreciate the opportunity today. It was an honor.

Thank you.

CHAIR HANSON: Thank you again, Chairman Heart. We really appreciate your being here.

And I think your comments about the government-to-government relationship that is so important between the United States Government and our Tribal partners, as you say, it's the government to government, not government to governments.

So, even though the NRC might be an independent agency, we are still an arm of the Federal Government. And I think we have a saying here at the agency that we're independent but we're not isolated.

And I think it's incumbent on us, and I hope the staff continues to take it to heart, that we're connected to our interagency partners and in order to make easier the way of those interactions with our Tribal

partners going forward.

So, thank you again.

Just switching gears here in the last couple of minutes that I have left.

Mr. Schnoebelen, I wanted to ask about you had Phase 1, which is a 15 percent increase, I think, to the URENCO facility in New Mexico to 700,000 SWU.

And then you had Phase 2, which was 4.5.

And I wasn't clear -- and this is going to be partly a question for Dr. Goff as well -- I wasn't clear on kind of what the key, you know, we were talking about kind of key indicators or key kind of market signals that were going to be needed for us to deploy resources, I wasn't sure what the -- if, if Phase 2 was firm, or if you were kind of waiting on contracts.

Or can you kind of talk about the status of that a little bit?

MR. SCHNOEBELEN: Sure. Happy to. And thank you for the question, Chair.

So, the first incremental expansion that will occur at URENCO USA is going to be 700,000 SWU. This is going to be constituted of centrifuges that will go into existing buildings. So, it is facilitated by, you know, the existence of those buildings already, and accelerates the timing that we could deploy that additional capacity.

The reason that we have made the final investment decision for that capacity is the amount of commercial activity that we've engaged with U.S. utilities in.

I think the next phase of expansion of low enriched uranium production would be to build another building out, out at UUSA. We have three such buildings on site right now. A fourth building would be capable of hosting another 2.1 million SWU of capacity.

We will make a final investment decision on that based on the amount of backlog that we have with customers for delivery of the output of that, of that equipment.

It's approximately a $2 billion investment. It's not to be taken lightly. So, we, we need some certainty on the revenue stream that's going to be generated by such an investment.

But the entire site is licensed currently for 10 million SWU. So, we can continue to incrementally expand, provided that we have the commercial support for those expansions.

Does that answer?

CHAIR HANSON: Yeah, it does. Based on those kind of firm contracts; right? I think, I think it was Commissioner Crowell who broached the phrase that I love, the chicken and egg. Somebody mentioned chicken and egg around here. Maybe it was, yeah, Brad or Rob. It was someplace on that end of the table.

But I guess I'm, I guess my next kind of question would be then is, is there -- is that part of the, is solving in a way that financial part of the chicken and egg problem part of the strategy then that's being developed by DOE?

DR. GOFF: Yes.

You know, when we -- well, after Russia's invasion of Ukraine, when we --

CHAIR HANSON: Yes.

DR. GOFF: -- started talking and recognized we couldn't continue to subsidize Russia by buying this. And there's a significant gap in the western world if Russia's material's not there. We had a lot of discussions with industry and our colleagues from URENCO and all.

And, yeah, and the message we heard was, you know, we need certainty of contracts, and we needed to know Russia is not going to come back into the market as well.

So, that's why the strategy that we put forth and the President's supplement included was we need a ban on Russian material. And we, you know, we, the Department of Energy, the Government, can be that first movers to ensure long-term contracts.

So, that's been our approach with both HALEU and enrichment capacity for LEU. We're willing to say we will be the first movers for new capacity. So, we'll put in contracts that are long-term contracts from the Government to buy material, to provide a surety that there's contracts out there.

Now, in doing that we've got to make sure we're balancing as well because, obviously, utilities, we want the utilities to be buying that new capacity. So, we want to make sure that we're not working utilities out, but that capacity is first for the utilities and all is well.

But we can be that first mover, pay that first cost of being the

first mover to put those contracts in place. So, yes, to help provide that surety of contracts out there.

MR. SCHNOEBELEN: And if I could just add. You know, URENCO sees a bit of a difference between the existing market for low enriched uranium, and I'll include up to 10 percent material in our conversation here.

There's a very mature market, global market for that, for that kind of fuel production with existing technologies, existing sites, existing users. So, to come to a decision to make final investment decisions in new facilities it's strictly a matter of business. It's just a matter of placing the contracts at the right prices for the right terms.

We do see a bit of a difference with the high assay LEU. And by that I'm defining up to 20 percent. There is no functioning market for high assay LEU. And this is where we really see a role for government in establishing a market and then transitioning to a well-functioning market once there is long-term demand and many reactors are on the ground that require fuel in the long term.

CHAIR HANSON: Great. Yeah. No, thank you, you touched on the final point I think about HALEU is very well taken. So, thank you both very, very much.

With that, I'll hand it over to Commissioner Wright.

COMMISSIONER WRIGHT: Thank you, Chair.

Good morning. Thank you for your presentations. And before I get started I do want to associate and echo the opening comments

today of Commissioner Caputo thanking Chairman Heart for your opening prayer. That was very special. Thank you so much.

And also to Mr. Roth for the recognition of the importance of the whole non-proliferation issue. And also, I think, the recognition that there are some technologies that are coming that will help possibly play a role in that space to help address that problem, that concern.

So, thank you for that.

You know, this meeting comes at a very important time for our country. And as we've heard this morning, how we move forward is going to be important, too, you know, especially since Russia's illegal invasion of Ukraine.

And it called into question many of our long-held assumptions about nuclear safety, security, and safeguards, and caused all of us, both domestically and internationally, to pause and reassess our partnerships, you know, our supply chains, our internal needs, our resource needs, and our available resources.

And, Kirk, as you mentioned this morning, there has been a demand worldwide for non-Russian uranium, including HALEU fuel. And we can't afford to rely on Russia for HALEU or anything. Right? That's obvious.

And having a reliable supply of domestically produced HALEU is important for moving forward with many advanced reactors.

Now, I also want to note that I understand the industry is in a tough position here. Back to that chicken and egg problem that you all have spoken about here this morning. The advanced reactors need to know that

the HALEU is going to be there when they, you know, when they're ready and they need it. And you, you all making the fuel need to know that there's going to be a long-term commitment to have a place for the fuel to go.

So, I really appreciate the work that DOE is doing here to help bridge this gap a little bit. And I want to acknowledge that work here today, Mike.

In going into these and being last at these meetings there's a lot of ask and answered stuff already. And then basically I'm going to play clean-up a little bit and give you maybe another opportunity to either add or maybe clarify something, too.

So, Dr. Goff, one, it's good to see you again. We, you know, we don't see much of each other inside the United States, but outside we see each other a good bit. And it's been fun and important, too.

You know, as I mentioned in my remarks, I think that the work that the Department is doing to assist the HALEU supply is the right way to go. But, you spoke a second ago about kind of what you, how you envision the work going. And Kirk also kind of added to that.

So, is there anything more that you need to add or can tell us, or do you need to clarify or expand on anything about how you envision that the work that you're doing now is going to impact the long-term fuel supply?

DR. GOFF: I'll speak to HALEU about that.

So, yes, we do want to make sure we have an assured supply. But we do have some near-term needs. So, everybody needs to

know that.

Within the, you know, there's not a commercial source right now, so we, within the Department, have worked with our colleagues, especially in the National Nuclear Security Agency, to really start identifying how much material we have as far as existing material.

So, we've sort of started developing that list of materials. And we are now working to develop a methodology that we hope to be able to release fairly soon on starting to decide how we start allocating that material. Because we realized we don't have enough material for everyone that's deploying right now, until we get that commercial source out there.

So, our folks in our fuel cycle, director Jon Carmack, our deputy assistant secretary for the fuel cycle here, he's been tasked to come up with that methodology so that the vendors can start coming to us -- and they already have -- and start providing us here's our need, here's what we need and when we need it. And then we have a methodology to start allocating that to provide the surety on when those people could have that material.

So, we're doing that internally as well until we can get that commercial source out there. Which, again, that commercial source I think is very critical to enable to continue to build out as well.

So, that's why we're real happy we'll hopefully have that RFP for the initial $500 million for us to start buying material. And, hopefully, with the President's supplement we'll have additional material to provide a little bit more long-term certainty on the buying of that HALEU material.

But, yes, it's very critical for us to have, to start allocating

material to support those demonstration projects, like the Kairos reactor that you approved earlier, but also the X-energy one, and the TerraPower as well, and started defining what materials can go where in the very near future here, so.

COMMISSIONER WRIGHT: Thank you so much.

Kyle, good morning. I want to again associate my appreciation and associate with your comments on Commissioner Caputo's comments on the HPs. It's critical. And everywhere I've gone, I guess, in the last year, year-and-a-half, that has been like a -- we're, we're beating that drum everywhere we can to try to do what needs to be done to try to improve that pipeline.

So, you know, thank you for your recognition of that.

And if you heard a scream a while ago, it was probably my admin from upstairs when you said come see us. Because we're doing schedule right now, so you have added a little complexity to it. So, we're going to come see you. So, thank you. Thank you for the offer.

You know, you mentioned that there's challenges with the supply chain; right? And that can make it difficult to ramp up production.

Talk to me a little bit more about this. Is the supply chain for the yellow cake? Or are you talking about supply chain issues for plant equipment and things like that?

Or then maybe more importantly, what can be done about it?

MR. WENDTLAND: Mr. Chairman, Commissioner, thank you for that question.

And, yeah, we are looking forward to you coming and seeing us by the way.

And it is plant equipment. I mean it's there's no, there's no getting around it. I don't think it's unique to Wyoming where we're seeing plant equipment, or specifically specialty type equipment in that supply chain, difficult to get at times, or difficult to get to your site or location.

But along with that is labor. You know, Wyoming sites are a lot like Nevada's. We're remote. And, you know, getting people that are willing to come out and work at those more remote sites, that's a unique labor pool. So, that is part of that whole supply chain.

As far as what we can do, you know, on the mechanical side of it or plant equipment side of it, I think that's a tough one. I'm not sure I'm really prepared to answer that as, you know, can we produce those, that equipment domestically? Can we source a better or more reliable chain of that equipment? That's, I think that's a little out of my wheelhouse.

On the labor side, I think longer term stability in the marketplace, we were just talking about, you know, having stability in purchasing, like HALEU. You know, do we have a long-term stability in purchasing the base supply of uranium?

Do we have longer-term contracts for when we bring those people into the industry, can we then hang onto them for that longer, make that longer period of time and make that commitment to those employees?

I think that would be helpful.

COMMISSIONER WRIGHT: And I guess underlying all that

is market signals, price; right?

MR. WENDTLAND: Mr. Chairman, Commissioner Wright, yeah, price is it. You know, I mean I didn't go into that for obvious reasons today. But, you know, a stable price and a high enough price for the domestic supply is key.

COMMISSIONER WRIGHT: Right. Okay.

MR. WENDTLAND: And I'm seeing nods around the table, so.

COMMISSIONER WRIGHT: Right. Okay, thank you. Thank you.

And Chairman Heart, you've got four commissioners sitting here today who are very interested, very concerned about legacy waste, especially on tribal lands. And we are very cognizant of the issue. And we're trying to do everything we can to help promote development of some of these technologies that might address some of the cleanup.

And I don't know who those people are, you know, because there's probably a number of them out there. There's a few we've heard of. But just know that we are paying attention to that, and that's something that we are committed to try to do something to help.

CHAIRMAN HEART: Thank you, Chair and Commissioners.

I have a packet that we each handed out, I have my staff member here Scott Clow, the Director of Environmental Department, one picture that shows a grader going across the top of a cultural site. That's something that we need to protect and take care of when these cultural sites,

as I mentioned in my speech, is something very important to not forget where our people come from, and to protect them the best we can. Not to have a grader go across a cemetery and say, oh, we forgot about it. We're going to build something on top of it based on economic development.

So, really trying to protect it and take care of it based on legislation that's been taking care of the cultural sites and protect them in that way.

Just so you're aware, if you have any questions, Scott Clow will be here for the next day to meet any of you if you have any other questions. Appreciate it.

Thank you, Chair, Commissioners.

COMMISSIONER WRIGHT: Thank you.

And very quickly, Rich, I want to come to you in the short time I have left here.

You know, you talked about the work being done on the Natrium design and the ARDP, and you showed the NRC has a lot of touch points with the fuel for the Natrium design, from construction to shipping, and from fabrication to transportation.

Do you feel like you're getting consistent and cohesive support from the NRC across these different areas?

MR. AUGI: Yes, we have.

And as I've said, we've kept the engagement frequent, especially when we've had delays because of the HALEU availability and the impact that that's had to the overall program.

So, we've had very good relationships, very good interactions with the NRC across, because we are working across from the facility licensing to new container for shipping.

So, yeah, there's, there's a lot of activities that are going on. And we do appreciate the NRC's working with us.

COMMISSIONER WRIGHT: Thank you so much.

Good.

CHAIR HANSON: Thank you, Commissioner Wright.

Well, that brings us to the end of our time together.

Mr. Roth, please don’t feel neglected. I appreciated your discussion and your presentation very, very much.

I want to appreciate particularly Chairman Heart, and Mr. Wendtland, and Mr. Schnoebelen, the great distance that you all came to be here today. And I wish everyone safe travels and healthy and happy holidays and New Year.

I want to thank my colleagues for their thoughtful comments and remarks today as well.

And with that, we're adjourned.

(Whereupon, at 12:05 p.m., the meeting was adjourned.)