Stenographic Transcript
Before the

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON
THE DEPARTMENT OF ENERGY AND NATIONAL NUCLEAR SECURITY ADMINISTRATION ATOMIC ENERGY DEFENSE ACTIVITIES IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2024 AND THE FUTURE YEARS DEFENSE PROGRAM

Wednesday, April 26, 2023

Washington, D.C.

ALDERSON COURT REPORTING
1111 14TH STREET NW
SUITE 1050
WASHINGTON, D.C. 20005
(202) 289-2260
www.aldersonreporting.com

HEARING TO RECEIVE TESTIMONY ON THE DEPARTMENT OF ENERGY AND NATIONAL NUCLEAR SECURITY ADMINISTRATION ATOMIC ENERGY DEFENSE ACTIVITIES IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2024 AND THE FUTURE YEARS DEFENSE PROGRAM

Wednesday, April 26, 2023

U.S. Senate
Committee on Armed Services,
Washington, D.C.

The committee met, pursuant to notice, at 9:31 a.m., in Room G50, Dirksen Senate Office Building, Hon. Jack Reed, chairman of the committee, presiding.

Committee Members Present: Senators Reed [presiding], Shaheen, Blumenthal, Kaine, King, Warren, Peters, Manchin, Rosen, Kelly, Wicker, Fischer, Cotton, Rounds, Ernst, Sullivan, Scott, Tuberville, Mullin, Budd, and Schmitt.

OPENING STATEMENT OF HON. JACK REED, U.S. SENATOR FROM RHODE ISLAND

Chairman Reed: Good morning. Let me call the hearing to order. The committee today meets to receive testimony on the Department of Energy's Atomic Energy Defense programs. I would also like to welcome our witnesses, Secretary of Energy Jennifer Granholm and Administrator of the National Nuclear Security Administration, Jill Hruby.

I also want to thank your department's workers for their service to our nation. Maintaining the effectiveness, safety, and reliability of the United States nuclear deterrent is fundamental to our National Security.

Today, our nuclear deterrent consists of a triad of ballistic missile submarines, heavy bombers, and land based intercontinental ballistic missiles. This triad is the bedrock not only of our national defense, but also the security of our allies and partners who depend on the United States nuclear umbrella. Critical to the triad's effectiveness is its modernization.

The technology materials required to maintain our nuclear capabilities, especially warheads and delivery systems, are constantly evolving. However, the National Nuclear Security Administration, or an NNSA, is struggling to keep pace with these modernization demands.

The NNSA is experiencing a tremendous workload as it

strives to modernize not just all three legs of the triad, air, sea and land, but also five major warhead programs. Each of these triad legs and warhead programs require considerable resources, personnel, and time to be successful. Further compounding this challenge, the NNSA is undertaking a major rebuilding of its nuclear infrastructure.

Much of our nuclear infrastructure dates back to the Manhattan Project in World War II, and while the original facilities held up well through the first two cycles of triad modernization in the 1960s and 1980s, they have essentially aged out for a third cycle currently underway. It is critical that the NNSA successfully balance the workload of its infrastructure and production facilities modernization.

With that in mind, the Fiscal Year 2024 budget request for the defense functions of the Department of Energy is $32.6 billion. This figure accounts for about 63 percent of the Department of Energy's overall budget request.

Within this proposal, the NNSA has requested $23.8 billion, a 7.6 percent increase over last year's enacted level. One of the key challenges facing NNSA is finding skilled workers. This difficulty is being felt across the defense enterprise and indeed across the entire economy but is it particularly acute when it comes to nuclear security.

Construction of our nuclear facilities requires specialty steel and concrete, as well as highly trained electricians and welders to handle these materials, which exacerbates the problem. I would ask for an update on the NNSA's efforts to recruit and retain these skilled workers. Another key challenge for NNSA is a requirement to achieve a plutonium pit production rate of 80 hits per year by 2030.

This production is intended to be accomplished at Los Alamos National Laboratory, as well as a second site at Savannah River. However, the plant at Savannah River was originally built to convert mixed oxide fuel and therefore must be converted for pit production. The cost of this conversion had risen significantly from $4 billion to between $6 billion and $11 billion.

Furthermore, the project timeline has stretched from the 2030 target to between 2032 and 2035. The committee would like an update on this issue and when the Department will have an integrated master schedule that accounts for all aspects of the pit production enterprise to meet this longstanding defense requirement of 80 plutonium pits per year. I would also note that the 2024 budget request increases the defense portion of environmental cleanup to $7 billion.

I hope our witnesses will update us on our efforts to

continue cleaning up former defense production sites, particularly at the Hanford Nuclear site. These are commitments that have been made to local communities that we cannot neglect.

The Hanford site has 177 billion gallons of radioactive waste stored in underground tanks, some of which are leaking. The Energy Department is working to remove the first 40 percent of the low activity radioactive waste from these tanks, and I commend these efforts.

I understand there are discussions underway on how to remove the highly -- high activity radioactive waste from this site and others and would ask our witnesses to share how you are working with the State and local communities on these efforts.

Again, I want to thank our witnesses for appearing today. I look forward to your testimony. As a reminder for my colleagues, there will be a closed session immediately following this hearing in room SVC-217. Now, let me recognize Ranking Member, Senator Wicker.

STATEMENT OF HON. ROGER WICKER, U.S. SENATOR FROM MISSISSIPPI

Senator Wicker: Thank you, Mr. Chairman, and thank you, Madam Secretary and Madam Administrator, for being here. I want to especially thank the Chair for his very clear opening statement.

And it is obvious to me, based on the facts that he outlined, that we are nowhere near where we need to be and this committee needs to take action in our NDAA to catch up. The United States prevailed in the Cold War largely because we maintained a strong and credible nuclear deterrent.

Today, the United States and its allies have entered a dangerous new era of nuclear competition. For the first time in history, we must contend with two nuclear armed peer adversaries, each intent on undermining America's interests. Just a few years ago, Beijing was something of an afterthought in the nuclear world.

Since then, China has expanded its conventional and nuclear forces at an unprecedented rate. China has built hundreds of new ballistic missile silos, completed the world's third nuclear triad, and massively expanded its nuclear weapons stockpile. Xi Jinping also directed the Chinese military to develop missiles that can put nuclear warheads into orbit around the Earth, the so-called

fractional orbital bombardment system.

Such a capability would allow China to attack at any point on the planet with almost no warning -- a terror weapon, if ever there was one. For its part, Russia continues to maintain the largest, most modern, and most diverse nuclear arsenal in the world. Vladimir Putin has shown us during his invasion of Ukraine that he believes nuclear weapons are still a powerful tool for keeping adversaries in check.

Considering the conventional losses Moscow has endured in Ukraine, it seems plausible that Russia might grow even more dependent on the security its nuclear arsenal provides. We have also seen recent evidence that China and Russia are now cooperating on nuclear issues. This year, China purchased over 28 tons of highly enriched uranium from Russia, which is likely to be used to produce plutonium for additional nuclear weapons.

Not to be outdone, North Korea may now possess enough missiles to overwhelm our homeland missile defenses, and they show no sign of slowing down. Half a world away, Iran continues to expand its stockpile of nuclear weapons as it inches closer to its own nuclear weapon. Unlike our adversaries, the United States has not been urgently adapting our nuclear forces. Instead, we see long overdue modernization program simply plodding along.

I see an Administration intent on defending policies that grow increasingly out of touch with reality, rather than doing the hard work to adapt our forces to current and future threats. For example, the Biden Administration again chose to eliminate funding for the sea launched cruise missile program, SLCM, even as China, Russia, and North Korea field thousands of tactical nuclear weapons to threaten the United States and its allies.

This move directly conflicts with clear, bipartisan direction from Congress last year to continue this effort. We would like to hear the logic behind such a move. Beyond the SLCM, every single United States nuclear modernization program has been delayed, reduced in scope, or canceled over the past decade.

In particular, the National Nuclear Security Administration has an extensive backlog of projects to update its Manhattan Project area infrastructure, much of which is over 70 years old, as the distinguished chairman just told us.

The inability of the National Nuclear Security Administration to meet the statutory requirement to produce 80 plutonium pits per year by 2030 is also deeply disturbing. The inability to do so is deeply disturbing.

This committee has been told there is nothing that can be done to rectify this, but considering the rising threats

from China, Russia, North Korea, and Iran, complacency is unacceptable. We cannot effectively compete with and deter our adversaries with a nuclear capability that is undersized, under prioritized, and incapable of adapting to changing threats.

Thank you, Mr. Chairman.

Chairman Reed: Thank you very much, Senator Wicker. Before I recognize the Secretary, there is a quorum present -- and such a quorum is now present. I ask the committee to consider the list of 1,279 pending military nominations.

All these nominations have been before the committee the required length of time. Is there a motion to favorably to report this list of 1,279 pending military nominations to the Senate?

Senator Wicker: So, moved.

Chairman Reed: Is there a second?

Voice: Second.

Chairman Reed: All in favor say aye.

[Chorus of ayes.]

Chairman Reed: The motion carries. Thank you very much. Madam Secretary, you are recognized.

STATEMENT OF HON. JENNIFER M. GRANHOLM, SECRETARY OF ENERGY, DEPARTMENT OF ENERGY

Secretary Granholm: Thank you so much, Chairman Reed, and Ranking Member Wicker, and esteemed members of the committee. I am honored to be here representing the Department of Energy before you today, along with NNSA Administrator, Jill Hruby.

I thank you for the strong and consistent and bipartisan support this committee has shown the Department and our weapons enterprise. Over the last two years, Congress has entrusted the Department of Energy with significant resources to build up America's clean energy manufacturing and to vault our country into the lead of global clean energy markets, and these endeavors are critical to energy independence and economic competitiveness in the 21st century.

At the same time, the American people have long counted on the Department to meet National Security missions that are essential. The geopolitical circumstances of the day make clear that these National Security missions are as urgent as ever.

Russia's invasion of Ukraine, China's nuclear expansion have reinforced the imperative to maintain a safe, secure, and effective nuclear deterrent. Amid rising saber rattling and active aggression against our allies, we

cannot afford to lose an edge.

And as countries around the world begin to turn toward civil nuclear power for greater energy and climate security, we face a need for deeper investment in nonproliferation and counterterrorism measures. And as the future of nuclear technology comes into view, we must remember and uphold our pledges to the communities that live alongside our research and production programs and have done so for decades.

The President's budget request for Fiscal Year 2024 recognizes and responds to each of these priorities. It would position the Department of Energy to advance clean-up of legacy nuclear activities, to promote American leadership on the safe and peaceful use of clean energy, and to strengthen our national defense. Let me take just a minute to detail some key elements, starting with NNSA.

The budget calls for a $1.7 billion increase over the amount enacted for the NNSA in Fiscal Year 2023. That includes a 10 percent increase for weapons activities. It is the largest requested funding level in the history of the NNSA. It reflects the Biden-Harris Administration's ironclad commitment to enhancing our National Security, defending our citizens, and standing with our allies.

Along with the modernizing -- the modernization of the nuclear stockpile and restoring production capacity, this

request would empower the NNSA to respond to new threats and opportunities in nuclear nonproliferation and counterterrorism.

It will allow us to maintain the Navy's current nuclear propulsion systems, while developing the next generation of nuclear-powered warships, both of which are vital to the U.S.'s contributions to the new AUKUS partnership, and to our technological advantage over adversaries. Importantly, the budget will also allow the NNSA to build the Federal workforce that is necessary to meet our increasing mission requirements.

And further, the President has requested necessary resources for our Office of Environmental Management, which oversees the largest environmental cleanup program in the world. In particular, the request enables us to ramp up our work in tackling tank waste. We have treated over 400,000 gallons of tank waste at the Hanford site.

We are now processing record amounts of waste at Savannah River, 6 million gallons. And the request also funds infrastructure upgrades at the -- and the operation of treatment systems in South Carolina, in Idaho, and Washington State, so we can build on those results to date. It supports further efforts to address contamination issues across our sites, while tending to the communities and tribal nations that are impacted by these issues.

And this budget will help the office recruit and train a new cohort of legacy management workers and leaders. Over the last two years, we have made important progress on each of these crucial missions, yet we know that challenges remain.

This budget request prepares us for the depth of the work still ahead. I am proud to lead such a gifted and dedicated team, and we are all grateful to have your partnership and support on these indispensable matters. Thank you once again for the opportunity to speak with all of you, and I look forward to your questions.

[The prepared statement of Secretary Granholm follows:]

Chairman Reed: Thank you very much, Madam Secretary. Madam Administrator, please.

STATEMENT OF HON. JILL M. HRUBY, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

Ms. Hruby: Thank you, Chairman Reed, Ranking Member Wicker, and members of the committee for the opportunity to appear before you. It is an honor to be here alongside Secretary Granholm to discuss the Department of Energy's enduring National Security missions.

NNSA appreciates the consistent, strong support from the Secretary and from members of this committee for our work and our workforce. The deteriorating international Security environment is a constant reminder of the importance and urgency of NNSA's mission.

NNSA's Fiscal Year 2024 budget request of $23.8 billion allows us to respond to today's challenging global environment. NNSA is executing five weapon modernization programs while revitalizing our infrastructure and investing in our scientific and engineering capabilities.

The refurbished B61-12 and the W88 Alt 370 weapons are being delivered on time. The other three systems, the W80-4, the W87-1, and the W93 are progressing well in their developmental phases.

All modernization activities are closely coordinated and synchronized with the Department of Defense, and we appreciate their strong partnership. Infrastructure investments in the NNSA complex have been prioritized, with

some work ongoing at each of our labs, plants, and sites.

The large-scale nuclear infrastructure projects are facing the most challenges due to supply chain bottlenecks, inflation, and labor shortages common throughout the construction industry and the United States right now. These unique NNSA nuclear capabilities take more time to design and build and require specialized knowledge and skills.

I want to assure you that we are actively taking steps to address the issues that have arisen on these projects. We are also making meaningful investments on our nonproliferation, counterterrorism, emergency response, and naval nuclear propulsion programs.

These programs play a vital complementary role to our weapons program -- activities, reduce global nuclear risk, provide critical support to Ukraine, and are a key part of the AUKUS partnership. We remain committed to achieving our objectives across all our priorities. Thank you. I look forward to your questions.

[The prepared statement of Ms. Hruby follows:]

Chairman Reed: Thank you very much, Administrator. Madam Secretary, in my opening statement, I mentioned, and indeed you have all referenced as the difficulty in accelerating or even keeping on schedule with construction projects because of the increase in costs due to shortage of skilled laborers, specialty materials, especially for these nuclear projects.

How serious is this problem across the entire Department of Energy, and what are you doing about it?

Secretary Granholm: Thank you, Mr. Chairman. It is a serious problem. I mean, as Administrator Hruby just acknowledged, those three issues, workforce, inflation, and supply chain have impacted not just the NNSA projects, but projects all across our enterprise, at our labs, for example. It is impacting construction across the country as we are seeing.

So, there is no doubt that it is a challenge. And so, the question is how can we, particularly on the workforce side, how can we recruit and train a new cadre of employees for these very important missions, especially as we are competing with the private sector, and full-on increases in manufacturing projects all across the country.

You know, in large measure, a lot of these are newer projects, thanks to what Congress has given through the Inflation Reduction Act. So those -- that competition will

be real. Fortunately, the NNSA has done a lot of work on reaching out to -- across the country, trying to incentivize a new workforce, trying to do a better job, a big job of recruiting.

And they have been fortunate that their attrition rate has dropped to about 3 percent, which is much better than it had been. But there is no doubt that we are looking at all measures to be able to do that.

Chairman Reed: Thank you. Administrator Hruby, you mentioned, and I also mentioned, the ranking member, of the challenge of synchronizing all of these different projects, particularly at Los Alamos and in Savannah with respect to the 80-pit production objective, which is the law of the land.

One of the aspects of this is coming up with an integrated master schedule for reduction, and you have not done so yet. Can you give us an idea of when this integrated master schedule will be ready?

Ms. Hruby: Yes. Thanks, Senator Reed. We have, in fact developed and integrated a mastery schedule. We rolled it out in October of 2021. The issue that has been cited by the GAO about our integrated master schedule is it isn't in enough detail to help do -- to help be -- to be as useful as possible, and we agree with that.

But the reason it isn't detailed is because we are

still in the design phases for both of these projects. We have activities going on, and the activities that are going on are completely in the schedule.

But until we finish design phases, it is hard to have the integrated master schedule at the level of detail that the GAO would like to see to make that tool as effective as possible, and we will continue to populate the integrated master schedule with more detail as the designs mature.

Chairman Reed: Thank you very much. And Madam Secretary, I have got about a minute plus. Can you highlight some of the efforts that you have been engaged with helping Ukraine? Because one of the critical issues they have is keeping the lights on, literally.

Secretary Granholm: Yes, very briefly. We, at the Department of Energy, both at the NNSA and in the non-defense side, have one, made sure that we have been in touch with all of the utilities across the country to ask them for donations to help send equipment to shore up the energy grid in Ukraine.

And we are now about to send our ninth plane of equipment that the utilities have been either donated or that we have purchased from them. Number two, with the NNSA, we have made sure that we have installed sensors in Ukraine to detect radiological activity.

We have been training people in Ukraine in the event -

- in how to respond to a radiological action. We have been focused on as well, the next step.

What does the grid look like? How should we design a grid in partnership with Ukraine that is war proofed as we build up? And in the postwar environment, hopefully that happens soon, what should the next grid look like? -- consistent with what President Zelensky has said, which is that he would like to see a distributed grid that would make it safer.

Chairman Reed: Well, thank you very much. When I was there in January and spoke with President Zelensky, specifically asked for what you are doing, and I commend you for doing it, which is to get our private utilities to donate equipment that they had available. And I think that is a remarkable contribution. Thank you. Senator Wicker, please.

Senator Wicker: Thank you for pointing that out, Mr. Chairman. And I share the commendation of that move by our American Government. Let's talk, Administrator Hruby, about China. Before we considered them a major nuclear power, the United States entered into agreements with Russia with regard to orbital nukes.

As I mentioned earlier in my statement, China is not bound by that. And I think it comes as a shock to many of us that China is pursuing this never before path that is

very risky. So, would you tell us and the American public about this orbital idea that China has, how far along are they, and how it affects us?

Ms. Hruby: Well, thanks, Senator Wicker. As you -- so this fractional orbital bombardment concept has existed for decades, and as a result, you know, with Russia and others, we have discouraged its development.

China and Russia are modernizing their delivery systems, and this is just one of many things that they are considering. I -- we have got -- you know, we have got to figure out a way to get back into dialogs to talk about these types of systems and the instability that results if they are deployed.

I don't think -- I don't want to say a lot about the assessment of how far along this is in an open session, but clearly, it is concerning and it is something that we are keeping a close eye on.

Senator Wicker: Well, is it fair to say that there were developments last year that became public that were more troubling than before?

Ms. Hruby: Yes.

Senator Wicker: Okay. Last year, Madam Secretary and Madam Administrator, you asked for unfunded request. This year you didn't. Why on earth did we not hear an unfunded request this year?

Secretary Granholm: Senator, the unfunded request last year was associated with the Savannah River pit production facility, and we greatly appreciate having received the request and is being put -- being put to great use there to accelerate activities.

This year, the Department, as verified by the Nuclear Weapons Council, has submitted a budget request that fully funds the activities that we think we need to conduct -- to meet all the requirements and to conduct our mission.

Senator Wicker: So, all of the requirements that you need were approved by OMB, and you don't need to go beyond that for modernization programs to be delivered on time, that is your point of view?

Secretary Granholm: Yes.

Senator Wicker: Okay. Well, if somebody else may want to talk about sea launched cruise missile programs, SLCM. But does the Administration persist in telling this committee and this Congress that we do not need to pursue a sea launch cruise missile program?

Secretary Granholm: The Administration is following the NPR, and they have not recommended it. However, we know that Congress has also provided funding for some studies through NNSA and the Department of Defense, and those are being undertaken.

Senator Wicker: Okay. Well, is it the

Administration's position that we should press ahead on sea launched cruise missile programs as an important priority, or is the Administration simply going along with what they feel they need to do without violating the statute?

Secretary Granholm: I think the Administration respects the decision of the NPR and will follow that recommendation.

Senator Wicker: Would you rather we not fund the SLCM?

Secretary Granholm: It would -- it is the Department of Energy, obviously would fund the nuclear capability. But we are following the direction of the Department of Defense.

Senator Wicker: Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Wicker. Senator Shaheen, please.

Senator Shaheen: Good morning. Thank you, Secretary Granholm and Administrator Hruby, for being here this morning and for your testimony. Secretary Granholm, you mentioned AUKUS in your opening remarks, and the Department of Energy's Naval Reactors Program is the lead entity for the development and operational support for the use of naval nuclear propulsion systems.

And obviously, the AUKUS agreement is a very important opportunity for us to work with Australia and the United

Kingdom on ensuring that we all have the technology that we need as we face the threat from China.

But can you tell us what the status of AUKUS discussions are that are associated with the transfer of naval reactor technology? And are there timelines that have been established, and are there obstacles in transferring that technology that we need to in order to cooperate?

Secretary Granholm: We have had very positive initial agreements with Australia. We want to make sure we meet the milestones that are in those agreements.

The Navy is very confident that it can do so and is very encouraged by the cooperation we have had so far, including on ensuring that the Australian navy is capable of being trained and operating these facilities.

And so, we are in -- right now, training some of the Australian members of the navy to be able to understand what it is like to operate a nuclear navy -- naval ship. So, we want to make sure that we are continuing apace and are very encouraged by how it is going.

Senator Shaheen: So, you are not concerned that there are obstacles that are preventing that transfer of technology that could delay the cooperation that we need as part of that agreement?

Secretary Granholm: They are working through all of

the pieces. I mean, some of the questions that have been raised on both sides, what happens at the end of life, etcetera, those are all being worked on, but it is not delaying or deterring the project from going forward.

Senator Shaheen: Thank you. You, in talking about what the Department of Energy is doing to help Ukraine, I understood you to say we are training people. Is that for the threat of an attack against the nuclear plants in Russia, or is it for the potential that Russia might use a tactical nuclear weapon?

Secretary Granholm: It is both. Wherever there may be some sort of radiological activity, we want to make sure that people are trained in both response and detection. And so, the training has been ongoing in that regard.

We have, as I mentioned, put sensors in and around Ukraine to ensure that we know what is going on as well. So, we are very lashed up with both the operators of nuclear plants, as well as folks on the ground to ensure that they are safe.

Senator Shaheen: Thank you. Well, that is encouraging. I am not going to ask you whether you think there is -- we should be concerned about Putin's statements, since I will let DOD respond to that.

But, in the past year, Putin has decided to suspend Russia's participation in the New START treaty. That means

we are no longer going to have the ability to inspect Russia's nuclear arsenal, and it will limit what we know about what they are doing.

Can you talk, Administrator, about the impact that this has on nonproliferation and norms for mutual inspections, and whether you see any way for us to get back on track and whether there are any future opportunities with Russia and China?

Secretary Granholm: Certainly, Senator. The -- well, I would just say it is deeply disappointing that Russia has suspended their participation and New START for several reasons.

The most important is it is the only treaty we have that limits the number of nuclear weapons. And that is a stabilizing that, you know, it provides predictability, it provides -- the treaty provides transparency through inspections and regular notifications.

And so, we lose a lot by their suspension from this treaty in terms of stability, precautions. So, we would absolutely like them to come back into compliance with that treaty and, or begin the discussion of another treaty that limits the number of nuclear weapons for all those reasons.

Senator Shaheen: Thank you. Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Shaheen. Senator Fischer, please.

Senator Fischer: Thank you, Mr. Chairman. We all recognize that NNSA is balancing multiple life extension programs, along with facility and infrastructure modernization. It is a workload NNSA hasn't seen since the Cold War.

However, during the Cold War, we were able to prioritize the production of nuclear weapons and delivery systems because we recognized the existential threat and the role that nuclear deterrence plays in addressing that threat.

I believe we have to return to that mindset. As Senator Wicker said, complacency is unacceptable. Administrator, NNSA's core mission is delivering nuclear weapons to the warfighter. Can you discuss ongoing efforts to accelerate delivery of projects and programs, please?

Ms. Hruby: Thank you, Senator Fischer. I could not agree more, complacency is not acceptable. We are working hard to return the NNSA complex to what I am calling the era of responsiveness.

So, with respect, you know, to our programs, as you know and as I, you know, commented, the programs are on schedule and synchronized with the Department of Defense.

We feel we know -- having said that, we know there are some high-risk activities in those programs, and we are putting lots of effort buy -- you know, to lower that risk

in terms of a few components that are pacing the schedule. But we feel confident about those programs and the synchronization with the DOD.

Senator Fischer: Can you give us just a couple examples of what you are looking at to accelerate those programs? This committee has had deep concerns about the tightness of the schedule and being able to have all the components we need in order to meet the demands that we are facing out there. So, can you give me just, short, couple of examples?

Ms. Hruby: I will. On the W80-4, there are a few components in that system that by historical standards, we would not have on schedule.

So, we have placed a priority on those components. We have increased the number of people, we have increased the way we track those programs to make sure that we don't realize any risk. The 87-1 is a program worth all newly manufactured parts. So that is a program where we have to -- we have to make sure that we have the production capabilities on time to build the parts on time.

Very challenging. It is pacing everything we do in construction. And, you know, getting Los Alamos up and making pits is our top priority for that, accelerating that activity.

Senator Fischer: You know, last week when you

testified before the Strategic Forces subcommittee, you said the most challenging programs that you have are those large nuclear construction projects. You also added that this is really the first enterprise rebuild since the Manhattan Project.

Can you talk about how you have changed your approach there? You also were saying that NNSA is breaking projects into chunks. And can you give me some examples there, how you are addressing those large, very large projects?

Ms. Hruby: Yes, thank you. On the construction projects, we are -- because of supply chain challenges, we are explicitly designing equipment, but as pacing the facility design, so that we can get the equipment purchased.

A good -- so we don't have a facility without equipment. The best example of this is glove boxes, which, you know, we have talked about before. There is a limited number of glove box suppliers in the United States, and we are buying a lot of glove boxes for all of our nuclear facilities.

So, we are designing -- these are very specialized. It sounds like they are a box, but in fact, they are very specialized designs. And we are working with U.S. industry to purchase those glove boxes to get -- and to make sure that they understand the demand that is coming so they will

be able to meet it. That is an example of a chunk.

Senator Fischer: Is that going to help with pit production --

Ms. Hruby: Absolutely.

Senator Fischer: -- on Savannah River?

Ms. Hruby: Both Los Alamos and Savannah River. And so, we are working that as a collective. We have a working group that includes all of our projects that are going to need glove box and use industry, so that we can send a clear signal of what we need and we can prioritize the equipment to be ready when the facility is ready.

Senator Fischer: Great. Thank you.

Chairman Reed: Thank you, Senator Fischer. Senator Manchin, please.

Senator Manchin: Thank you, Mr. Chairman. And thank you, Secretary Granholm and Administrator Ruby for being here. I appreciate it. I recently went to Ukraine, saw firsthand the impact of the war on their energy infrastructure. Russia is targeting with missiles and drones on a daily basis, making it almost impossible.

And also, Ukraine's energy grid leading to outages not only for the compromises their Zaporizhzhia nuclear power plant, but it is also compromising the three other electric producing nuclear power plants in Ukraine.

They all require external power to operate their

reactor cooling systems, and they were very much concerned about that and essential nuclear safety and security functions that go with it.

I understand that DOE and NNSA has supported rebuilding Ukraine's grid and integrating it with Europe as well, so helping monitor and reduce the nuclear risks that go with that. So, can, Madam Secretary, you could start with how do you describe DOE's involvement in this and their support for Ukraine? And then, Administrator Hruby, you can tell me from NNSA, where are you all.

Secretary Granholm: Thank you so much, Senator Manchin. Number one, it is really important that Ukraine remain synchronized with the European grid. And so, the DOE has worked with their grid operators to ensure that synchronization can occur.

And it has been, and it has been very important to achieving a level of stability of the grid. Number two is making sure that they have the grid components necessary to rebuild. Since you were there, you are probably aware that they have a particular problem with transformers.

The transformers on their system are a Soviet era type. Our grid operators don't have that type of transformer. However, they have provided us with pages of lists of grid components that they need, whether maybe switch boxes, circuit breakers, etcetera, and this is where

we have gathered --

Senator Manchin: Are you concerned -- I am sorry to interrupt you. Are you concerned that maybe -- I mean, if they are not able to have the additional power to keep cooler their nuclear system, we could have a real catastrophe over there.

Are you concerned about that? And that is the reason we are working, trying to backfill. How about our European NATO allies that have those same European -- are you able to connect that?

Secretary Granholm: Yes. In fact, our allies have been tremendously helpful and some of them actually do have access to the kind of transformers that they need.

And I will say, and I know Administrator Hruby will say this too, we have also included sending generators to ensure that the power that is feeding Zaporizhzhia and the other plants that are operating are not going completely cold.

Ms. Hruby: Yes. Just to add on to that, the nuclear power plants in Ukraine, all and on around the world, have diesel generators as backup power. Those diesel generators are also Soviet era, at Zaporizhzhia. And they have been -- they are not designed to be -- go off and on as often as they have had to because of problems with the electric grid.

So, we have been concerned about them and what we have done in NNSA, in partnership with the Department of Energy and the other things they have done for the grid, is we have supplied truck mounted diesel generators that could be used at the power plant. We have also supplied additional diesel fuel.

Senator Manchin: Let me ask you another question then. Saudi Arabia has the desire to go into the civil nuclear arena, and they have reached out, as I understand. We have not been receptive. I believe it is imperative that we have that relationship with Saudi. I rather them working with us than any other country in building their civil nuclear programs. Where do you stand on that and are you all involved?

Ms. Hruby: Well, both the Secretary and I have talked to people, the leaders in Saudi Arabia, about their civil nuclear program. And we would very much like to be involved in the supply of, you know, the plant --

Senator Manchin: I understand they have reached out and not only asked you to help, but also oversee the program, and have not got a positive or got any answer from you all.

Ms. Hruby: Well, I don't think that is an accurate statement.

Senator Manchin: Okay. I can report back. And you

give me the accurate statement and I will make sure it is carried back.

Ms. Hruby: Yes, we are asking the Saudis to be consistent with nonproliferation standards that we have for every other country that we work with on civil nuclear power. And they have been avoiding making those commitments, so it makes it very hard for us to continue.

Senator Manchin: I promise in a more classified setting, we can go into detail. I am happy to be. I just think it is imperative that we repair our relationship. It is imperative for all of us. And it is really the safety of the world.

Ms. Hruby: I agree. And we met with the new U.S. ambassador to KSA last week before his departure there and had discussions on these topics with him, so.

Senator Manchin: Maybe you and I can follow up.

Ms. Hruby: Okay. Thank you.

Senator Manchin: Thank you. Thank you, Secretary.

Chairman Reed: Thank you, Senator Manchin. Senator Ernst, please.

Senator Ernst: Thank you, Mr. Chair. And Secretary Granholm, I would like to start this morning by asking about the Biden Administration's energy policies and their impact on our National Security.

The President has been cheerleading for green tech,

and I feel that this has harmed the DOD's operational energy approach. It is enriching our adversaries and boosting harmful players on the forced labor supply chain.

Last year, the President proposed to mandate the Department of Defense's non-tactical vehicle fleet in exchange for an all-electric vehicle fleet by 2030. The Senate intervened last year on a bipartisan basis to prevent the directive from becoming law because, number one, we recognize that China controls mining and production for electric vehicle components.

And number two, this Administration has hamstrung a number of aggressive permitting reforms for mining and processing of renewables right here in the United States, domestic mining and energy.

So, Secretary Granholm, you have been one of the Biden Administration's leading advocates for green energy, and you have even praised China's work on climate change. So, do you believe China is a reliable partner in achieving and stabilizing U.S. energy independence and security?

Secretary Granholm: First, I was comparing China's investment in renewable energy to the rest of the globe, and they have invested four times as much as the U.S. has. Even as, they are not a reliable partner with respect to their human rights abuses.

Number two, though, I just want to respond to the

electric vehicle issue. China does control a big amount of the critical minerals, but that is exactly what the President's Invest in America agenda is slated to overturn. We want to see responsible extraction here. We want to see processing here.

We want to see the critical minerals integrated into battery packs here and put into vehicles. And in fact, since the Inflation Reduction Act was passed, 150 battery companies have announced they are coming or expanding battery supply chain, including extraction -- have announced they are coming to the United States.

Senator Ernst: That is great. And I can't wait to see that happen. I hope it happens before 2030, because that is a very aggressive mandate. And I know that the permitting process for a number of these operations will take years and years and years. So, if we don't streamline that, it is not going to happen.

Secretary Granholm: I think we would -- I don't know anyone who wouldn't disagree with you on that.

Senator Ernst: Okay. So, we will watch for that in the next year or so. I hope that this really takes on a much faster approach than what we have seen in the past. I know your department also has ongoing consideration of a $200 million grant to a China based lithium battery company.

So, I don't want to see American dollars going towards Chinese investment. I think that is really irresponsible. Let's invest in domestic energy production and mining. The Administration's failure to greenlight year-round, low cost, low carbon fuel like E15, is another concern that I have. And I think that all of these things combined are negatively affecting the DOD.

So, I believe the proposed swapping of the military's non-tactical vehicles for an all-electric fleet, again, by 2030 really is putting the climate crusade ahead of our department's lethality. We need to focus on that first. So, do you support the military adopting that EV fleet by 2030?

Secretary Granholm: I do, and I think we can get there as well. And I do think that reducing our reliance on the volatility of globally traded fossil fuels, where we know that global events such as the war in Ukraine can jack up prices for people back home, it does not contribute to energy security.

I think energy security is achieved when we have homegrown clean energy that is abundant like you see in Iowa. We think that we can be a leader globally in how we have become energy independent.

Senator Ernst: Well, and when it comes to the EV fleet, I don't support it. I think we have got a $10

billion price tag here on a very expensive, unreliable product. We need reliability, and I am going to make a plug again for our homegrown energy.

We have a fleet right now that can use ethanol products, that can use biodiesel, right now. We don't have to invest that $10 billion. Any one of our non-tactical vehicles can pull up to a pump, fill up with biodiesel, and we are good to go, right now, at no additional cost to the DOD. And at a time when we are constrained by dollars, we need to take what we have right now and utilize it.

So, I appreciate your optimism when it comes to developing mining opportunities here in the United States. We will see if that actually materializes under this Administration. Thank you very much, Mr. Chair.

Chairman Reed: Thank you, Senator Ernst. Senator Kaine, please.

Senator Kaine: Thank you, Mr. Chair. And Administrator Hruby, Governor Granholm, we met when we were Governors together. You were Governor at a very challenging time, the fiscal collapse of '08, '09. All of us, all 50 of us really, really had our hands full. Nobody had their hands full more than you.

I grew to admire your leadership greatly at that moment and since. I want to ask you about two items. First, I know Senator Shaheen has already had a discussion

with you about AUKUS, and I was at another committee hearing, but I wanted to dig into it a little bit.

The subs that are made in the United States are made in Virginia and Connecticut, and all the reactors that go into those subs are made in Virginia at Lynchburg. What in -- in the AUKUS discussions with Australia and the UK, what have been the discussions thus far about production of the reactors that will go into the subs?

Secretary Granholm: Well, obviously we will be producing those reactors and the subs themselves, and our -- a lot of the discussions have been around milestones that Australia has to achieve, as well as milestones on workforce and on how to operate safely these subs and the respect for the nuclear reactor that is within. I would -- I am happy to ask Administrator Hruby, who has been in these discussions, if she had anything further to add --

Senator Kaine: That would be helpful. And just sort of as a preface, I had a meeting with the UK defense minister last week and he sort of said the same thing. But I know there has been some press suggesting that Rolls-Royce might build the reactors and build them in the UK.

And I know that we are sort of at the front end of working this all out, but it is very relevant to workforce issues in Virginia. So, Administrator Hruby, if you have anything to add on that, that would be great.

Ms. Hruby: Yes. One thing we know for sure is that our -- the materials that we use for fuels in these reactors are -- is a U.S. designed material specifically for the life of the boat, right, which is a very big advantage that we have.

I think as part of AUKUS, we opened the door to potential, over the long run, not over the short run, over the long run for other allied supplies of reactors, but not reactor materials.

So, I would just, you know, say that what we do for reactors -- the other one very important part of the AUKUS agreement is that the Australians have agreed to keep the spent fuel and that will be an important element, but they need to step up as well.

Senator Kaine: Well, just to paint the picture about the magnitude of the challenge, we are trying to get Virginia class subs back to two a year.

We are doing Columbia class subs, we are doing carriers, and now it is likely for the foreseeable future that the reactors in AUKUS subs will be -- the material be in the United States, other weapon systems will as well, all with workforce challenges.

And while the President's budget increases the NNSA budget overall by 7.6, there is actually a decrease of 5.6 percent in the nuclear reactor space, so that may be

something we need to talk about.

Second issue I just wanted to raise with you, Secretary Granholm, and this isn't really in this committee's bailiwick, but it is in yours, and I don't have another committee where I can ask you this. I am so excited about what DOE is doing around the Administration of the clean energy tax credits and the Inflation Reduction Act.

And I know it is sort of a new job for the DOE. The tax credit and other programs have come out of Commerce. They have come out of other agencies. But the additional 10 percent tax credit, for example, for manufacturing our clean energy production in energy communities, the set aside of $4 billion of the $10 billion tax credit for energy communities.

I have been in two such communities in Virginia the last two weeks. I was in Appalachia two weeks ago. They are so excited about the prospect of attracting manufacturing businesses that might qualify for the 30 percent tax credit, but then have the 10 percent boost on top of it.

I was in Danville, which recently -- which has a wonderful mega-site recently, and they recently lost a prospect before the IRA passed. But because their site is in a census tract adjacent to where a coal plant was

converted to gas, they are now an energy community.

That additional 10 percent tax credit is inspiring interest that is really exciting to the community leaders. So, I know it is a lot to take on because it wasn't as if the DOE was sort of in the Administration of tax credits business in a huge way.

But now with these tools, I can tell you that in my two regions of Virginia, that fit squarely in the kind of energy community space, there is a level of excitement about economic development prospects that I haven't seen since I got into politics in 1994. So, I just encourage you to keep the pedal to the metal on that.

Secretary Granholm: Super excited to do so. As you know, the stackable nature of these credits make the United States the irresistible nation to invest in, and that is what the Invest in America agenda is all about.

Chairman Reed: Thank you, Senator Kaine. I think you understand that every submarine in the United States begins construction in Rhode Island.

Senator Kaine: I am going to be in the doghouse with the chair for a while.

Chairman Reed: Senator Tuberville, please.

Senator Tuberville: Thank you, Mr. Chairman. Thanks for being here today, both of you. Secretary, good to see you. You know, since you and I have been in our roles, I

have been asking you about thorium and uranium 233. School year late, but I was happy to read your department report on thorium. Have you read it?

Secretary Granholm: I am aware of it.

Senator Tuberville: Okay, thank you. It is fairly long. Very thick here. Took me a while to get through it. Not being a rocket scientist, it took me a while to read all the words. In your opinion, after looking at, what is the two biggest hurdles to nuclear power in the minds of most Americans right now?

Secretary Granholm: In the minds of most Americans, I think it is waste and the fear -- the issue of safety.

Senator Tuberville: Yes. Thank you. Let's talk about nuclear waste for a second. The thorium report the DOE just emitted says that traditional light water reactors the kinds in operation across the U.S. aren't so efficient. A plant that burns 250 tons of uranium ends up with 35 tons of spent fuel. Is that correct?

Secretary Granholm: Yes.

Senator Tuberville: Yes. But a thorium powered nuclear plant can produce the same amount of energy with one ton of thorium and end up with a fraction of that in waste that is harmless for 300 years or less. Is that correct?

Secretary Granholm: I think -- I believe so.

Senator Tuberville: Thank you. And now let's talk about the larger worry, as you said, which is safety to the American people.

I am going to quote from the DOE report here, "liquid fluoride, MSR thorium reactors may be designed to be meltdown resistant by using a plug at the bottom of the reactor that melts in the event of a power failure, or if temperatures exceed a set limit, draining the thorium fuel salt coolant mixture into an underground tank for safe, non-critical geometry storage."

Basically, that means thorium power plant, it can't melt down like a normal uranium plant. And there are a whole host of other benefits. Right now, the U.S. is reliant on Russia for uranium. That is where we get it from. Moving to a thorium cycle would free us of that dependency. Correct?

Secretary Granholm: Yes.

Senator Tuberville: And creating a thorium cycle could help the United States catch up to China when it comes to rare earths because thorium is a waste byproduct of mining rare earths, correct?

That was an excellent part of the report. With so many advantages to thorium, Madam Secretary, my question to you is this, doesn't it make sense to preserve the nation's stockpile of physical material, uranium 233, so that if the

DOE can pursue a thorium strategy, we have that option? What do you think?

Secretary Granholm: Well, the current stockpile that you are referring to at each canyon is very expensive. And the facility that it is housed -- of course, it is a proliferation concern, uranium 233 or uranium 229, that comes from. It is a proliferation concern.

So, we spend $50 million a year, I think, in just housing that. And then the process for extracting is very, very expensive. So --

Senator Tuberville: What should we spend -- how much are we spend in destroying the uranium?

Secretary Granholm: We are --

Senator Tuberville: It is pretty expensive also.

Secretary Granholm: Yes, it is expensive, but it is -- the thought is that the nation's nuclear reactors now have a different fuel cycle, right.

And so, there is hope that this committee, as well as the entire Congress, will help with a uranium strategy that gives us a supply that is not reliant upon Russia. Meaning that we should have enrichment and conversion processing of uranium here in the United States so that we can do that.

The thorium, we have some investments in thorium and doing some research on it. We just don't have any right now reactors that are up and running. We do have a molten

-- salt reactor, but it is a uranium reactor, a small one in Idaho, Idaho lab, which we can learn a lot from.

So, we don't want to shut down any possibility. But I will say from a rapid movement point of view, because we feel like there is a sense of urgency, especially since so many of our allies are really interested in nuclear power as well, that we have a reliable process that has been up and running for, you know, over 50 years, and we want -- you know, the advanced reactors obviously coming online.

So, we are doing some research in it, but given the current infrastructure that we have, we think it is best use to be able to get a fuel cycle that is consonant with the existing fleet.

Senator Tuberville: It looks like to me it would be a small investment of $50 million when we are talking more times, in billions and trillions, $50 million to save our uranium -- or thorium, over the years.

Secretary Granholm: Well, I will say that the rough order of magnitude cost for the uranium recovery and production of HALEU from that is about 680 million to 1.3 billion for one metric ton. That is a lot.

Senator Tuberville: Over how many years though?

Secretary Granholm: That is for one metric --

Senator Tuberville: Over -- for one time, yes. We already have the thorium though. Now, the thing that I am

concerned about is China is building thorium reactors, and they are building them not just in China, but also in the Belt and Road Initiative.

They are doing something right. It is cleaner, it is safer, and it gives us an opportunity for us to at least look into it. Because if we are going to do away with coal and fossil fuels, there is no doubt that the answer to the problem we have right now is nuclear.

And if we are going to do nuclear safety and the option of being able to store the waste, a lot less waste over the many, many years would be much better for what we are doing other than uranium reactors as we speak. So hopefully we will continue to talk about that over the years and make some progress. Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Tuberville. Senator King, please.

Senator King: Thank you, Mr. Chairman. First, I would like to ask unanimous consent that a Congressional Research Service report called the Nuclear Triad NC3 Modernization by Alex Neenan be included in the record.

I want to recognize Ms. Neenan and her team for conducting a cross-cut analysis of the funding and contracts associated with a major nuclear delivery systems, including NC3. This has been a hugely helpful report to myself and Senator Fischer on the Strategic Forces

subcommittee.

Chairman Reed: Without objection, so ordered.

[The information referred to follows:]

[COMMITTEE INSERT]

Senator King: Thank you. First, Mr. Chairman, I think it is important to talk about a little bit of the context of what is going on here.

We are trying to do a very difficult and expensive thing at once, which is to entirely modernize the nuclear triad and NC3 -- and by the way, I consider it a quad because I think NC3 is an essential part of the triad, and rebuild the infrastructure of the entire nuclear enterprise, all at once.

I call it the pig in the python of the budget. It is a major expenditure that probably should have been done over the past 40 years in increments, but we are doing it all at once. So, I think that is a problem that we need to understand here in the context of the budget. Is that, Ms. Granholm, did I articulate it accurately -- Administrator --?

Secretary Granholm: You do.

Senator King: Well, I think that is something that we really need to think about. I want to talk a minute about the cloud. And by the way, the first person to download data from the cloud onto a tablet was Moses.

[Laughter.]

Senator King: Sorry, I couldn't resist. Everybody is moving to the cloud. Private enterprise and Government entities, intelligence agencies, Defense Department,

everybody is moving to the cloud.

The advantage, obviously, is a large repository which we can adequately protect. The disadvantage is there is so much data there that if somebody can get in it, they have really hit the jackpot.

So, Madam Secretary, I hope that as we are working in this direction, that due consideration is given to the cyber risks of cloud storage of data.

Secretary Granholm: Absolutely. It is one of the top priorities of our office of cyber, CESER.

Senator King: CESER --

Secretary Granholm: Yes. To be able to make sure the cloud, as well as the hard infrastructure associated with our energy, you know, grid, etcetera, are protected.

Senator King: Well, I am not sure who actually has the specific responsibility, but I hope that you will have CESER pay special attention to this because it -- I see it as a -- as I say, the cloud is definitely more secure, only if it is adequately protected. And if it isn't, then it could be a catastrophe.

Secretary Granholm: Agree 100 percent.

Senator King: Workforce. Senator Shaheen asked you about workforce. I understand in the budget that there is -- there are raises for the nuclear enterprise workforce. Administrator Hruby, is that important?

I mean, if -- all jobs are important, but the work that you are doing is critical to National Security and we have just got to have the right people.

Ms. Hruby: Yes. Thank you, Senator King. It is extremely important in the nuclear security enterprise to have the best workforce, and we have to compete with the tech industry and the private sector. And --

Senator King: Are you doing it? Are you getting people?

Ms. Hruby: We are. We had a couple of tough years but at the moment we have turned the -- we seem to have turned the corner on that.

We took some aggressive actions. We actually authorized the mid-year salary adjustment at our labs, plants, and sites that was targeted towards the places where we were seeing the highest attrition.

Senator King: Well, cutting attrition is as good as recruiting. Every person that doesn't --

Ms. Hruby: Absolutely --

Senator King: -- you don't have to fill. And you, I gather you have significantly cut your attrition rate.

Ms. Hruby: We have. At this point, and we are going to watch it closely, but at this point, our attrition has returned to close to normal levels at our labs, plants, and sites, which is around 3 percent.

I will say that we are still experiencing a high attrition in our Federal workforce. Actually, the highest attrition in over a decade is around 12 percent. And we do -- we now need to really focus on what we can do about that. The mission, our mission helps a lot. So, we will pay what the private sector pays and sort of the full package, but there are -- this mission is important and people recognize it.

Senator King: Well, I think the mission is important. And for that reason, you can hold people to some extent, but you also have to be sure that we fill those critical positions.

I understand that Senator Fischer talked about budget and pit production, so I am not going to replough all that ground. But I think clearly this committee is very concerned about meeting that 80 pit per year schedule.

And you have to come to us and tell us how we can help, how we can -- whether it is Defense Production Act or what are the elements that are needed in order to meet that critical need.

Because as the chairman indicated at the beginning of the hearing, we are facing an entirely new strategic situation with two highly nuclear armed potential rivals. So let us know how we can help you to meet those -- that schedule.

Ms. Hruby: Thank you. We really appreciate your full support on this. And the things that you have done to date have been very useful, including funding our pipeline programs. So, I mean, a lot of this is about people, and we have to increase the number of people who can do these jobs in the United States.

So, we can't do that overnight, but the funding of our trade and crafts programs, our university programs, along with pay, transportation, and housing incentives for craft workers, all of those things are helping us and pre-buying equipment, so we appreciate your support and we will continue to look for ways that we can accelerate.

Senator King: Thank you. Thanks to both of you. Thanks for your service.

Chairman Reed: Thank you, Senator King. Senator Scott, please.

Senator Scott: Thank you, Chairman. First, thanks, both of you for being here. Secretary Granholm, last year in this committee, you made a commitment that the Biden Administration would not import oil from the horrible regimes in Iran and Venezuela. Can you make that same commitment today?

Secretary Granholm: Yes. We don't take in oil from sanctioned countries.

Senator Scott: Good. So, I have been disappointed

with the way the Biden Administration has deployed appeasement tactics with some of these dangerous regimes.

Some of us have been concerned, and I have been very concerned about -- but that is going to go beyond these appeasement tactics with what they have tried to with Iran and Cuba and Venezuela and Nicaragua, places like that. And I am glad that you will commit -- you made the commitment.

Nuclear power is a two-sided coin. There is a lot of potential for good, but it can be in the wrong hands. It can be catastrophic, as we all know. We have got enemies like Russia and China that have already seen the potential in nuclear recycling.

Last year, Russia fueled a reactor with a 100 percent recycled plutonium, and China is about to start a reactor with similar capabilities. Americans seem like we are absent from the cutting edge on these technologies, which will seriously hamper our ability to have a seat at the table to negotiate.

So, it looks like our enemies are ahead of the game on this. So, what are we doing right now to deal with and what are you doing to deal with recycling?

Secretary Granholm: Yes, thank you for asking this. It is obviously, historically, this has been a proliferation, nonproliferation question. But I think

there is an awakening sense that if not just the countries that you identified, but France can do recycling of spent nuclear fuel, then the United States should be doing that as well -- at least looking at it, which is what is happening now at the Idaho National Lab.

They have a program now and several experiments that they are working on to be able to prove its efficacy. And one of the big challenges has been that it has been very expensive to recycle nuclear fuel. However, it is obviously very expensive to store nuclear waste as well. So, I agree that we should be pursuing this as an efficiency strategy as well.

Senator Scott: Do we have the same capabilities as Russia and China?

Secretary Granholm: Not right now. We do not.

Senator Scott: Okay. And what are you doing with the private sector? Historically in this country, you know, the private sector has come up with the innovation rather than Government. So, what are you doing with the private sector, and are there companies that you are working with out there that you could help accelerate, you know, to hopefully where we got an advantage?

Secretary Granholm: Yea, I mean, as I mentioned that at Idaho, which is of course where we have a great expertise in nuclear and advanced nuclear reactors, they

are working with a couple of companies that are doing this and that are taking it to the next level. So excited to see the results from that, but I feel that is a promising point of acceleration too.

Senator Scott: Do you need more private sector companies to show up? Is there something you would expect, you would ask in the private sector to do now that would help accelerate this?

Secretary Granholm: Well, we would like to see this done in the confines of a space that can handle nuclear and fissile material. And so, we, all of our -- many of our labs, our user facilities, and in this case, Idaho National Lab is as well. So, we encourage folks to seek out that opportunity and to be able to make use of the facility as well.

Senator Scott: And what is the Department of Energy doing with the Department of Defense to make sure we have military capabilities in this area? Is it the same thing -- is it the same area?

Secretary Granholm: Well, I mean, obviously, Idaho works with the Department of Defense as well. You are talking about from weapons.

Senator Scott: Right.

Secretary Granholm: Right, so most in the defense side, and Administrative Hruby can speak to this as well,

most of the storage -- it is being stored and not recycled. We were just having this conversation with Senator Tuberville for different -- obviously for thorium reactor.

It is expensive to store it there as well. But we are trying to treat the material and ensure -- and there is some nascent research that is happening on repurposing. I don't know if you want to add anything to that.

Ms. Hruby: You know, let me just say, on the nuclear weapons side, these materials last a long time and we don't use them, right. I mean, so we can recycle our nuclear materials and we do. We reuse our plutonium, our uranium, and most of our nuclear materials.

So, when we talk about making pits, we are using plutonium -- we are purifying and reusing the plutonium that we have used in previous weapons.

Senator Scott: Thank you. Thank you, Chairman.

Senator King: On behalf of the chairman, Senator Warren.

Senator Warren: Thank you, Mr. Chairman. So, it is good to see you, Secretary Granholm. Now, as you know, Bitcoin mining involves companies using powerful computers to verify transactions to win a Bitcoin reward.

You may remember that at the same hearing a year ago, I asked you about the immense energy consumption of Bitcoin mining. Since then, the issue has aroused more public

concern. A recent New York Times investigation found that just 34 Bitcoin mines in the U.S. are using as much electricity as 3 million households.

That is the equivalent of the entire State of Arizona or the entire State of Tennessee. You know, that is a lot of energy and most of it is dirty. Fully 85 percent of this power comes from coal or natural gas plants. That causes as much carbon pollution as 3.5 million gasoline powered cars.

So, for everyone new electric vehicles sold in the U.S. last year, these Bitcoin miners did the climate equivalent of putting four additional gasoline powered cars right back on the road. Now, I should note that my own investigation shows there are more mines than just the 34 that The New York Times analyzed.

So, the problem is even worse than reported. Secretary Granholm, when you came before this committee last year, I asked you if the Federal Government knew how many crypto miners were operating in the United States and how much energy they are consuming. And you said that wasn't being tracked and that more data would be needed. So here we are a year later. Is the Department of Energy formally tracking crypto miners yet?

Secretary Granholm: Great. First of all, thank you so much for your leadership in this, because I do think

that you have unearthed a massive problem. And so, we don't know how many miners there are. We don't know where they are. We -- all of them. I mean, some of them you do, but some of them -- many of them you don't.

A lot of them are just underground. Some of them are small operators. So, as you and I have discussed, we have charged our Energy Information Administration with figuring out how to mandate a reporting of these entities.

Now, that is complicated, as you know, because they are -- many of them are underground. And even the utilities may not know right where the draw is coming from.

Senator Warren: So, let's talk about that. Given that crypto mining undermines all of our other climate work, we can't afford to delay on this. There is a lot of urgency around this. So, I want to talk for just a second about the authority you have to gather information on this.

Let me ask, Secretary Granholm, do you have the authority to mandate that crypto miners disclose information about their energy consumption?

Secretary Granholm: We have the mandate authority.

Senator Warren: Good. So, in your response to a letter, I sent you in February, you indicated that the Energy Information Administration will first need to develop a new survey program to begin collecting information from crypto miners.

By when do you expect to field this survey and use it to gather data from crypto miners on a mandatory basis?

Secretary Granholm: Yes, we are -- we, first of all, are looking at creating the survey from a regular report that is an electricity gathering report that we have now asked to include crypto as part of it. That report from NREL will be completed by the end of this year on which the Energy Information Administration can base its survey.

So, it is going to take some time for them to be able to craft the survey from the information that they receive from the NREL report, but know that that is happening and we are pushing to accelerate the timeline --

Senator Warren: Okay, so by the end of this year, you will have a report on mandatory reporting?

Secretary Granholm: We will have --

Senator Warren: I want to make sure I know what we are getting.

Secretary Granholm: Yes, no, no, we will have a report that will have gathered not fully but enough information to be able to craft the framework for the survey. So, we won't be able to get the survey out, the mandatory survey by the end of this year, but we will have the report done and the survey will be constructed from that.

Senator Warren: Okay. And we are certain we are

going to get that mandatory survey out then sometime in 2024?

Secretary Granholm: I hope so, but I don't want to --

Senator Warren: It is tick tock --

Secretary Granholm: I know.

Senator Warren: Okay. I mean, look, we are running out of time here. Crypto mining's energy use truly undermines our efforts to fight climate change and we are out of time. We need to understand the full scope of the problem, and that starts with the authorities you have.

So, I hope that the next time we come back, you will tell me that you now have that survey in place and we are getting mandatory reporting from the crypto mining companies.

Secretary Granholm: I hope so too.

Senator Warren: Going to hold you to it. Thank you.

Senator King: On behalf of the chairman, Senator Budd.

Senator Budd: Thank you, Chairman. And again, thank the witnesses both for being here today. The NNSA's work is a no fail mission and that is why it is vital to secure supply chains and eliminate single points of failure throughout the nuclear security enterprise.

Secretary Granholm and Administrator Hruby, I would like to ask you about the importance of lithium in the

nuclear modernization process. Over the last three decades, the United States lost its capacity to produce lithium, where it accounted for over one-third of global production as recently as 1995.

Now, the U.S. represents less than 1 percent of production, and China and Russia are dominating the race to secure supplies of lithium worldwide. So, I understand that the NNSA is currently obtaining the lithium it needs for nuclear weapons modernization by recycling material from dismantled warheads. I see you are nodding your head.

But that is insufficient long term. So, what is the Department and the NNSA doing to guarantee assured access to lithium for all of our needs? And Secretary Hruby, we will start with you -- Administrator Hruby.

Ms. Hruby: Yes, thank you. At the -- our analysis, does not indicate that we are going to run out of lithium in the timeframes that we have looked at. I will go back and I will take this question back to see if there is a date that we are concerned about.

But the recycling program, given that we recycle our lithium for our weapons, and our newer weapons are not using more lithium, I think we are in good shape on this, but I promise to confirm that.

Senator Budd: Thank you. If you would, please. Secretary.

Secretary Granholm: Yes. We were concerned about supply of lithium for a variety of reasons, but obviously, defense being one of them. More urgent is making sure that we have enough lithium for batteries for electrification purposes.

And therefore, the efforts that the loan programs office is making, for example, to provide conditional commitments for mining of lithium is one of the strategies, the commitments that are being made around the country for the full supply chain of batteries, including extraction and processing of lithium.

Very exciting to see how many companies are raising their hands, saying that they are interested in this. And then we have also given a conditional commitment to companies that are recycling batteries, not just from vehicles, but from phones, etcetera, to be able to reprocess more, even a purified lithium. So, on all of these vectors, we want to increase our domestic supply.

Senator Budd: Thank you, Madam Secretary. So, what are some of the impediments if you want to do more extraction, and I appreciate your efforts there, what are some of the impediments to sourcing it from U.S. suppliers?

Secretary Granholm: Yes, clearly permitting is -- has been a challenge and we are all hopeful that there will be some bipartisan movement on that. We believe strongly that

you can sustainably mine for critical minerals in the United States and permitting reform might be required.

Senator Budd: Thank you. So, what other critical materials or parts do we need assured access to that we don't currently have? Either one of you.

Ms. Hruby: You know, on the top of our list in NNSA is to begin uranium enrichment in the United States again, and in particular unencumber all U.S. technology and uranium enrichment. This is a need that we will have for defense purposes.

To make tritium, we need LEU. And for naval reactors, we need new highly enriched uranium. And so, we have been planning that program in concert with the needs in the civil nuclear sector and the U.S. for enriched uranium.

And that is -- at the moment, that is our highest priority.

Senator Budd: Thank you. One area Congress and the Department have made critical investments in is the workforce, especially authorities and resources to ramp up recruiting. But we are still at risk of losing nuclear know how with the aging and retirement of some of our best and brightest, talented scientists.

So, Administrator Hruby, what is the NNSA doing on knowledge management to ensure that we don't lose that know-how? And I would also ask, when I am talking to

younger people in North Carolina, what careers or associate a career should I encourage them to go into?

Secretary Granholm: Great questions, thank you. We do have a knowledge management program that includes oral interviews, that also includes mentorships. We have made sure that we have programs that allow our retirees to come back and mentor new workforce in the complex, and that is happening around the complex every day.

So, we hope that we have -- we do need knowledge management. We have a very new workforce. The average age in our -- the average experience time in our workforce is about nine years, and for those businesses, that is still quite new.

So, we are -- and I think, in terms of encouraging people. Frankly, any STEM field is great, including craft workers. But we really need more electrical engineers in the United States, and but like I said, in any STEM field, our doors are open.

Senator Budd: Thank you both. I yield back.

Chairman Reed: Thank you, Senator Budd. Senator Rosen, please.

Senator Rosen: Well, thank you, Chairman Reed, for holding this really important hearing. I would like to thank both of you for testifying today, for your service to the country. And thank you, Secretary, for meeting with me

the other day. It was a really productive conversation.

And before I ask my questions, I do want to start off again by offering my condolences to the families of the U1a miners that were just recently killed in an accident at the Nevada National Security site, and to our entire NNSS community. It is really tough. So, I want to build on what Senator Budd was talking about, education, education and workforce. It is really important.

We understand that in Nevada, because last month, my Nevada delegation colleagues and I, we wrote to you to support the College of Southern Nevada's application for the National Nuclear Security Administration's minority serving institution partnership, specifically for the community and junior college trade occupational programs.

We need miners down there, too. That is -- you know, they are going way underground, lots of really great jobs. So, we are enthusiastic about the proposed Nevada National Security Site Fast Start Program and its potential for recruiting, educating, training those entry level workers, mentoring them, like you said.

We want them to begin careers in the nuclear security enterprise, and specifically in all the great jobs we have in Nevada. And so, I know the Fast Start program will support the NNSS as it identifies its ongoing need to recruit those highly skilled employees who we were just

speaking about, from diverse backgrounds, who have really good technical skills, and we need them to work on our National Security programs, our construction, our maintenance, our business operations, science, engineering, technology, all of it.

And so, I guess that Secretary Granholm, I will ask you the first question, and follow up with you, Administrator Hruby, is, the Department has done for other states hosting a DOE facility to ensure local students receive the necessary education and training to find a job supporting the nuclear security enterprise.

Can you commit to working with me and the Nevada delegation to establish these pathways to invest in our local talent because we know they stay?

Secretary Granholm: Yes, Senator, I think it is really important to develop place-based strategies for our workforce as -- especially as all of these projects are coming on board and there isn't a ready workforce to take them on, to be able to have the pipeline is so important. So, yes.

Senator Rosen: Yes, this is where their support systems are. So, you train them there, where they grow up, where their families are, they stay. So, Administrator Hruby, can I get the same commitment from you?

Ms. Hruby: Absolutely. And I just also -- yes,

thanks for your, you know, keen interest in the workforce all the time. We really appreciate it. And I just also want to say explicitly this tragic accident is very hard for our enterprise, and so I appreciate your acknowledgment of that.

We, in the '24 budget request, the NNSA has a new line-item request for community programs. So, in addition to our regular education programs, MSIPP and others that you have mentioned, we are increasing our attention to the local communities that host our labs, plants, and sites.

Senator Rosen: Well, that is great because that really answered my next question. Would you consider expanding the MSI program all around our State so we can get talent from everywhere? So, I have a minute left.

Since you have already answered that, I am going to talk a little bit about our wonderful remote sensing lab that we have in Nevada, because we need to prevent a nuclear disaster in Ukraine. And the remote sensing lab is at Nellis Air Force Base and Joint Base Andrews here provides that radiological emergency response teams that are ready to deploy anywhere in the world.

So, these personnel and those of the Nevada National Security Site, they are our nation's experts in dirty bombs, loose nukes, sources of radiation, and determining the origin. And so, we have had a lot of -- I have had a

lot of interesting discussions, as well as my team, about the radiological sensors at the remote sensing lab, things they have provided to Ukraine as Russia seized control of several, we know, several Ukrainian nuclear power plants as part of its unprovoked invasion.

They are going to continue to threaten us, and of course, we know a nuclear disaster can threaten so many. So, Administrator Hruby, can you talk about the interagency multinational effort that is going to prevent any nuclear, I guess, disaster, event, however you want to call it, from happening in Ukraine, that will spread, of course, around to everyone?

Ms. Hruby: Yes, thank you. The -- I am not -- I hope we can prevent. We can certainly discourage. But what we are really aimed at is making sure we understand and respond to events so that the Ukrainians, along with all the support that we and our allies will supply, can limit the damage due to any event, and understand it, and we can attribute it.

And you are absolutely right, the people in Nevada, in fact, last time I was there at that laboratory, they were packaging sensors at that moment to send to Ukraine. Those sensors have been sent.

They are installed. They continue to help us train the Ukrainians and supply additional materials to make sure

that we are in the best position possible in the unfortunate event that anything nuclear happens in Ukraine.

Senator Rosen: Well, thank you. I am going to give them a great plug because they are everywhere in the community promoting STEM education, going to schools, going to high schools. They are a great asset. The workers at the -- we still call it the test site -- at the remote sensing lab, they are everywhere. We are very proud of them. Thank you. Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Rosen. Senator Mullin, please.

Senator Mullin: Thank you, Mr. Chairman. Madam Secretary, in 2018, one of your predecessors implemented a policy to restrict China's access to U.S. civil nuclear technologies based on several cases of China illegally diverting these technologies for military purposes. Can you tell me that this policy is still in place?

Secretary Granholm: I believe it is.

Senator Mullin: Is there a way to know for sure that policy is --

Secretary Granholm: I will get back to you --

Senator Mullin: Would you do that?

Secretary Granholm: -- can follow the thread, yes.

Senator Mullin: Thank you. In in the U.S. -- is the U.S. still involved in civil nuclear cooperation with

China? And if so, what is the nature of that involvement?

Ms. Hruby: Let me address this question. So, we have definitely been involved with China in design -- helping them design systems to secure their civil nuclear power -- safeguard and secure their civil nuclear power plants. That involvement is either very small or nonexistent right now. But this is a pause, I mean --

Senator Mullin: I guess -- sorry -- I guess I am kind of concerned here because we should know for sure if we are still helping them. Obviously, China is a huge threat. They are -- I would consider them an adversary at this point.

And we are talking about a nuclear program that they have stolen technology, they have taken intellectual property. They are transferring stuff that was supposed to be used for civil and use it for military.

And I just want to know, are we still involved in this? And it is no slight to anybody, ma'am. It is no slight to either one of you. I am just -- we are -- this is important for us to know. So, I am a little bit concerned that we don't know this for a fact, if we are still assisting or not.

Ms. Hruby: The effort that we had involved with the establishment of the China Center of Excellence is complete. What I don't know is if there is any small

ongoing support for that effort. But let me just say this.

What we have done with China is associated with making sure that they understand the technology available that needs to be put in nuclear power plants for safeguarding material and for securing the plant.

This is not associated with helping them develop the power plant technology, but it is in the best interest, the global interest to have those power plants be well safeguarded and secure, and we are -- that is technology that we are willing to share and help them with.

Senator Mullin: I just take a different approach. I mean, if they were friendly nation to us and not threatening our friends and allies, if they were a country to which we could trust, that hasn't been known to steal intellectual property from businesses, I would say yes.

I would agree with that. But they are not and they haven't behaved in such a manner, and for us to be spending one single taxpayer dollars to assist them in this in any way. And I am sure, Madam Secretary, I am sure you are aware about Russia selling China seven times more highly enriched uranium in the last four months of 2022 than the U.S. and the International Atomic Energy Agency has eliminated worldwide in the past 30 years. I am sure you are aware of that, right.

Ms. Hruby: Yes.

Senator Mullin: Do you know what additional steps we can take to stem the flow of this material?

Ms. Hruby: Well, clearly, we are very concerned about the purposes for that purchase.

Senator Mullin: I think we know what the purpose -- or the purpose of the purchases are the materials for.

Secretary Granholm: And clearly, China is developing its -- and continuing to ramp up its own nuclear arsenal on the defense side. And the issues really are relative to how you stop that. You have to get in -- you have to get into agreements with countries that are developing nuclear weapons so that, you know, when Russia exits the New START agreement, for example, it is dangerous for the whole world.

And we need to pressure countries to report, to allow inspections, to -- so that we know where the lay of the land is, and we don't have that with China. We don't have that with Russia anymore. And that is very dangerous. It is a dangerous situation.

Senator Mullin: I agree. But that goes back to my original question is, why are we still assisting them in any fashion?

Secretary Granholm: But the assistance is for making sure there is nonproliferation and that it is safe. I mean, if I don't -- you know, as she says, she doesn't know

if that is still happening now. We want to make sure that it is -- that they have -- we want this technology to be safe, to be universally available. We want countries to adopt it.

Senator Mullin: I agree. But we do that with friendly nations, not adversaries --

Secretary Granholm: Well -- I think it is more important to do it with adversaries.

Senator Mullin: If it is an adversary we can trust.

Secretary Granholm: Well, I think that any country that doesn't want its own citizens to be jeopardized by exposure to radiological material, we want to be able to share that no matter where they are. And because it is not proprietary technology that we are afraid of being stolen and somehow monetized. We want that technology to be used everywhere.

Senator Mullin: Right. I yield back. Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Mullin. Senator Schmitt, please.

Senator Schmitt: Thank you, Mr. Chairman. Madam Secretary, I have a few questions. Earlier this year at a music festival in Austin, you noted that climate change is an existential threat. Is that correct?

Secretary Granholm: Yes.

Senator Schmitt: Okay. And by existential threat, you mean it threatens the very existence of humanity right now. Is that your belief?

Secretary Granholm: Well, right now, I would say no. We know that we have a goal to get to net zero carbon emissions by 2050. But we also know that every single year we see escalating weather events that are existential threats to communities around the globe, including in the United States.

Senator Schmitt: So, what is the timeline?

Secretary Granholm: Well, we want to reduce. We want to make sure that we do not see more than, you know, one and a half degrees of increase because the rising sea levels, the impacts on the ecosystems around the world.

Senator Schmitt: Okay. So even if you accept the premise that human beings can sort of control the weather here long term, right, that there aren't larger forces, that the earth is either cooling or it is warming, and that has happened, you know, since the existence of our planet, that has happened.

And you have this net zero goal by 2050, you would agree, though, that if China and India are not on board, it is a fool's errand, correct?

Secretary Granholm: We want China and India --

Senator Schmitt: No, but they are not.

Secretary Granholm: Well, they are moving in that direction. I mean, China --

Senator Schmitt: Well, actually, and this is leads to the second question, you have said that there is a lot to learn from what China is doing. China accounts for a full 25 percent of the world's emissions, correct?

Secretary Granholm: Correct. And we want them to stop that.

Senator Schmitt: Okay. But they are not -- they are not stopping that. India is not stopping that.

So I think the concern that I have and the folks back home have is that the United States of America, which has all the natural resources it will ever need, okay, is tying one arm behind our back for reliable energy, while China, the world's biggest polluter, you give a free pass to and you praise to at the same music festival saying we have got a lot to learn from China.

When the reality is, if China is not on board with your plan, even if you agreed with that being the goal, it is not going to make a difference at all.

So, all we are left with is higher costs here at home, and we are less secure at home because we are relying on other countries for energy, like Venezuela, like Saudi Arabia. And I want to ask you, since Biden, Joe Biden has taken office, he has drawn down 40 percent of that

Strategic Petroleum Reserve, correct?

Secretary Granholm: It is. It has been drawn down by about 180 million barrels.

Senator Schmitt: I think that is 40 percent. But we haven't had sort of an emergency that would cause it, other than I think he wanted to probably try to get gas prices lower.

Secretary Granholm: The war on Ukraine is the emergency that caused it.

Senator Schmitt: That is why we shipped those petroleum reserves to China, because of the war in Ukraine? I am sorry --

Secretary Granholm: No. We released 1 million barrels per day for six months to stabilize the global production --

Senator Schmitt: But we shipped those to China.

Secretary Granholm: No, we --

Senator Schmitt: China was the highest bidder and those -- the strategic petroleum went to China.

Secretary Granholm: The Strategic Petroleum Reserves are released on a global market --

Senator Schmitt: So, Ukraine, Ukraine is the reason then why we drew down by 40 percent our strategic petroleum reserves and sent them to China.

Secretary Granholm: Russia's invasion of Ukraine

pulled barrels, millions of barrels of oil off the market, causing a constriction in supply --

Senator Schmitt: Madam Secretary, I am sorry. I would argue that this President and this Administration's war on American energy started well before Ukraine. It started well before a year ago and you are right in the middle of that, telling people that they have to live with less --

Secretary Granholm: We are not telling people that they --

Senator Schmitt: Absolutely you are.

Secretary Granholm: No, we want energy to be abundant. We want it to be made in the United States. We want --

Senator Schmitt: If you really believed in an all of the above approach, if you -- I would believe you, but you don't. That has certainly not been the direction of this Administration and your agency. It just hasn't.

And I do want to ask you, so we talked about China. I want to ask you about Microvast, which is a lithium battery company that operates primarily out of the People's Republic of China. Your agency granted $200 million worth of grant to this company. You are aware of this, correct?

Secretary Granholm: There were awards that were -- there were selections that were named, and all of those

country -- companies are going through vetting process to ensure that there are not -- there is no money flowing to countries of concern. And so that -- those vetting process are going on. Not a dollar has gone out the door yet.

Senator Schmitt: Okay. And I think you have gotten -- you got a letter from a member of the Senate asking what those security protocols are and what the tests -- you could see how concerning it would be that Chinese owned businesses or companies --

Secretary Granholm: We don't want to see the dollars going to any countries of concern. We want them to be --

Senator Schmitt: So, is it your commitment that no dollars will go to any company, any energy company taking advantage of either tax credits or grants that are owned by China, by a Chinese company?

Secretary Granholm: No state-owned enterprise will get funding from the bipartisan infra --

Senator Schmitt: What about companies that have material operations in China, which we know, of course, that intellectual property --

Secretary Granholm: That is why we are using this CFIUS vetting program to be able to identify exactly where the control is of a particular technology and country. We want to make sure --

Senator Schmitt: Okay. Well, I look forward to

working with you.

Secretary Granholm: -- that we are the beneficiaries of those acts and not others.

Senator Schmitt: Thank you.

Chairman Reed: Thank you very much, Senator Schmitt. Senator Cotton, please.

Senator Cotton: Thank you. Thank you both for your appearance. Secretary Granholm, Norway is one of our oldest and best partners. They have a very strong military and defense industry.

A company known as Nammo, a Norwegian ammunition company, is vital for the security of Europe. They produce a lot of munitions, for instance, that are being used in Ukraine. They currently face constraints that prevent them from expanding. Are you aware of this situation?

Secretary Granholm: I am not.

Senator Cotton: This is not an urban legend. It is not some myth on social media. This comes directly from their CEO. In central Norway, Nammo cannot expand its production to meet the demands in Ukraine because there is not enough electricity on Norway's grid.

And the reason there is not enough electricity on that portion of Norway's grid is it is all being used by nearby data servers for TikTok. As he said, we are not able to supply troops in Ukraine because of cat videos. I am even

more concerned that, and the CEO of Nammo suggested this is a concern of his as well, that TikTok may have intentionally sited their data servers near critical defense factories in Norway.

This raises concern for me about whether this is happening in the United States. My staff recently inquired with your office for some information about the potential for this risk. They were told that our inquiries needed to be on official letterhead and signed by me.

Is it the policy of your office that you only respond to Senators and Congressmen when the request run official letterhead and signed by the Senator?

Secretary Granholm: No, no.

Senator Cotton: Okay, thank you. So, I hope now and, in the future, whenever our staff sends what are not hostile questions simply by an email, we can get more prompt responses. Now, are you aware of any risk in the United States through our defense industry because of the siting of large data servers, whether owned by TikTok or other companies, near defense industrial factories?

Secretary Granholm: I am concerned about making sure that we have enough electricity to be able to fund not just defense entities, but regular household as well.

And whether it is this, which I am eager to look into, or Bitcoin mining, which also is a huge energy suck, I want

to know what can be -- first of all, how we can add additional energy to the grid, but also how do we provide incentives for efficiency of those enterprises as well.

So, I am concerned about the overuse of energy for players in America when we don't have the infrastructure necessary to be able to withstand --

Senator Cotton: I am very worried about that as well. I am going to come to you in a moment, but can I get your commitment that your department will look at this specific issue --

Secretary Granholm: Yes, sure.

Senator Cotton: -- about --

Secretary Granholm: Absolutely.

Senator Cotton: -- and it may be done in cooperation with the Department of Defense --

Secretary Granholm: Sure.

Senator Cotton: -- that we are not constrained in our defense industrial base at a time it needs to expand because of the location of large data servers, especially large data servers owned by foreign companies like TikTok.

Now to the broader point, it would be an issue at least as big an issue if there was sufficient electricity on the grid to meet all of our needs, not just now, but as our nation grows in the future.

I am very worried that at a time when the

Administration is taking action after action to take off reliable baseload power from coal and natural gas and nuclear power, it is also vastly expanding the demand for electricity, going -- trying to replace the vast majority of cars, for instance, with so-called electric vehicles, which really should be called coal powered vehicles, because the electricity has to come from somewhere. Considering things like banning use of gas appliances.

And this at a time when your department has stated today, it has for some time now, that you can't meet, for example, the Congressionally mandated requirement of 80 new plutonium pits a year just to sustain our nuclear force. Is it really the best use of the Department's time to be continuing to push electric -- so-called electric vehicles that our grid can't support when we can't even maintain our nuclear deterrent?

Secretary Granholm: We want to get to 100 percent clean electricity by 2035. And the auto industry itself has said that by 2030, half of all electric vehicles, they intend to sell because this is where the market, they see going will be electric.

Senator Cotton: That is so, I mean, that s fine as a goal. I disagree with the goal. I don't think it is practical. But I would also like to still be in a free and independent safe nation by 2035 as well.

Secretary Granholm: We will be.

Senator Cotton: And our nuclear arsenal has underpinned our safety and our independence for 80 years now. And China is producing plutonium and uranium at much greater rates right now than we are.

And again, this is a question about the plutonium pits. It is not about expanding our nuclear forces, which is what we need to do given the threat we face from Russia and China's combined overmatch, but just maintaining it.

Like, I would think that this would be the most urgent question that your department faces, because it is about our survival as a nation, not our simple mix of what kind of cars we use 12 years from now.

Secretary Granholm: Well, clearly, making sure that we have a safe, secure, and effective nuclear deterrent is a top priority of the Department and of NNSA.

Senator Cotton: Okay. My time has expired but thank you for your commitment to get back to me on that question about electricity strains, especially from foreign companies on our defense industry.

Chairman Reed: Thank you, Senator Cotton, very much. Thank you, Madam Secretary and Madam Administrator. There has been some discussion throughout about energy production. And I would say it is my understanding that oil and natural gas production are both higher now than at

any time in the past six years, and that we are on track to set new records on crude oil and natural gas production this year. Is that correct?

Secretary Granholm: That is correct.

Chairman Reed: So, we are doing a lot more in terms of extracting oil and natural gas than the preceding Administration.

Secretary Granholm: That is correct.

Chairman Reed: But that still does not alleviate, at least in my view, the need to move to a cleaner technology. That is the direction the President's headed for. So, it seems sometimes in Congress, the criticisms of the Administration for not being attentive to the fossil fuels when we are producing more fossil fuels than we have in six years --

Secretary Granholm: Right. We will be -- I want to correct -- we will be at record production for oil this year. 12.4 million barrels is what is projected, which is a record. And the same thing with LNG, we are at record exports of liquefied natural gas and we also want to be at record production of solar, and wind, and geothermal, and nuclear.

Chairman Reed: Understanding that the fossil fuels are a bridge to, but a necessary bridge to alternative fuels that would be more compatible with the environment.

Secretary Granholm: Right. We want to get to 100 percent clean by 2035.

Chairman Reed: Thank you very much. And I know, too, that your comments about the automobile industry, I think they have concerns about the environment, but I think they also have more concerns about products that they can sell and efficiently service and will be in demand by the American public. If I was on the board, I think I would be looking at those issues.

Secretary Granholm: Because it is so much cheaper to actually operate and own an electric vehicle. And the prices of the new models coming out are much less than the models that you may currently see.

Chairman Reed: All right, thank you. Well, this will conclude the open session and we will reconvene at 11:45 a.m. in SVC-217 for the closed session. And thank you very much. With that, I will declare the open session closed.

Secretary Granholm: Thank you.

[Whereupon, at 11:22 a.m., the hearing was adjourned.]