UNITED STATES

NUCLEAR REGULATORY COMMISSION

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STRATEGIC PROGRAMMATIC OVERVIEW OF THE OPERATING

REACTORS AND NEW REACTORS BUSINESS LINES

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THURSDAY,

NOVEMBER 14, 2024

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The Commission met in the Commissioners' Hearing Room, at 9:00 a.m., Christopher T. Hanson, Chair, presiding.

COMMISSION MEMBERS:

CHRISTOPHER T. HANSON, Chair

DAVID A. WRIGHT, Commissioner

ANNIE CAPUTO, Commissioner

BRADLEY R. CROWELL, Commissioner

ALSO PRESENT:

CARRIE SAFFORD, Secretary of the Commission

BROOKE CLARK, General Counsel

NRC STAFF:

MIRELA GAVRILAS, Executive Director for Operations

CHRISTIAN ARAGUAS, Director, Division of Engineering, Office of Nuclear Regulatory Research (NRR)

JEREMY BOWEN, Director, Division of Advanced Reactors and Non-power Production and Utilization Facilities, NRR

GREG BOWMAN, Deputy Office Director for New Reactors, NRR

MIKE FRANOVICH, Acting Deputy Office Director for Reactor Programs, NRR

LAUREN GIBSON, Chief of the License Renewal Project Branch, Division of New and Renewed Licenses, NRR

MEENA KHANNA, Acting Director, Division of Risk Assessment, NRR

JAMIE PELTON, Deputy Director, Division of Operating Reactor Licensing, NRR

MICHELLE ROME, Branch Chief, Environmental Technical Review Branch 1, Division of Rulemaking, Environmental, and Financial Support, Office of Nuclear Material Safety and Safeguards (NMSS)

PROCEEDINGS

9:00 a.m.

CHAIR HANSON: Good morning, everyone. I convene the Commission's public meeting on the NRC's Strategic Programmatic Overview of the Operating and New Reactor Business Lines. The Commission is meeting today to get an update from the staff on a range of important activities and the reactor business line supporting our safety and security mission, including strategic priorities, recent accomplishments, expected challenges, and implementation of the ADVANCE Act into our activities.

We have two staff panels today. We'll begin first with the Operating Reactor Business Line followed by the New Reactor Business Line. But before we start, I'll ask if my colleagues have any remarks they'd like to make.

Commissioner Wright?

COMMISSIONER WRIGHT: No, I'm good. Thank you.

CHAIR HANSON: Okay. Glad to have Commissioner Wright joining us remotely this morning. So, with that, we'll get rolling and we'll begin with our Executive Director for Operations, Mirela Gavrilas.

MS. GAVRILAS: Thank you, and good morning, Chair. Good morning, Commissioners. We'll have a very busy morning today. The staff has a lot of material to cover, so I'll keep my remarks short.

I want to remind everybody that these business lines touch everybody's life in the agency. Not only does NRR have more than 500 staff on board, but there are 1,700 FTE allocated to these business lines. So the broad

range of topics that you will hear about today is exemplary of that amount of work that the agency conducts. Thank you and with that I'll pass it to Mike.

MR. FRANOVICH: Thank you, Mirela.

Good morning, Chair and Commissioners.

May I have the next slide, please. The NRC has dedicated itself to establishing robust infrastructure that accelerates our efforts within the Operating Reactor Programs. Upholding the principles of good regulation NRR, in partnership with our other offices, has developed tools, guidance, and best practices informed by data analytics to achieve mission excellence. Ensuring the safe and secure operation of the operating fleet remains at the core of our safety mission.

As we move forward we continually evaluate our priorities and organizational structure enabling us to adapt the high interest areas. A central focus remains on strengthening our team's capabilities through targeted hiring, professional development, and retention efforts.

The principles outlined in this slide highlight NRR's commitment, a commitment to delivering safety-focused reviews within established schedules and resource limits. Through advanced project management, tools, and date analytics we ensure transparency and enable assessments of ongoing licensing actions. By actively engaging stakeholders in public workshops we're building public confidence and gaining insights for process improvements. Concepts such as the Core Review Team and the Integrated Review Team provide predictable and timely outcomes.

The implementation of these principles enhances our

adaptability, supports effective workload management, empowers timely decision making. In both panels today you'll see these principles in action showcasing how they are applied to specific projects and initiatives.

May I have the next slide, please? This graphic presents an extensive range of key accomplishments achieved by applying our mission-excellent principles. I will highlight a few items.

First, we address numerous construction issues at Vogtle resulting in the issuance of the Part 52 construction lessons learned report and a successful transition of Unit 4 to commercial operation.

Authorizing advanced risk management programs remains a top priority. Nearly 200 transitions to risk-informed programs have been approved to date providing operational flexibility for licensees including reduced personnel radiation exposure, safety-improving plant modifications, and timely maintenance while plants remain online. We've also refined the reactor oversight process by revising over 40 inspection procedures and inspection manual chapters. This includes introducing a new inspection procedure to support the Palisades restart effort.

With over 170 power uprates approved we are drawing upon this extensive experience to optimize regulatory guidance for future submissions. We continue to host public workshops aimed at identifying additional efficiencies including through the power uprate project.

Finally, we are improving management practices through data analytics using both historical and current performance data to align resources and schedules with the safety significance of each review. Technology and

dashboards at workload management meetings help to communicate review progress and manage project risks effectively.

May I have the next slide, please? Together NRR and our partners use research capabilities to develop reliable regulations and guidance. I'll cover our highest priority activities each with significant stakeholder interest.

Our mission is diligently working -- our agency rather is diligently working on the increased enrichment rulemaking for next generation fuels. This initiative includes a comprehensive reevaluation of accident safety analysis to support regulatory updates. We are integrated insights from operating experience as well as engineering analysis, risk assessments, advanced severe accident modeling capabilities such as using the MELCOR Code alongside radiological studies.

Two key proposed regulatory changes include: first, redefining the large loss of coolant accident as a beyond-design-basis event; and second, implementing a graded approach to control room dose design criteria based on plant-specific risk.

A significant milestone this year was issuance of the Phenomena Identification and Ranking Tables. This technical report marks a step forward in evaluating the importance and level of knowledge and associated uncertainties with fuel fragmentation, relocation and disbursal, and its potential consequences for high burnup fuel.

In digital instrumentation and controls we've implemented the Commission's direction ahead of schedule for risk-informed alternatives. In

May we revised the staff guidance to expand policies on common-cause failure enabling risk-informed alternatives to establish suitable levels of defense-in-depth and diversity in digital systems.

And lastly, our collaboration efforts across the business lines has sparked a new initiative, the Reactor Accident Analysis Modernization Project. Inspired by the Licensing Modernization Project used for advanced reactors, the RAAM Project builds upon this framework aligning with the NRC's Level 3 PRA insights.

Through RAAM we are reevaluating reactor accident analysis methods to incorporate past lesson

-- licensing experiences, risk insights, and existing plant safety margins. The plant -- or rather the project may lead to improving the design basis for facilities and eliminating unnecessary conservatisms.

For instance, we're exploring modernizing the single active failure criteria and also evaluating crediting of non-safety systems which could streamline safety analysis particularly for core reload analyses and for new reactor reviews without compromising safety. These actions and upcoming steps are laying a strong foundation to support the deployment of new technologies.

May I have the next slide, please? The ADVANCE Act has been a catalyst to improve connectivity and build on existing efforts to share best practices across the business lines. Our changed management activities are closely coordinated through the EDO's ADVANCE Act Core Team to ensure a disciplined and interconnected agency response. A myriad of ideas are

coming from within and outside the agency. I'll just touch on a few of them this morning.

For licensing efficiencies we're examining licensing commonalities across the business lines with specific increased focus on the pre-application engagements and the development of associated guidance to provide greater regulatory stability for applicants. Related to this work is improved project management capabilities, which is a focused area that Ms. Gibson will discuss further this morning.

Turning to oversight efficiencies, we're evaluating a potential new Baseline Inspection Program while ensuring sustained good performance. We initiated an assessment of the Cross-Cutting Issues Program using technology, improved planning, and feedback. We're also examining ways to be timelier with the resolution of low-importance issues, issues that are not captured by the Very Low Safety Significance Resolution process, or better known as the VLSSR process.

I'll now turn the presentation over to Ms. Pelton. Thank you.

MS. PELTON: Thank you, Mike. Good morning, Commission. My name is Jamie Pelton. I'm the Deputy Director of the Division of Operating Reactor Licensing in NRR.

Consistent with the ADVANCE Act and the NRC's strategic goals, NRR is implementing numerous process improvements, as I'll describe, with the Palisades Potential Restart Project, power uprates, and the use of data in licensing.

Next slide, please. The Palisades Nuclear Plant permanently

ceased operations in May of 2022 after more than 40 years of commercial operation and transitioned to a decommissioning licensing basis. In early 2023 Holtec expressed interest in returning the plant to an operational status and provided a proposed regulatory path to reauthorize power operations. Between September of last year and this May Holtec submitted six licensing applications to support the potential restart of Palisades.

To prepare for this first-of-a-kind nature project last November we convened the Palisades Restart Panel to proactively identify and promptly resolve any licensing, inspection, or regulatory challenges that concern the Palisades restart, leveraging best practices from the past, for example, with the Watts Bar 2 Reaction Group and the Vogtle Readiness Group.

This panel aligns all of our partners across the agency including NRR, Region III, NMSS, NSIR, OGC, OPA, and OCA. The NRC staff established a risk-informed framework for the licensing and oversight of the Palisades Potential Restart Project, which we're confident can be applied to future potential restart applications. We have made substantial progress within the Palisades Potential Restart Project overcoming regulatory and technical challenges.

I would first like to specifically commend the staff for demonstrating flexibility in thinking about the approach to this project. We're quite used to what it takes to transition a plant from operations to decommissioning, but thinking about it in reverse took a lot of open-mindedness and collaboration across organizations. So kudos and thank you to the entire team.

This slide contains our main accomplishments since the Holtec announcement. To inspire stakeholder confidence the NRC has coordinated over 12 public meetings, proactively expanded the use of on-site public meetings and site visits to maximize our local stakeholder engagement and transparency.

Earlier this year, as Mike mentioned, the NRC issued an inspection manual chapter establishing a risk-informed inspection guideline for this and future applications. Currently the NRC staff are actively conducting the safety reviews of the six licensing actions mentioned earlier to support the potential restart of Palisades and return the licensing basis to that which existed during operations as well as completing an environmental assessment. The NRC is continuing inspection and oversight activities at Palisades and will ensure that any activities undertaken in this effort are done safely and in accordance with the regulations.

Transparency and communications is a priority for the Palisades Restart Panel. For example, in September NRC staff issued a preliminary notification regarding steam generator inspections that identified the potential number of tubes required to be plugged would exceed the program guidelines. In coordination with the Palisades Restart Panel the licensee performed a root cause analysis and is proposing mitigating actions and a repair methodology which would be documented in a future license amendment prior to restart. From day one of the licensee's steam generator inspections Region II had experienced NRC in-service inspectors on site. By the end of this year the newly-named resident and senior resident inspectors will also be on

site.

Recently Constellation Energy announced its intention to launch the Crane Clean Energy Center intending to rename it from former Three Mile Island Unit 1 in 2028, if approved. Staff will utilize the lessons learned from Palisades as the benchmark for this application increasing licensing predictability in our review.

Next slide, please. Power uprates, or increasing the power output of an existing reactor, can assist in meeting rising energy demands. Power uprates can range from 20 percent of originally-licensed thermal power and can be accomplished through more precise measurements or instrumentation, higher enriched fuel, or major plant modifications.

Over the past 20 years the NRC has approved 173 power uprates that have given the nation's electricity grid an additional six gigawatts. Over 70 percent of sites surveyed recently by NEI indicated that they're planning for one or more power uprates with a combined capacity of greater than three gigawatts. The NRC is ready to review these power rate -- power uprate applications.

Since our last meeting in November of last year the staff has made substantial progress to prioritize and coordinate with industry in a graded approach to licensing reviews. Just two months ago, in September, we issued a public memorandum providing preliminary licensing recommendations derived from industry feedback received at two public meetings.

Initial recommendations are focused on strategic bundling of licensing actions, leveraging approved topical reports, and using a tiered

approach to reviews. A February 2024 topical report regarding data validation and reconciliation methods provide increase accuracy of the power estimates which would allow many licensees to obtain a power uprate without additional plant equipment; for example, updated flow meters. In addition, we're looking at our administrative processes such as delegations of signature authority for power uprates to further streamline the review.

Staff will continue to employ the Core Team concept to provide predictability and increased capacity for power uprate reviews and will codify these techniques in guidance going forward. Leveraging historical data and lessons learned within the Structured Project and Communication Plan the Core Team is developing and communicating enhancements to prioritize resources based on safety significance. Although there are currently no applications in house, the NRC staff continues to engage with licensees in preparation for potential applications.

The staff developed a regulatory issue summary requesting licensee information on any power uprate-related submittals. The NRC maintains a public web page and internal power uprate dashboard that provides centralized means to highlight power uprate activities across the agency.

Next slide, please. The use of data-driven licensing increases transparency and the ability to budget resources for future licensing actions. Both real time and historical data analysis are available with the Operating Reactor Licensing Dashboard, Reactor Program System, or RPS, and the Request for Additional Information app to ensure transparency in real time evaluation during the processing of associated licensing actions. For

example, staff can quickly locate and utilize historical data and forecasting information to budget resources for specific projects. We continue to hold ourselves accountable through the use of agency-wide performance reporting, indicators, and metrics.

In fiscal year 2024, the NRC internal metric for licensing was shifted from a generic one-year schedule metric to a new metric focusing on schedule accuracy. This metric has the estimated completed schedule between 75 and 115 percent of that which is estimated.

This slide illustrates our historical project lane from FY '23 to present with the largest sector representing a 12-month schedule and the others representing some deviation. Notice, since the metric implementation in FY '24 the percentage of projects utilizing a 12-month schedule decreased by 19 percent to only 33 percent correlating to 61 percent of projects completed in less than 12 months.

Further, we use historical data through the Effort and Schedule Estimator tool, or the EASE tool, and collaboration between our project managers and technical staff to help ensure that the schedules proposed are accurate. On a routine basis we conduct workload management meetings to discuss performance on specific licensing actions. These meetings rely on the use of real-time RPS data dashboards which enable to proactively address challenges and assure accountability of staff and management.

Staff utilize a modernized dashboard like the Accident Tolerant Fuel Internal Dashboard using real-time data from RPS.

NRR, in conjunction with our partner offices, has invested in

both infrastructures to support data-driven licensing as well as staff with the knowledge and skill set to use the data for maximal impact.

Now I'll turn it over to Lauren Gibson.

MS. GIBSON: Next slide, please. Thank you, Jamie. Good morning. I am Lauren Gibson. I am the Branch Chief for the License Renewal Projects Branch in NRR. I'm excited to discuss the changes we are making to license renewal and the early returns and efforts that are already underway.

Next slide, please. Recently we issued the Comanche Peak initial license renewal. This is one of two renewals that we've issued recently. It came in almost 6,000 hours under budget. Note that the budget had been established in 2022 before the efficiency efforts were started in earnest, therefore this is a good gauge of the earlier returns on the changes that we have made.

Some of these efforts were able to be applied to Comanche as they were developed, but the most significant change, the graded approach to the review, was not yet available. Notably, we had only one ACRS meeting instead of two and the environmental review streamlined the reasonable power replacement alternative evaluation and used requests for confirmation of information.

Our interactions with the licensee were also very positive. We had extensive pre-application activities. In turn, the application was very high quality. Vistra was also very responsive to our audit needs and requests for information. We maintained strong communications throughout the review, and it shows.

Next slide, please. More broadly, the staff is implementing the SRM to achieve more streamlined initial and subsequent license renewals that require no more than 14,000 hours and 18 months to review. We are providing monthly status reports describing how well we are progressing with the reviews of subsequent license renewal applications and how we are applying efficiency strategies to the reviews that are already in-house.

We are continuing to find and pursue creative ways to achieve the goals while maintaining the mission of public health and safety. This meets the intent of the ADVANCE Act.

The most safety-significant efficiency is the tiered approach. We are currently implementing it for the two most recently received reviews. It is going well as the staff is applying a risk-informed graded approach to adjust the depth of our reviews. You can see on this slide what the differences in reviews are and how we decide which aging management programs goes into which tier. The factors include: the risk significance of the related structures, systems, and components; how much oversight is later performed; and whether it was evaluated in a previous review including whether or not it's a fleet-wide program. This is currently in place for Clinton and Dresden and we are further refining the approach to challenge ourselves to key in on the aspects of the review that are the most safety-significant.

Next slide, please. We are also streamlining on the project management side. Collaborating with OCIO and EMBARK we are easing our administrative burden with a new workload management tool designed to organize, structure, and disseminate information contained in the application

package to the project managers and the technical reviewers.

Here are screenshots of the new system. You can see a dashboard interface, the ability to upload files, and views for the technical reviewers. This year-plus effort has been rolled out and is in use for Dresden. We are not stopping there, however.

Using the Agile Project Management Structure OCIO is adding additional capabilities such as the ability for the reviewers to submit audit questions and safety evaluation input through the system for the system to automatically compile them into a document for concurrence. We are also investing in further training for our project managers so that we can use state-of-the-industry methods to identify pinch points, track progress, and communicate effectively. Our partners on the environmental side are also creating efficiencies which Michelle Rome will be discussing in the next panel.

Both the Environmental and the Safety teams have ongoing external engagement through periodic public meetings with NEI. At these meetings we hear the industry's needs, perspectives, and get valuable feedback on the practical implications of the license renewal road map. We also communicate what we need from applicants to have a streamlined and efficient review.

In conclusion, we are further pressing towards efficiencies while ensuring safety with implementing the tiered approach, adding more capabilities to our workload management tool, participating in the business process improvement review, and continuing productive dialogue with both NEI and the individual applicants. We are getting more streamlined and will

continue to do so.

Next slide. The NRC is not just focused on project management of license renewals. One of our EDO's Strategic Direction Initiative is to address project management across the agency. To do this we are seeing how we can adapt the PM principles which are focused on creating a product to a regulatory setting in which our value is ensuring adequate protection of public health and safety.

Our PMs are already regulatory and licensing experts. Let's make them even better by bringing in best practices from the broader project management discipline to troubleshoot our current process and improve how we manage our work. This includes enterprise-wide prioritization and anticipating where bottlenecks are for quality issues or trouble spots may occur and supporting efficient resolutions before an issue impedes a schedule. Even though this Strategic Direction Initiative has started, efforts are already underway.

We have two courses scheduled based on the Project Management Institute standards for November and February. These are geared toward NRR and NMSS and will cover the basic principles as well as leadership and communication. Furthermore, throughout the agency dashboards and workload management systems are being updated and reexamined.

This is an example of an ideal single-point dashboard. We want these tools to be scalable from the project level to the business line and above It is important to note however that project management is not a person.

It is a mindset, an approach that permeates the organization. The Strategic Direction Initiative seeks to make those best practices part of our culture.

Thank you. Now I will transition to Meena.

MS. KHANNA: Thank you, Lauren. Good morning, Chair Hanson, Commissioners. I am Meena Khanna and I'm the Acting Director of the Division of Risk Assessment.

The Operating Reactor Business Line continue to expand the use of risk-informed decision making. We are successfully accomplishing this by using various processes, tools, and resources available to support efficient and timely decisions while continuing to assure safety.

Next slide, please. With regard to the increased enrichment rulemaking that Mike spoke of we are revising one of the regulatory guidance documents, and that is Regulatory Guide 1183, Revision 2, associated with alternative radiological source terms for evaluating design-basis accidents. For this effort the staff has leveraged a graded risk-informed performance-based approach to propose a revised control room design criteria -- excuse me, dose criteria framework to support increased enrichment fuel.

The Office Nuclear Regulatory Research has been a strong partner to NRR in supporting this effort. A few key examples of Research's support to NRR include identifying an approach on how staff can credit suppression pool scrubbing, developing natural deposition models for containment spray, as well as developing an in-house tool that will allow the staff to assess reactor core inventories at increased enrichments. We continue to be responsive to the current environment and have demonstrated our ability

to expend resources commensurate with the risk and safety significance of the issues.

As one example, the staff authorized the use of Code Case N-752 for several plants in determining the risk-informed categorization and implementing alternative treatment for repair and replacement activities on certain piping components. In conducting these reviews the staff demonstrated a breakthrough in applying in-house capabilities to conduct real-time independent what-if scenarios and to conduct our own confirmatory and independent risk analyses using standardized plant analysis risk models to influence the outcome of our review.

In speaking to the connectivity between the Operating Reactor and New Reactor Business Lines I would like to take this opportunity to address how we've expanded the use of risk-informed decision making for the review of the NuScale Standard Design Approval Application.

We used risk insights provided by NuScale to identify review hours as well as schedules for the staff's review of the application which was commensurate with the risk and safety significance of the issues. We continue to use risk-informed decision making to address complex issues associated with this review. Also, Research has developed a NuScale internal events SPAR model that staff is extensively leveraging to perform sensitivity studies and verify risk insights provided by the applicant for the NuScale SDAA review. This is the first new reactor application where an in-house model is available to support the staff's evaluations.

Next slide, please. We continue to demonstrate leveraging

efficiencies and the use of risk in our reviews via the Risk-Informed Process for Evaluations, or RIPE. RIPE has proven to be a very effective process ensuring that our resources are commensurate with the risk significance of the issues being evaluated in the licensing submittals.

In July NRR approved two applications using RIPE. One was for an exemption for Shearon Harris where the staff completed its review with less than 80 hours of review time and within the 13-week schedule for an exemption submitted under RIPE.

The other was for a license amendment for Palo Verde where the staff issued its SE one week ahead of the scheduled 21 weeks per RIPE and with less than 100 hours of staff review time for a license amendment request. We expect another RIPE submittal for the staff's review in the first quarter of 2025.

We are in the early stages of developing qualitative criteria in addition to the quantitative criteria already in place that could be leveraged for RIPE. We would expand the universe of issues that could be applicable to the process and we look forward to engaging with industry on this approach via a public meeting that we are planning for in early 2025.

Next slide, please. In our effort to expand the use of risk-informed decision making and the use of probabilistic risk assessment the agency has developed and approved several advanced risk-informed initiatives that provide for additional flexibilities to our licensees while also ensuring that they focus on the most safety-significant issues, thus enhancing our safety focus.

These initiatives are the Surveillance Frequency Control Program, 10 CFR 50.69, and the risk-informed completion times, just to name a few.

To the staff's credit we quickly recognized that our oversight framework did not specifically address PRA configuration control to ensure that the licensees' decisions reflect the current as-built, as-operated plant and that models continue to be updated per the approved and endorsed standards. The agency conducted several external engagements to ensure that the proposed approach was balanced, performance-based, and focused staff and licensee resources on issues of greater safety significance.

Through our efforts NRR, with regional support, successfully identified, developed, and implemented a balanced performance-based approach with the oversight of PRA configuration control. By leveraging the PRA configuration control operating -- I'm sorry -- the PRA configuration control operating experience Smart Sample.

The Smart Sample is a great approach that focuses our resources on licensees that adopted several of the more impactful risk-informed initiatives such as risk-informed completion times and 50.69.

Further, we committed to conduct an assessment of the Smart Samples at the end of each performance year to check and adjust our OpE Smart Sample based on the experience obtained from each use, ensuring a performance-based approach. All these insight will inform the staff's oversight framework in this area which we expect to complete in 2027.

Next slide, please. In becoming riskSMARTer we continue to

leverage all initiatives related to risk-informed decision making internal and external to the agency. We are reinvigorating Be riskSMART as a framework that facilitates the effective management and use of risk for various agency processes. Within the Operating and New Business Lines we continue to develop tools to encourage the use of the five key principles of risk-informed decision making for complex issues as well as to communicate how we have used risk in our decision making.

We are also continuing to expand the use of risk-informed licensing processes such as LIC-206, which is the used for the integrated review teams; RIPE; and LIC-504, which is an integrated risk-informed decision making process for emergent issues. NRR recognizes the importance of positive change management activities to assure that new and existing staff are provided with the guidance, tools, and resources needed to enhance their use of risk-informed decision making.

A few examples of NRR's positive change management activities include NRR recently held four RIDM 2.0 workshops for our staff in September. These workshops highlighted the staff's accomplishments in leveraging risk and encouraged the staff's use of risk. Also, NRR will be hosting a public risk workshop with industry in early calendar year 2025 to provide for a KMKT session for new and existing staff on the 10 CFR 50.69 reviews as well as the associated oversight activities.

Further, we are exploring additional opportunities to ensure resources are focused on the most risk and safety-significant issues to meet the provisions of the ADVANCE Act.

We continue to benchmark with the international community as well as with our external stakeholders through public meetings and other forums. A few representative examples of these efforts include, we've conducted a bilateral with UK ONR where we shared NRC's perspectives, insights, and initiatives on how we leverage risk in our work. We also conducted a bilateral with CSN, the Spanish regulator, where we shared our PRA configuration control approaches. And lastly, we do participate in the PWR Owners' Group/BWR Owners' Group Risk Management Committee semi-annual meetings which allow for a venue to exchange information on risk-informed initiatives between the NRC and industry.

I will now go to Mirela for closing remarks. Next slide, please.

MS. GAVRILAS: Thanks, Meena. We presented sample of examples that improved the application of risk that focused on transparency and the utilization of resources and focused on efficiency and timeliness. And with this we welcome your questions.

CHAIR HANSON: Okay. Thank you. We're going to begin questions this morning with Commission Crowell.

COMMISSIONER CROWELL: Thank you, Mr. Chair. And thank you to all of our panelists today. You packed a lot into your presentations and I'm going to try to pick out a few things here to follow up on. And if I ask you a question that's more applicable to one of the other panelists, please -- or if it's too hot to handle, you can give it to Mirela.

(Laughter.)

COMMISSIONER CROWELL: Mike, I'll start with you. You

peaked my interest when you were talking about the new initiative RAAM. Can you just quickly tell me a little bit more about how that's going to work and how it's going to improve things and then if it's going to be best applied in a potential Part 53 context versus 50/52, or if it's agnostic on those in that regard?

MR. FRANOVICH: Thank you for your question. I'll start with the reverse, the latter part.

The project is right now run by three senior-level advisors between two offices and it focuses largely on Chapter 15 safety analysis where we've had challenging issues in -- primarily in the new reactor area where the risk profiles are very low and you're looking at traditional accident scenarios that are rather prescriptive in the Standard Review Plan. And yet alternatives are being proposed.

So this group, its charter is to look at advanced reactors, new reactors, and operating reactors. So the goal is how can these techniques -- if we go barrel down into the area of single active failure criteria, how can they be applied in all three domains? If it works. I mean, there's other work going on in Part 53 as well. But they are interconnected and there is communication going on with the advanced reactor folks as well. So it's all part of the senior-level advisory -- I call it a network because they're agency-level assets or resources. So that's its larger goal focused on Chapter 15 analysis.

And when you look at the issues such as crediting of non-safety systems, that's a huge push for new reactor vendors and advanced reactor vendors. They're particularly interested in it for economic reasons. If they can demonstrate a certain level of reliability and say, you know, some of

these prescriptive type of events that you look at for Chapter 15 that are maybe more frequent but there's lots of levels of defense to protect -- do you need to have all that safety-related or can I show you through a compelling case that a combination of non-safety-related equipment -- if it's maintained properly through augmented quality, that might be sufficient.

So it's an exploratory work right now because it's at an embryonic stage. It's been socialized with the three -- I call them three tracks -- advanced, the new reactor community, and operating fleet. And we got some valuable feedback from different stakeholders. For example, the operating reactor fleet says, hey, there may be more benefits to the single active failure criterion treatment that you're not realizing, so we would like to see more work in that area from a prioritization.

The new reactor community looks at it and says, yes, we could use this guidance but let me suggest some ways of expediting that; for example, use of interim staff guidance documents to get that out on the street so they have something to say, okay, there's some regulatory picture and footprint in this area.

That's a little bit of a long answer, but it --

COMMISSIONER CROWELL: I appreciate it. And I knew it would be a long answer and I was interested in hearing it. It sounds like it's focused in the right direction, so I'll be interested to see how it plays out going forward. So thanks, Mike.

Jamie, turning to you, so for these restarts you mentioned Palisades will help inform other similar efforts that have been announced or

may come along. But each restart is unique in its own right, you know, the condition of the plant and its operating lifetime and then how long it had been not operating or how far into decommission it went. So I'm kind of curious, how much is one restart or recommissioning effort going to really inform the others if there's a big discrepancy in the state of the plant or the experience of the operator?

MS. PELTON: That's a great question. Thank you. So what I can say for Palisades was fundamentally it -- we've laid the framework for the exemption process for an exemption from 50.82. And the basic amendments that are typical for plants that go from in-operation to a decommissioning status. With that said, you're exactly right. Each plant may have chosen a slightly different path or had different licensing actions or different paths to decommissioning that we need to evaluate as each potential restart comes in.

In terms of plant condition, resources will be different from regional inspections: how the regions respond, what activities need to be done, and what needs to be overseen focusing on the most risk and safety-significant areas. And as such, as we engage with Holtec, Constellation, and any potential future applicant we'll evaluate those scenarios and adjust accordingly.

COMMISSIONER CROWELL: Are you concerned about any discrepancies and how one region versus another may have performed their work to date or is -- looking at the current prospects for restart is there a consistency issue we need to worry about across regions and how we're looking at restarts?

MS. PELTON: So one of the things that we've done -- I

mentioned the Palisades Restart Panel. And the inspection manual chapter that we've established for transitioning plants from decommissioning to restart lays out a framework for establishing a panel between headquarters with representation from the Division of Operating Reactor Licensing, the Division of Reactor Oversight, and the particular region to help ensure that consistency.

So those panels -- we have not yet established the Crane Clean Energy Center Panel, but we're in close communication with Region I. We're in close communication with Region III. And we are all working together to make sure that we are consistent.

COMMISSIONER CROWELL: And for an instance like Palisades where they're looking at restart and I think also license renewal in the near term -- maybe I'm confusing plants, but they're also looking at potentially co-locating advanced reactors on the same site. How does that either complicate or lengthen the review or approval process? What impact does that prospect of new build advanced reactors on the same site as a restart?

MS. PELTON: Right. So I'll speak to the Palisades example. Holtec is engaged with DRNL for the potential placement of small modular reactors on the site. So there are environmental considerations that are considered for the restart project. NMSS/REFS looks at the current action and what's potentially foreseeable. So that will be factored in to the environmental assessment that's being done. But from a safety review they're independent reviews. So we're conducting the safety review of the potential restart independently. I believe Holtec had stated March of 2026 they would come in for subsequent license renewal and they would follow each of those licensing

processes separately.

COMMISSIONER CROWELL: At our most recent meeting with ACRS when we talked about license renewal and subsequent license renewal we kind of came up with what I thought was an apt analogy of it's kind of like going to the doctor as you get older. But each person that goes to the doctor is going to have a different result from their checkup depending on how well they're taking care of themselves, their genetics that are not within their control, and things like that.

So is that an applicable analogy for license renewal and how do we manage expectations with the regulated community in terms of expectations for license renewal when it could be very different depending on the state of their individual health when they come for license renewal?

MS. PELTON: If I could defer Lauren.

MS. GIBSON: Are you referring to just the plants that are restarting or overall?

COMMISSIONER CROWELL: Overall.

MS. GIBSON: Overall?

COMMISSIONER CROWELL: Actually put aside the plants that are restarting and just talk about ones that are operating and looking for license extensions. I mean, they've all had a different experience leading up to license renewal so there are similarities, but there's differences. And I'm just wondering how we're incorporating those differences.

MS. GIBSON: Yes, that is part of our normal review. We look a lot at the operating experience, not just from the plant, but also what's been

happening at the plant to determine if the generic aging lessons learned programs are still appropriate for the plant. And we make adjustments as necessary for that.

And there are also additional AMPs that we require going from 60 to 80 years that we didn't require for 40 to 60. Consistent with going to the doctor when you're older, you may need additional things as well.

COMMISSIONER CROWELL: And are there any issues related to consistency across regions as we look at this -- as we look at license renewal for plants in all four of our regions?

MS. GIBSON: I'm not aware of any major inconsistencies. We do have a group that meets, all of the four regions together with headquarters, in order to discuss current inspections that are ongoing and disposition of any concerns that arise.

COMMISSIONER CROWELL: Great. I'm out of time, but I appreciate everyone's input. Thank you.

CHAIR HANSON: Thank you, Commissioner Crowell. Good morning, everybody. Thanks for being here. Thanks for your presentations. I think there's a lot of really positive forward momentum and just want to thank the staff for all your efforts in this area.

Jamie, if I could start with you, I want to pick up on -- Commissioner Crowell was talking about RAAM, this Reactor Analysis Assessment Modernization. What's the relationship of that going to be to power uprates?

MS. PELTON: I think I'm going to defer to Mike.

MR. FRANOVICH: The short answer is I'm not sure the scope of the team looked at that aspect quite yet about power uprates. I mean, on power uprates you'd have to make the cases as an applicant that your envelopes for performance and safety margins and defense-in-depth -- those all have to be preserved.

Is there a nexus between the target areas that they're looking at that could provide relief? I would say -- and I should clarify when I say there's a nexus. There are mentions in the report about, for example, the increased enrichment rulemaking effort, but what the group said is that is an ongoing effort. And rather than this smaller group focus on that, which would add more resources -- those resources are already being applied.

So for example, if we're looking at the treatment of large break LOCA -- that was one of the topical areas they looked at and they said the motion -- the wheels are in process of looking at that already in the reg basis for the rulemaking as well as the rulemaking guidance and the Regulatory Guides that are being written. Therefore, they did not recommend that we apply effort in that area.

So they did do a systematic look at the things that are being actively worked on, but that one in particular they said, look, there's already an infrastructure in place to look at it and proposals that are being developed and therefore we don't think we need to go spend the resources on that.

And so they were using a very resourced and focused effort to say are we duplicating? Is this helpful or not? What areas are not being focused on as much? Maybe the single-failure-to-act criteria could be an areas

where -- with the level of effort not being as significant and duplicative. So it's baked into what they looked at, but they didn't go and say we're going to do a de novo review of that area.

CHAIR HANSON: Okay. This is kind of the first time I've been learning about this. I'm really keenly interested in that. And if you think about -- again, this is at a very, very high level for me, but if you're thinking about increased enrichment, higher burnup, the idea of bundling that with power uprate applications, right, that's part of the LAR bundling that we've been talking about, right, because the analysis is so similar.

Well, what is that analysis? Obviously it's a lot of the defense-in-depth and other kinds of safety systems that come into play, but it's also that reactor analysis itself. And so if we're modernizing that, how do these things ultimately -- I would hope at least from my reasonably high level that at some point they'll kind of come together. And just maybe we can continue to hear more about that going forward.

MR. FRANOVICH: There's connectivity. It's actually interesting. It's the same community of people working on it, which is a real advantage. The other thing I want to just clarify in power uprates, not all applicants that we've had pre-application discussions with will be depending on high burnup or increased enrichment.

CHAIR HANSON: Well, I understand.

MR. FRANOVICH: There are some that said, hey look, I don't need that for my facility and what I intend to do.

CHAIR HANSON: Okay. I want to tee off that. I'm going to

try to come back to Jamie. I noticed for the reactors that want to pursue both the increased enrichment and increased burnup that potentially there's some efficiencies to achieve by bundling those with your extended power uprate applications. But what about the folks who are -- maybe there's a mismatch in terms of the timing or availability of higher enriched fuel to be able to put into the reactor?

If they want to do an extended power uprate now, they're going to do that reactor systems analysis now, can that analysis then be leveraged down the road, I mean, as part of the efficiency effort. We're talking about bundling, right, so there's some overlap in the amount of analysis, but if the timing doesn't work for some applicants, do they have to kind of start over if they come for enriched burnup -- increased enrichment or can they leverage what had probably reasonably recently already been done?

MS. PELTON: So in general we're extremely focused on where we can be as efficient as possible in these reviews. Key to that is ample preapplication engagement. So we understand exactly what each applicant, what each utility is looking for in a power uprate. So were an applicant or a utility to request something like that, that upfront engagement would be very important to ensure that we were all on the same page so we could have the most efficient review possible.

CHAIR HANSON: I see. Okay.

MS. GAVRILAS: I'm going to help out a little bit in this area, if I may. So there are certain aspects that are unique to each type of fuel, let alone to fuel that has different enrichment.

CHAIR HANSON: Right.

MS. GAVRILAS: But the staff is able to isolate those aspects and only do the analysis that need to be done given the changing conditions.

CHAIR HANSON: Okay. Thanks. Lauren, if I could turn to you, if I remember some of the information that's come to the Commission, Dresden and Clinton are the most recent SLR applications we've gotten.

MS. GIBSON: Yes.

CHAIR HANSON: And obviously the Commission directed staff to target 14,000 hours, right? Fourteen is the ceiling, not the floor.

MS. GIBSON: Yes.

CHAIR HANSON: And so what is the schedule then for Clinton and Dresden?

MS. GIBSON: Clinton --

CHAIR HANSON: The resource estimate. Excuse me. Are they meeting --

MS. GIBSON: Dresden is 14,000 hours.

CHAIR HANSON: Yes.

MS. GIBSON: I believe Clinton is, too, but I would have to go back.

CHAIR HANSON: Okay. All right. Yes.

MS. GIBSON: Yes, as soon as that SRM came out, we made it work so that could be --

CHAIR HANSON: Okay. All right. Good. Without sacrificing safety obviously.

MS. GIBSON: Obviously.

CHAIR HANSON: And then what are we doing -- we have a number of these things in process at various stages of review. Can you talk a little bit about how the Commission's direction is being applied to the things -- you referenced it obliquely, but could you get into a couple of details about how the Commission's direction is being applied to the things that are maybe six months or a year or something into the SLR review?

MS. GIBSON: Yes, we are looking at schedules. And when we're able to tighten them up, we are tightening then up. We are using the project management processes that we've developed on those ones. For example, combining all the audit reports. Some of those administrative burdens that we've identified we're able to apply across the board as they go.

CHAIR HANSON: Okay. Yes, we encourage staff to continue to do that.

MS. GIBSON: Yes.

CHAIR HANSON: And, Mirela, you're going to reference a slide that I'm actually going to turn to next, I think, maybe on slide 15, that's important. I don't know if you want to jump in here.

MS. GAVRILAS: So I just wanted to say that I'm excited about what appears on slide 15 because it actually has factors that are rather specific that will be considered in determining what kind of approach, and then it also specifies what approach is going to be taken for things that are considered high, medium, and low significance. So I'm looking forward to seeing what's going to happen, but that's being piloted now. That's being

applied now. So we don't have information.

CHAIR HANSON: So I think it's great that we were talking about high, medium, and low safety significance in this, but can I just run something by you? I mean, just because something is of high safety significance doesn't mean that we don't have a lot of experience or a lot of knowledge in house or whatever, right? I mean, at some point the relationship between safety significance and review focus or review resources is not linear, right? Because we have a tremendous amount of experience, we have a lot of knowledge, we have a lot of data. Is that fair?

MS. GAVRILAS: Absolutely.

CHAIR HANSON: Okay.

MS. GAVRILAS: And we believe that the staff's approach actually credits the maturity of programs in actually determining the level of review and what's going to be reviewed.

CHAIR HANSON: Yes, I would certainly expect it to.

MS. GAVRILAS: Yes.

CHAIR HANSON: Right.

MS. GIBSON: And so risk significance is one of many factors that is considered.

CHAIR HANSON: Okay. Very good. Man, I got a whole minute left.

Okay. So, Jamie, on slide 12 -- so I think it's great that the staff has kind of moved away from this blanket 12-month standard thing for approvals, right, and actually said, no, we're going to look at this thing and

we're going to come up with something that we think is realistic.

The next question, which I don't think is on this slide, then is, okay, I set six months for this; I set nine months for that; how close did I come? What's the actual cost in schedule performance, right, getting into those project management principles we were talking about. I think Meena talked about those a little bit, right?

So how are we -- it's not in this slide, I don't think. So how are we doing?

MS. PELTON: So we've met the metric for FY '24. So the metric is again between 75 and 115 percent of the schedule accuracy, and over 80 percent of your actions were within that range. So we met the metric and we were actually 92 or 93 percent accurate with our schedules.

CHAIR HANSON: Okay. I think as data display that would have been here. I think that could have been a pretty great message.

MS. PELTON: Thank you.

CHAIR HANSON: All right. Thank you.

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

Commissioner Wright, you still out there?

COMMISSIONER WRIGHT: I am still here.

CHAIR HANSON: Fantastic.

COMMISSIONER WRIGHT: Yes. Thank you for the presentations today. I know it takes a lot of work to put these meetings together. And it takes a lot of people to help back you up, so thank you to your teams for preparing you.

I want to pick up on the last thing, Chair, just to follow back up. That last slide that was shown, you're talking generally into percentages of actions. Are there numbers that back that up as far as like how many actions? You, now, 61 percent of 5 isn't a lot, but 61 percent of 100 is a whole other number, right? So do you have those numbers, too?

MS. PELTON: Yes, I don't have the exact number in front of me, but the number is on the order of hundreds versus single digits. So it was a substantial change.

COMMISSIONER WRIGHT: And that's what I was trying to understand, that part. And we may reach out for that.

Mike, I'm going to come to you right now. You spoke about operating reactors are leveraging data and identifying opportunities to improve the reviews. Can you tell me a little bit more about how the efforts are going? What kind of improvements are we seeing?

MR. FRANOVICH: Well, I'll give you more of a personal perspective. I would say when we use the data -- and we're talking about -- make sure I have an understanding of your question -- the operating data in terms of the performance of the staff in terms of hours spent on the review of each project. What I see is not only do we have our periodic workload management meetings, but we have -- also individual project managers meet to monitor their projects. So we have instances where we have seen project managers say look, you know, the burn rate on this project is starting to be very high.

And we want to intervene because we do have checkpoints

that says if you're deviating by a certain forecast and going above a certain amount of hours, you need management approval to do that. We should not be proceeding down a track that says at the end we're way off of our estimate and we didn't -- we missed our opportunity to intervene.

Some of that intervention may be, hey, wait a minute, there are challenges there with the applicant and we need to have a public meeting on this. Maybe our RAIs aren't clear, or they are clear, but there are challenges in ability for the applicant to actually respond for numerous reasons. Organizations have a number of reasons.

So I see it being used in a live sense. it still requires a lot of diligence and oversight to make sure it's happening, not just at the individual PM level, but also through the management reviews and the monthly workload management forums that we use.

COMMISSIONER WRIGHT: Okay.

MR. FRANOVICH: I don't think that's --

COMMISSIONER WRIGHT: Thank you.

(Simultaneous speaking.)

COMMISSIONER WRIGHT: Yes, I think, I mean, it could be anything. I think it's all of the above, the things that you're talking about. I mean, we're looking -- if we're leveraging data somewhere and we're identifying opportunities, that could be about anywhere. So I thank you for your answer.

I'm going to switch to the Reactor Accident Analysis Modernization Project you spoke about a little bit. And it's a pretty -- I don't know that I heard it. If I did, I'm sorry. If you mentioned it and I missed it, I'm

sorry, but when will these improvements to the reactor analysis methods -- when will they be in place? And I guess what is the proposed timeline for implementation?

MR. FRANOVICH: Great question. So, right now, we're at a decision-making point where the working group has briefed the NRR executive team. And we have to come to decision points of the four items they distill down. Which ones do we want to give higher priority and set the team in motion to develop an implementation plan?

There are some items that we think could be done in a shorter term, within a span -- within less than a year and others that may take longer. Because the thing we have to offset is where are those resources coming from that are currently dedicated, the experts, to doing active reviews? And so that's the part we haven't worked on yet. That's still to come.

COMMISSIONER WRIGHT: Okay. Do you have an idea of the timeline? Maybe can you give me a target?

MR. FRANOVICH: Well, I think if we look at the single active failure criteria -- and that's -- I mean, I don't want to overstate because I have to work with my colleagues -- I think that some draft form of guidance could be done within the next year.

COMMISSIONER WRIGHT: Okay. Thank you.

Jamie, thank you for your presentation. I know Palisades is a very interesting and a hot topic. We've gotten a lot of good feedback. And I've heard feedback from external stakeholders in this area as well. How is this project -- if at all, how is it I guess affected by the ADVANCE Act? And if it is,

how is the Core Team approaching it?

MS. PELTON: So, fundamentally, my view of the ADVANCE Act is ensuring that we conduct our activities as efficiently as possible with safety at the forefront, and with the communication that we've had across organizations, with Palisades, we all have that same focus.

So, for example, in the safety review, one of the things that we thought about early on is the plant was operating safely two years ago, and in a licensing basis, that was safe and demonstrated to be safe two years ago. So, we are focusing the review on those things that are different.

And so, if changes are proposed, if things have changed over the last two and a half years since the plant shut down, those are the areas where we are focusing our review. So, that's from the licensing perspective.

From an inspection perspective, the Region III team is focusing on those areas that are most risk significant, and those fundamentals are outlined in the manual chapter. So, all of those things put safety at the forefront with an eye towards efficiency in accordance with the ADVANCE Act.

COMMISSIONER WRIGHT: Right, okay. I got one general question here. Your metrics, you said you hit 92 percent, 95 percent, somewhere like that. Is that correct?

MS. PELTON: Yes, for schedule accuracy, yes.

COMMISSIONER WRIGHT: Okay.

MS. PELTON: For FY24, thank you.

COMMISSIONER WRIGHT: Right, so, and I think it's a good number, right? You all should be pleased and happy with that, but when you

get to like a 92, 95, 97, you know, percent hit, do you think that maybe it might be time to take a look at the metric? Are you measuring the right stuff? Is there something you can -- I mean, you know what I'm saying?

MS. PELTON: Yeah, so actually let me correct one thing I said. So, 80 percent of our actions fell within that window, and I don't want to get too much into the exact numbers because I don't have them right in front of me, but fundamentally, your point is that we need to set stretch goals, and that is one thing that our team in DORL, that we work with EMBARK and across the offices. We're continually evaluating our data and seeing where can we stretch ourselves?

So, what I'm so proud of the team for is in that change of metric, it has shown positive progress in just one year of implementation, so that shows that setting stretch goals works, and we're continually evaluating. And as part of the ADVANCE Act Section 505 team, we are looking at where can we stretch ourselves? So.

COMMISSIONER WRIGHT: Well, that's encouraging.

MS. GAVRILAS: If I may just chime in?

COMMISSIONER WRIGHT: Sure.

MS. GAVRILAS: Those generic milestones that we had, we inherited them from the time when we didn't have computers and we didn't have the ability to track not just resources, but milestone-related resources for absolutely every action.

So, now we have those and we plan on leveraging those to adjust generic milestones should that become necessary, and to also -- but

most to personalize the milestones according to each project that's in front of us.

So, rather than saying I'll need 12 months for this project, if we need eight months, just say eight months, and track resources and timelines towards the completion of that individual project. Thank you.

COMMISSIONER WRIGHT: Thank you, Mirela.

MR. FRANOVICH: If I may add, I think the strength of that system is -- you know, there's a tendency to overestimate. It happens in numerous areas, budgeting. It's the inherent nature of the engineers to be conservative, but that's not good if you're trying to optimize the performance of an organization.

You need to be -- you know, you don't want to be delayed, but if you're overestimating the amount of resources -- so this new system allows us to challenge that piece. So, you achieved it in half the time than you forecasted. That's great. On the other hand, your estimation wasn't very good, so you have to roll that back into the next project.

COMMISSIONER WRIGHT: Exactly. I mean, that's kind of the point, right? You want to keep, you always want to keep refreshing, right, when you can and where you can. I appreciate it. That's good information. And Chair, I'm out of time, so I'll pass it off.

CHAIR HANSON: Okay, thank you, Commissioner Wright. Commissioner Caputo?

COMMISSIONER CAPUTO: Good morning. Thank you all for your presentations. It's good to hear about a reinvigorated focus on

efficiency, particularly in the wake of the ADVANCE Act. I want to align myself with the Chairman's remarks about there seems to be a lot of forward momentum mentioned here and a focus on efficiency.

I'm glad to hear about the Reactor Accident Analysis Modernization project. It's gotten a fair amount of attention this morning. I hope it's building on the lessons of SOARCA in moving that area forward.

As an agency, we aspire to be a modern, risk-informed regulator, and this is reflected in our efficiency principle which states "Regulatory activities should be consistent with the degree of risk reduction achieved," so the staff has discussed several stellar examples of that this morning.

We also espouse data driven decision making, which the staff has also described repeatedly this morning, consistent with our reliability principle which states "Once established, regulations should be perceived to be reliable and not unjustifiably in a state of transition."

Probabilistic risk assessment or PRA is a valuable tool to inform our regulatory activities. As noted in the Commission's PRA policy statement, it should be used in regulatory matters, where practical, to reduce unnecessary conservatisms and to support the proposal of additional regulatory requirements in accordance with the backfit rule.

Unfortunately, we have situations where the staff is elevating PRA beyond its use as a tool to the level of a regulatory requirement, creating a compliance regime in and of itself. Part 52 requires that a PRA must be upgraded every four years regardless of whether any new standards are issued

during that time.

This goes well beyond the PRA configuration control that Ms. Khanna mentioned and creates work for both the NRC and the licensee PRA experts without a clearly defined safety benefit. In fact, a review of the Part 52 rulemaking preamble shows an indication of a view of PRA as an end to itself rather than a tool to reduce unnecessary conservatisms.

The preamble highlights the thinking at the time that the agency expected everyone to continually upgrade PRA codes and standards to improve their quality and comprehensiveness, but without any mention of safety benefit.

The Part 50-52 alignment proposal pending before the Commission includes an expansion of this requirement into Part 50, once again, ironically, without a clear analysis demonstrating the safety benefit of doing so and contrary to the backfit rule.

This will likely impose significant regulatory burden since approvals and modifications can incur significant debate over the model itself, the assumptions made, the treatment of uncertainties, and what constitutes compliance. As an example, look no further than the significance determination process within the ROP itself.

Adding this requirement to Part 50 becomes a backfit on existing licensees which has not been analyzed. With regard to new reactors, companies developing license applications under Part 50 would be confronted with a rule that is unjustifiably in a state of transition by adding requirements that lack a corresponding safety benefit.

PRA requirement can be a hurdle for some novel technologies that lack an operating history substantial enough to support a PRA. The ACRS is on record noting that an alternative evaluation of risk insights proposed in a Part 53 rulemaking should be expanded to Parts 50 and 52. In the case of microreactors, the ADVANCE Act instructs the agency to do just that.

More isn't always better. Sometimes it's just more. PRA is a valuable tool, but any effort to expand it beyond that should be based on a data-driven decision demonstrating substantial safety benefits that are cost justified in accordance with the backfit rule. Otherwise, the agency undermines its efficiency and regulatory reliability, contrary to congressional direction in the ADVANCE Act.

I believe it is time for the staff to take a hard look at what constitutes an appropriate role of PRA in general. At a minimum, there should be a thorough backfit analysis of costs and benefits before expanding PRA requirements or endorsing new PRA standards. Mike, can you tell me whether or how the staff considers those costs and benefits?

MR. FRANOVICH: May I ask a little clarification because there's a little bit I have to unpack? In the context of the 50-52 rulemaking itself? Okay.

COMMISSIONER CAPUTO: In the context of PRA requirements as a compliance mechanism, as a compliance requirement.

MR. FRANOVICH: Yeah, in the current operating fleet, as you know, without the 50-52 rulemaking, unless you voluntarily sign up for

50.69, there really is no mandate for PRA specifically in the regulations. That's known.

COMMISSIONER CAPUTO: Yet.

MR. FRANOVICH: And yet we've shown that we can effectively implement a number of risk-informed regulations without having the PRA requirement.

COMMISSIONER CAPUTO: Yes.

MR. FRANOVICH: So, the maintenance rule is an excellent example.

COMMISSIONER CAPUTO: Yes.

MR. FRANOVICH: It does not say you have to have a PRA. In practice, they're there and they're used, and so --

COMMISSIONER CAPUTO: As a tool.

MR. FRANOVICH: -- we have shown -- yes, and a vital tool for the daily operation for maintenance taking equipment out of service. In terms of the licensing of new reactors, I can't tell you and I haven't studied the construct of the 50-52 rulemaking package that went up in terms of is that specifically analyzed as a deaggregated item in the rulemaking. That's something I personally would have to go back and look at.

In terms of the maintenance and periodicity of PRAs and things like that, I think we do have an opportunity here, through the current inspection activities going on that Meena mentioned, to say hey, look, if we've been prescriptive to say how often you need to maintain and update your PRA, or upgrade it --

Because there's a standard there. If you upgrade, it triggers more review by industry peer review. Have we really gotten what we needed out of that? If things are stable and the practices are fine, then maybe we should feed that back into our process, but I would have to go back, to be honest with you, to go study that 50-52 rulemaking and understand --

COMMISSIONER CAPUTO: Thank you. Thank you. So, the Chairman and Commissioner Wright both raised Jamie's slide 15 and the metrics. I really want to commend the effort to develop what I would consider a bonafide metric, and I appreciate and recognize the intent of pursuing stretch goals.

I do want to just make a comment reflecting on Project AIM from almost ten years ago, that 85 percent of license amendment reviews require 300 hours or less. So, I would hope that that business process review forms an input to how to size goals appropriately, because I think that might drag some of those time frames down a little bit more toward efficiency.

Lauren, a quick question for you. You talked a lot about the Commission's direction and how license renewal efficiencies are being pursued. Historically, the agency executed 12 license renewal reviews at a time.

At this point, the agency has positioned itself to handle only six. Is that under reconsideration? Because we heard from former EDO Luis Reyes yesterday that the agency was anticipating and preparing for subsequent license renewals as far back as 2008.

So, this is a wave of work that we have known about for a very long time and prepared for, for a very long time, and it seems to be quite a

question for me that, given the technology in place now compared to our knowledge, experience, and tools from 20 years ago, that we would have a hard time achieving a similar rate of review.

MS. GIBSON: We are addressing that issue. We are trying to come up with ways to be able to work on more reviews at the same time, especially since it does not appear that industry will be able to stagger their applications to the extent that would have been necessary to meet that. So, I don't have an answer for you today about exactly how, but I can tell you that that is on our mind and we're trying to tackle it.

COMMISSIONER CAPUTO: I think one of the things that I have a concern about is just the nature of the fact that this is a workload wave that we've known is coming. There is workload out there that we didn't necessarily foresee, like power uprates, and plus increasing expectations on new reactor work.

So, to the extent that there is room to improve the nature of how we manage that workload that we know about, I think it behooves the agency to position itself as well as possible given the nature of the fact that our workload going forward may have a measure of unpredictability to it that we've not seen before.

MR. FRANOVICH: Commissioner, if I may add, I think the other thing we need to overlay is, so we're forecasting efficiencies. While workload anticipated is coming in, the offset is if we achieve these efficiencies, what does that picture look like?

COMMISSIONER CAPUTO: Exactly, thank you.

CHAIR HANSON: Thank you, Commissioner Caputo.

All right, we've reached the end of our first panel. Thanks to all of our presenters this morning. We're going to take a short break. Why don't we reconvene a little after 10:25, some place in there? And thanks, everybody, again.

(Whereupon, the above-entitled matter went off the record at 10:17 a.m. and resumed at 10:30 a.m.)

CHAIR HANSON: Okay, we're back. We're going to have the second panel for the New Reactor Business Line. And with that, I'll hand it over to you, Mirela. Thank you.

MS. GAVRILAS: Good morning, and again, I'm going to ask all of the speakers to introduce themselves, and we're going to dive right in because we have a lot to discuss. Thank you.

MR. BOWMAN: Thank you, Mirela. My name is Greg Bowman. I'm a Deputy Office Director for New Reactors at NRR. Good morning, Chair Hanson and Commissioners. I'm very happy to be here this morning to talk about our performance in the New Reactor Business Line. Our speakers this morning will cover several important business line activities, focus areas, and accomplishments, with an emphasis on our progress towards addressing our strategic priorities. Next slide, please.

So, as you'll hear in our presentation, the new reactor business line has successfully completed a significant number of activities. Our success to date has been driven by proactive and deliberate foundation building to ensure we're ready to license new reactors.

To highlight some of the key accomplishments for the business line over the last several years, we continued to work with our federal partners, such as DOE and DHS, to complete ten MOUs focused on advanced reactor collaboration. We worked with our international counterparts and issued eight joint reports with Canada on small modular reactor technology.

The staff addressed more than 35 policy issues and developed more than 60 guidance documents to provide clarity for the industry with their applications. We engaged with more than 20 vendors in pre-application activities, and new policy issues identified through those engagements are being considered by the Commission or assessed by the staff. We held more than 140 public engagements each year on advanced reactor topics, including workshops. We reviewed more than 90 topical reports and white papers, and those reviews were completed, on average, more than 30 percent faster than the generic schedule.

And we also issued the Kairos Hermes 1 and Abilene Christian University construction permits, and completed the associated safety reviews faster than the generic schedule and with fewer resources than estimated.

Now, none of those accomplishments would have been realized without outstanding collaboration between NRR, Research, NMSS, NSIR, OPA, OGC, and all our other partners. Continued collaboration will be critical for our future success.

For example, we're working with Research to complete advanced reactor reference plant models, enabling us to leverage enhanced

analytical tools and computer codes to conduct efficient, independent assessments for a variety of advanced reactors. We're also working closely with NSIR on new approaches being considered by applicants for physical security, cyber security, and emergency preparedness.

And finally, since the summer of 2023, through coordination with OPA, OCIO, and OEDO, we've established a communication strategy to advertise that the NRC is advanced reactor ready. We continue to use this strategy to highlight the work we've done and set the stage for a lot of opportunities for future accomplishments. Next slide, please.

So, similar to what you heard from Mike in the previous panel, on this slide, we've highlighted our top three priorities for the safe and secure execution and the new reactor business line. We're addressing those priorities by improving the use of data and risk insights to enhance our decision making by focusing on hiring, developing, and retaining our workforce, and by continuing to optimize our processes.

The new reactor business line was successful in 2024 and we're ready for the future. However, we're certainly not declaring victory. We understand we need to build on what we achieved and further incorporate efficiencies into how we work.

So, key focus areas for us going forward include using the lessons we've learned over the last year where we completed a number of first-of-a-kind reviews to improve our performance on future reviews, using the Be riskSMART framework to establish a graded approach for our reviews where we're focusing on key safety and risk significant areas, and plan project

management tools and data analytics in an innovative manner to obtain real-time information to support resource management and timely resolution of project challenges, transforming how we communicate with both internal and external stakeholders to ensure that all stakeholders are getting the information they need in a form that's useful to them, continuing to support pre-application engagements, which have been critical to both enabling high-quality applications and supporting early identification of new technical and regulatory issues so they can be addressed proactively, continuing with implementation of core and integrated review teams, and finally, adapting, assessing, and quickly adjusting to fact-of-life changes to we can allocate resources where needed. Next slide, please.

So, as we all know, the ADVANCE Act that was passed earlier this year requires us to take a number of actions, including several associated with new reactor licensing, while maintaining our core mission of protecting public health and safety. The Act sends a strong message of bipartisan support for new and advanced reactor deployment in the U.S., and it acknowledges the important role of the NRC in that deployment to enable us to meet existing and future energy demands in this country.

So, this slide shows some of the key provisions of the ADVANCE Act that are directly relevant to the new reactor business line. We're in the early stages of implementing many of the provisions of the Act, but we're already seeing tangible results.

For example, the working group for Section 206 of the ADVANCE Act which deals with brownfield site licensing has identified potential

modifications to our regulatory approaches to streamline licensing reviews at those sites, including for environmental reviews.

We've initiated an engagement with DOE to establish an MOU associated with advanced nuclear fuels. The MOU will augment existing MOUs and streamline processes for interagency collaboration. A draft of the MOU is currently under DOE review.

And we've been working with OCFO to develop the necessary accounting structure to ensure timely and effective implementation of Section 201 of the Act, which established reduced hourly rates for advanced reactor applicants and pre-applicants beginning in fiscal year 2026.

Of course, we're also continuing to see progress on activities that were underway before the ADVANCE Act, but that directly support its objectives. For example, we made progress on key rulemaking activities for advanced reactors, including Part 53, and rules on EP and physical security. We've made progress in developing a graded and risk-informed approach for advanced reactor construction oversight. We've developed and issued guidance for contents of applications for advanced reactors, and we've established challenging metrics and milestones to support timely reviews and better enable us to hold ourselves accountable for carrying out our mission efficiently.

Engagement with our external stakeholders, including industry and our federal partners, is also critical to successful implementation of the Act. We've already benefitted from extensive feedback related to advanced reactors, and we expect that to continue into the future.

So, while effective implementation of all of the new requirements in the ADVANCE Act will necessitate a lot of hard work and outside the box thinking, I'm confident that the investment we make today will ultimately enable the business line and the agency to significantly improve how we achieve our mission into the future. Now I'll turn the presentation over to Jeremy to provide additional information on activities related to advanced reactors.

MR. BOWEN: Thanks, Greg. Good morning, Chair Hanson and Commissioners. My name is Jeremy Bowen. I'm the Director of the Division of Advanced Reactors and Non-power Production and Utilization Facilities. We need a shorter name.

As Greg shared, the new and advanced reactor programs have had many notable successes over the past year thanks to the cooperative and innovative thinking across the agency. We recognize there are still challenges to address, but recent achievements further reinforce the agency's readiness and capability to license advance reactors in a timely and predictable manner. Next slide, please.

This slide highlights some of the key milestones of our regulatory framework development in the past year. First, the staff revised the draft Part 53 rule, consistent with Commission direction, and it was issued for public comment on October 31.

Since its inception, the rule has benefitted from stakeholder feedback, and the staff looks forward to this latest round of engagement and applying lessons learned from prior interactions to maximize the benefit and

deliver a draft final rule to the Commission.

The staff also published a proposed rule that would streamline reviews by codifying the new reactor generic environmental impact statement, and the NRC amended its regulations to include alternative emergency preparedness requirements for new technologies, acknowledging advancements inherent in new reactor designs.

The staff also issued multiple guidance documents to support applicants and provide further clarity on the regulatory process. Highlights include nine documents related to the advanced reactor content of application project, which builds on the licensing modernization project.

Guidance was also issued on site suitability to provide alternative approaches and modifications for advanced reactors, and multiple documents were developed discussing the inherent safety of microreactors and how the regulatory framework could support plant licensing and deployment models.

Finally, we continue our collaboration with the international community. We expanded our memorandum of cooperation with the Canadian Nuclear Safety Commission to include the United Kingdom's Office of Nuclear Regulation. A noteworthy success was the exchange of information on novel topics related to the BWRX-300 small modular reactor.

These interactions directly supported CNSC's evaluation of an application to construct at the Darlington site in Canada. Additional work products have been identified and interactions are already underway. Next slide, please.

Moving from framework development to licensing, the NRC staff has completed several first-of-a-kin reviews this past year. These were all completed ahead of schedule and used fewer resources than anticipated without compromising our safety, security, or environmental assessments.

We were able to achieve these accomplishments by applying enhanced licensing practices such as the use of core teams, extensive use of audits, streamlined documentation of staff findings, and the use of data to drive our decision making.

With the issuance of the construction permit for the Kairos Hermes 1 test reactor in December 2023, we established a new benchmark for how much time and resources should be assumed for the review of an advanced reactor application.

The staff's safety review was completed in 18 months, ahead of schedule and below the initial resource estimate. This was the first non-light water reactor approved for construction since 1973.

Leveraging information and experience from the Hermes 1 review, the NRC staff followed up by completing the safety evaluation for the Hermes 2 construction permit in just ten months. The Hermes reviews provided numerous learning opportunities, including various process improvements that the staff plans to leverage for subsequent or nth-of-a-kind reviews.

Two months ago, the agency issued the construction permit for the Abilene Christian University Molten Salt Research Reactor. This review was completed in 21 months and was also below the initial resource estimate. ACU was noteworthy not only because it was the first research reactor

construction permit issued in over 40 years, but because there was a change in the design in the middle of the NRC's review.

This experience highlighted the staff's ability to leverage our enhanced processes and adapt quickly to new information. We continued to ensure safety with a minimal impact on the review schedule, and we were able to make our regulatory findings well ahead of the applicant's needed date.

Although not licensed by the NRC, the staff employed the concepts for advanced reactor reviews in its evaluation of the Navy's Columbia Class Submarine Propulsion Plant. The review demonstrated that the value of the core team approach and the staff's ability to assess technical information with a risk-informed and safety-focused mindset. The review was completed in ten months, ahead of schedule and under budget.

The final lesson I'd like to highlight from these experiences is the tremendous value of a quality application and productive interaction with the NRC. In each case, the staff was able to establish and execute a timely schedule because of robust pre-application engagement and very productive interaction by the applicants when outlining the bases for their safety, security, and environmental conclusions. Next slide, please.

The staff remains diligent in capturing effective licensing practices and making appropriate adjustments with each subsequent project. Building on the successes and experience I just discussed, the staff has the data and the motivation to continue establishing schedules and resource estimates that are more aggressive, but do not negatively impact the quality of our reviews.

Two new reactor applications are currently under review. The US, pardon me, the NuScale US460 standard design approval was set for 24 months, which is ahead of the 42-month generic milestone. This schedule was established by leveraging similarities to the previously approved US600 design and pre-application engagement by NuScale.

Over half of the chapters for the staff's safety evaluation are complete and the rest are on track to be issued to support issuance on schedule. The staff is also working with the Advisory Committee on Reactor Safeguards to maximize efficiencies in the schedule. Similar coordination was instrumental in the success of the Hermes reviews.

A 27-month review schedule was established for the Kemmerer Unit 1 construction permit and Terra Power's natrium reactor design. This schedule is ahead of the 36-month generic milestone, leverages execution from past reviews, and supports TerraPower's overall plans. The schedule was also enabled by pre-application engagement and the completeness and the quality of the application.

Less than six months into the review, several chapters of the staff's safety evaluation are already drafted, and the core team continues to interact with the applicant to expeditiously identify, assess, and resolve questions about safety, security, and environmental impacts.

To elaborate on the point about pre-application engagement, effective use of these interactions has been one of the most impactful factors in our reviews. Pre-application benefits include early understanding of new and novel technologies, reducing regulatory uncertainty, and identifying mitigation

strategies for items that may introduce potential delays in the licensing process.

More than 20 advanced reactor vendors are currently interacting with the NRC in some capacity. Early engagement will become even more critical to supporting further streamlined reviews and to achieving the desired predictability and stability to support the anticipated demand. Next slide, please.

This is an exciting time. Industry has increasingly indicated that rapid large-scale deployment of advanced reactors is likely. We recognize that the NRC will need to continue to evolve and expand our current capabilities.

To ensure success, we are focused on five key areas. The first is staff capacity. We're dedicated to retaining our exceptionally qualified staff. We're aggressively recruiting, hiring, and training additional talent, leveraging the flexibilities afforded by the ADVANCE Act, and we're establishing contract support in critical areas. Engagement with potential applicants helps us refine each of these needs and identify where we should place additional emphasis.

For example, we recently initiated an effort to help with knowledge management. Staff from across the agency who are new to advanced reactor projects are provided with opportunities to shadow other experienced staff so that they are prepared to take on larger roles in future projects.

Next, we must continue to establish the appropriate regulatory landscape. As previously mentioned, one area that is prime for modernization

is microreactors. We've been actively engaged with developers and end users for several years, and have made substantial progress towards providing further clarity in this area. The staff is currently finalizing a notation vote paper to provide the Commission with options for enhancements to the regulatory framework for microreactors.

We're also focused on effective implementation of our licensing processes. In addition to the activities outlined in my prior slides, we are leveraging cross-organizational groups to share best practices and lessons learned across all business lines and licensing organizations, and we are identifying practical methods to further streamline our reviews. Examples include our review of brownfield sites and the NEPA process, which Michelle Rome will expand on shortly.

Regarding communication, we routinely interact with stakeholders to maintain awareness of planned submittals, understand business models, and assess information needs. These interactions not only help with our budget process, but they allow us to identify potential challenges with planned licensing actions early enough to address them in a timely manner. We're also enhancing our external communication platforms to provide clear and accessible information to all of our stakeholders.

Finally, continual learning and refinement of all aspects of our work remains essential, and we welcome all opportunities to continue our evolution. This concludes my remarks and I'll now turn it over to Michelle. Thank you.

MS. ROME: Thanks, Jeremy. Good morning, Chair and

Commissioners. My name is Michelle Rome and I'm one of the Branch Chiefs in the Environmental Center of Expertise. In the past year, we have received an historic level of applications for new and operating reactors, and the case work is expected to increase.

Today, I plan to discuss the fundamental changes and efficiency tools we are implementing to tackle this volume of work while improving environmental review quality, cost, timeliness, and predictability, and meaningfully engaging with tribes and stakeholders. Next slide, please.

This past month, we celebrated the fifth anniversary of the Environmental Center of Expertise, and one year ago, we realigned into five fully integrated branches with matrix staffing. This new structure allows for efficient sharing of lessons learned across business lines and more agile staffing to support workload surges.

Another fundamental change is meeting time and page limits. This was required based on the 2023 NEPA amendments, and in May of 2024, staff submitted a notation vote paper which included six recommendations to further transform and streamline environmental reviews, such as allowing applicants to prepare draft environmental assessments and environmental impact statements.

One of the most significant changes that can fundamentally streamline environmental reviews is to prepare environmental assessments rather than environmental impact statements for actions without reasonably foreseeable significant impacts.

For example, at the Hermes test reactor site, staff issued an

exemption to prepare an environmental assessment for the Hermes 2 application, and then relied upon and referenced analyses in the Hermes 1 environmental impact statement. As a result, the environmental assessment was 60 percent shorter, used 40 percent less resources, and was prepared in nearly half the time.

Based on the results of the Hermes 2 environmental assessment, staff are implementing a risk-informed decision making framework to efficiently and consistently determine the appropriate level of documentation for all reviews. This framework takes into account a technical analysis, risks, and whether an exemption or communication to the Commission would be warranted.

We are also updating our resource goals and models. For license renewal, we've developed a 5,500-hour and 18-month model per review, which will meet and exceed historic resource goals. This model was based on Commission direction in combination with our efficiency tools and approaches. We are also actively planning how to further reduce these levels. Next slide, please.

We've been able to conduct high-quality reviews using less resources by applying the right set of tools for which some are listed on this slide. For license renewal, for example, we were able to set the 5,500 model based on rulemakings, process improvements, and new staffing approaches. In terms of rulemakings, the publication of the final generic environmental impact statement allows staff to generically disposition 74 percent of the environmental issues.

For process improvements, we are applying novel approaches to scope and risk inform technical reviews. For example, under the Endangered Species Act, we are piloting a new approach where licensees can serve as non-federal representatives.

Under this process, the licensee develops required analyses and works directly with the National Marine Fisheries Service and the Fish and Wildlife Service to answer requests for information while saving NRC staff time for the most complex aspects of the consultation such as developing mitigation measures to protect endangered species. This approach is expected to reduce NRC staff hours by 50 to 80 percent, and can be applied to both new and operating reactors.

The last toolbox is for staffing approaches. Matrix staffing under our realignment means that staff who worked on the Hermes 2 environmental assessment are now involved in streamlining license renewals in the Palisades restart environmental assessment.

In addition to increasing our capabilities, we are increasing our capacity through historic levels of hiring. Within the past two years, we've hired 20 people, an incredible growth of 35 percent, and once the most recent hires are onboarded, we will be at fully funded levels of staffing. Next slide, please.

Staff have applied a risk-informed approach to streamline consultations while strengthening tribal engagement and prioritizing aspects of the consultation that benefit tribes. We are optimizing internal procedures for consultations under the National Historic Preservation Act, and are continuing

meaningful outreach to tribes.

Over the past year, we've consulted with over 200 tribes, sent out over 480 letters, and led 27 tribal meetings. We are creating trust relationships by meeting with tribal elders, attending tribal conferences, and participating in tribal ceremonies, which builds off of the important efforts of the tribal relations team and our regional state liaison officers.

Our interactions have helped provide information in a more digestible manner and ensure that our environmental analyses address concerns most important to affected tribes. In addition, we've been able to facilitate site visits and ensure that licensees update procedures to protect important cultural resources and allow tribal monitors during ground disturbing activities.

Our documents are now more inclusive of tribal perspectives and help tell their histories and their stories. Taken together, these activities have resulted in stronger working relationships and earlier resolution of project concerns.

We are already seeing the return on investment as we consult with the same tribes on multiple projects. For example, on the Hermes 2 and Clinch River environmental assessments, staff built upon the relationship forged with tribes on the Hermes 1 review, and as a result, no concerns, challenges, or delays were raised during the tribal consultation. Next slide, please.

In accordance with the ADVANCE Act, staff have developed and are considering several ways in which technology can help both modernize our reviews and increase meaningful stakeholder engagement. Last week,

staff published an updated and expanded external website which for the first time provides a one-stop shop of integrated information on environmental reviews across all business lines.

This website also includes the external version of our environmental review blueprint which illustrates new and existing initiatives to strategically prepare and advance the environmental review program and include stakeholders in the process. Each year, we conduct 20 to 25 public meetings and receive approximately 3,000 comments which we respond to using aggregated technologies across multiple platforms.

To ensure we are reaching underrepresented audiences, we use a variety of outreach tools such as translating materials into multiple languages, setting up 1-800 numbers to encourage comments in any language, advertising public meetings at libraries, on local radio stations and in newspapers, meeting with community and religious leaders, talking to staff running support services, and emphasizing the importance of in-person conversations during outreach events.

Most recently, we have found that a balance of in-person and virtual meetings are allowing us to reach a broader audience, especially as advanced and new reactors continue to be proposed in more remote areas in the west and Alaska. I will now turn it over to Christian.

MR. ARAGUAS: Thank you, Michelle, and good morning, Chair and Commissioners. My name is Christian Araguas. I am the agency's new Standards Executive, as well as the Division Director for the Division of Engineering in our Office of Research. As you know, the Office of Research is

a partner office that provides valued support to all business lines in the agency.

Research staff have a wide range of technical expertise across a variety of technical disciplines to ensure the agency's readiness to tackle the most complex issues facing the operating fleet, as well as new and innovative nuclear technologies. However, the focus of my presentation is on the agency's codes and standards enhancement initiative. Next slide?

Consensus codes and standards are essential to the NRC licensing process, offering a framework that ensures regulatory stability and consistency across diverse regulatory actions. By adhering to consensus guidelines, licensees and applicants can be evaluated more effectively by the staff, especially if graded approaches are used that incorporate risk and performance-based insights.

Use of voluntary consensus codes and standards instead of government unique standards is required by the National Technology Transfer and Advancement Act of 1995. Use of consensus codes and standards is also aligned with the NRC's principles of good regulation, particularly in the area of enhanced openness, clarity, and reliability across our licensing decisions.

Application of NRC-endorsed consensus standards increase the potential for approval efficiency during first-of-a-kind licensing. Endorsement also supports the potential for large-scale, high-volume licensing by providing clear regulatory expectations and reducing uncertainty.

Participation by agency staff in codes and standards development fosters collaboration among various stakeholders, which facilities

a more efficient regulatory environment that prioritizes both safety and innovation within the nuclear sector.

The NRC maintains a robust codes and standards program that is led out of my division, but with agency-wide impact. Over 180 dedicated staff from across the agency currently participate through engaging with various standards development organizations.

These professionals externally coordinate efforts across 36 government agencies and 12 different standard organizations. As of today, NRC staff are contributing to the development of over 200 new or revised codes or standards through these organizations' activities.

This is accomplished by NRC staff's active participation on various codes and standards committees and working groups alongside participants from academia, research institutions, vendors and manufacturers, and utilities. Staff participation in this program ensures the agency remains informed on the latest technological advancements and best practices in the industry. To date, the NRC staff have issued more than 320 regulatory guides that endorse codes, consensus codes, or standards.

I'd like to highlight some recent accomplishments by the program. One example is the staff's endorsement review of the 2023 edition of ASME boiler and pressure vessel code for high-temperature reactors. Endorsement of this part of the ASME code will help provide regulatory clarity and stability for several advanced reactor developers.

By initiating preparatory research in parallel with development of associated ASME code changes and code cases a few years back, staff

completed their endorsement review in substantially reduced time. Staff estimate the research shaved approximately one and a half years off staff's review time compared to the previous endorsement.

This expedited review also benefitted by maximizing staff participation during ASME code week meetings and reprioritization of other staff work to complete the review. Another accomplishment is the issuance of several reg guides that directly support future reactor licensing.

These include several reg guides that endorse specific divisions of the ASME boiler and vessel code, a reg guide that endorses IEEE guidance on environmental qualification of fiberoptic cables for safety systems, and a reg guide that endorses industry guidance on a technology-inclusive application methodology for non-light water reactor applications. Next slide, please.

While the existing codes and standards program has served us well, we listened to stakeholder feedback that the program may not be positioned to serve us efficiently or effectively in the future.

In February 2024, staff from the NRC and the Idaho National Laboratory issued a coordination plan with the objective of sharing expertise and knowledge in codes and standards, development to identify opportunities that could focus NRC's program, and optimizing support in areas that benefit new and advanced reactors.

On April 4, 2024, the NRC and the INL cohosted a public workshop to gain insights on high priority consensus standards needed to successfully deploy new and advanced reactors, explore how to best focus

NRC's support to codes and standards organizations, and explore endorsement efficiencies for new or revised standards.

Feedback noted that today's endorsement standards are predominantly focused on large light water reactor designs and predominantly rely on deterministic approaches. Additionally, the stability benefits afforded by use of the rulemaking process may not be advantageous for advanced reactors seeking endorsement in the near term.

Finally, many of today's endorsed standards do not facilitate efficient construction or the rapid large-scale deployment envisioned by today's new reactor developers.

Staff recognized the evolving desire for endorsing more technology-inclusive codes and standards that accommodate the diverse landscape of nuclear innovations, particularly for advanced reactors. By promoting innovative solutions to endorse high-priority codes and standards, an enhanced NRC program could ensure that the regulatory frameworks remain relevant, timely, and effective.

The codes and standards program should promote the inclusion of graded approaches that utilize risk and performance-based insights, which allows for a more tailored regulatory process addressing the unique safety profiles of new technologies.

Finally, program resources should be strategically refocused by prioritizing staff support to high-priority standards' activities informed by external stakeholder feedback to ensure the program remains responsive and aligned with industry advancements and future licensing submittals. Next

slide?

Based on input from the workshop and a broad range of stakeholders, the codes and standards action plan was issued in August of this year. This plan identifies key areas for improvement, focusing on increasing timeliness and efficiency while promoting risk and performance-based insights.

It comprises 17 items categorized into three program areas. The figure on the left of the slide illustrates the makeup of the action plan components. The action plan's implementation involves a phased approach with defined time frames that include swift actions to be executed within one year, intermediate actions to be developed over two to four years, and ongoing program enhancements aimed at sustained long-term improvements.

The first enhancement area is on the standard development process improvements. These activities aim to focus NRC staff participation on high-priority standards' development activities. Enhancements in this area also include solicitation of external input to tell us which consensus standards should be considered high priority and might benefit from NRC staff engagement.

The second enhancement area focuses on NRC endorsement processes. The action plan items investigate creation of more explicit criteria for endorsements to foster greater transparency in the decision making process.

Intermediate activities include an update to Management Directive 6.5 on staff participation and use of consensus standards to identify enhancements for early deployment and flexibility in the endorsement process.

And the third enhancement area focuses on leveraging

commercial standards. This area evaluates the potential use of commercial standards that are traditionally non-nuclear standards.

As an alternative to traditional nuclear-specific standards, some new and advanced reactor designers have identified commercial standards for use based on the relative risk of their structures, systems, and components in the design, and their limited impact to the safety of plant staff and the public.

Action plan program enhancements in this area will solicit input on which standards are of greatest interest to industry, and a pilot, a test case for potential NRC endorsement with the goal of developing future guidance for use in endorsing additional commercial standards.

In closing, this action plan aims to create a more focused and efficient codes and standards program by realizing the evolving needs of the nuclear industry, while ensuring the highest safety standards. The plan was developed with awareness of external environmental drivers such as the ADVANCE Act Section 401, which discusses seeking stakeholder input from standards development organizations.

This action plan also aims to foster staff innovation, enhance regulatory effectiveness, and to continue supporting the safe licensing of nuclear technologies using risk and performance-based insights. Now I will turn the presentation to Mirela for closing remarks.

MS. GAVRILAS: Thank you, all, and we are ready for your questions.

CHAIR HANSON: Thank you. We'll begin again with

Commissioner Crowell.

COMMISSIONER CROWELL: Thank you, Mr. Chair, and thanks again to all of our panelists. It was great information. Christian, I'm going to start with you down there so that seat doesn't look neglected, but I'm not going to take the most risk-informed approach because I don't know your area as well as I know some of these other areas, so I hope I ask this question correctly.

Your approach to codes and standards, I mean, it makes sense to me, but I'm trying to think about how it applies and the relative level of importance in the context of first-of-a-kind reviews where you don't have any data, you know, no historical data from other, you know, from other operations or anything much from the applicant who is proposing the new reactor design. So, how do you incorporate codes and standards in an environment where you don't really have any run time and data?

MR. ARAGUAS: So, thanks, Commissioner, for the question. And so, I think that is one of the challenges with development of codes and standards. It is a fairly lengthy process.

I think it's aimed particularly more at creating efficiencies for nth-of-a-kind reactors, but that doesn't preclude us to learn a fair amount through engagement through the various standards organizations of what the issues are and what are the needs in a way that maybe allows us to pivot.

We don't have to necessarily wait for a code to be developed to support licensing. It could be that an applicant may elect to submit a topical for approval of a new or novel approach, and so I think to the extent that, you

know, we're participating actively in those areas of high priority, we can be informed to make sure that we're best prepared, particularly in Jeremy's area, to support timely licensing of those areas.

COMMISSIONER CROWELL: I appreciate that, and do you think that leveraging the potential opportunity to leverage commercial standards is going to be an area where we can gain, save some time, or not duplicate things or gain efficiencies?

MR. ARAGUAS: So, yeah, so I think so. Again, thanks for the question. I think there's been quite a demand signal from the industry in leveraging, you know, existing commercial standards, particularly in applying those to areas where the risk is significantly lower.

So, I think for us, there's value in looking and understanding what particular commercial standards are of interest and making sure that we're focusing on looking at how we can endorse those quickly to support their use.

COMMISSIONER CROWELL: Thank you. Michelle, thank you for your presentation. I noted that you used the phrase risk-informed approach to streamline consultations, and I like the sound of it, but how do you do that and where are the opportunities to streamline without undermining appropriate levels and scope of participation?

MS. ROME: Thank you, Commissioner. That's a great question. So, for example, for tribal consultation, we've really focused on streamlining our internal processes, so, for example, how quickly we can get letters out, which wouldn't have an impact on how much time we're spending with the tribes, and so we're looking at it that way, so internally.

And then the other way we're looking at it is what's the return on investment for our approaches for engaging tribes? So, for example, we've found that if we spend the same amount of time reaching out to tribes and meeting with them earlier in the process, ideally during the pre-application phase and in-person, doing those same set of meetings earlier than later in the process has a higher return on investment because we're able to build those working relationships ideally by the time the application comes in, and then more efficiently and effectively address any of their concerns during the review process.

COMMISSIONER CROWELL: And are those relationships that you try to establish early, do they endure over changes in tribal leadership or do you have to start all over again?

MS. ROME: That's a great question. So, yeah, it depends. As you're aware, there is a lot of change in tribal leadership, so we try to make sure that we're meeting with the right group of people, and that we are always working with the tribal liaison team and our other partners throughout the agency so we have a one NRC approach so that it's more continuous relationship building across the agency and working with the tribes, and then on our own side, to decrease any sort of turnover.

Because we now have matrix staffing, we're able to staff people based on geographic area rather than by business line, so that means the same staff can work with the same tribes no matter what business line the project is under.

COMMISSIONER CROWELL: And for initial license

applications, is it possible for you to identify like what the typical long pole in the tent is on completing environmental review? Is it Section 106 consultation? Is it -- I mean, you know, what takes the longest or is the most challenging right now?

MS. ROME: So, for each review, it's quite site specific as to what is going to be most technically difficult or take the most amount of time, and so what's really important that we're doing is during the pre-application phase, really looking at what do we think is going to be the most challenging and how can we mitigate those risks, and also looking at the flip-side of are we right-sizing the review and risk informing it, so for areas that aren't as challenging, to make sure we're spending the right amount of time on that as well.

COMMISSIONER CROWELL: And do the relationships that you build with tribal leadership, do they -- oftentimes we find that the tribe, we send out communications, but then we find out later that they either, they were missed or weren't received. Do we make sure that when we're communicating with tribes that it's received? Because there's just such a variety of ways that tribes receive information and sometimes one thing will work with one tribe and won’t with another.

MS. ROME: Yeah, great question, yes. So, we make sure that we send the letter to the appropriate tribal contact, and again, we're working with our colleagues in the tribal relations team to make sure we have that, and then our staff work at the staff level to make sure they're reaching out to their counterparts and then following up via email and phone calls.

And then we try to meet the tribes where they want to, so whether it's in person, a quick phone call, a virtual meeting, and so it's really important that we do that extra level of effort to make sure we are reaching the right person, and especially the decision maker among the tribes so that we're being as effective as possible during our conversations with them.

COMMISSIONER CROWELL: Yeah, just for a little commentary, even for tribes that have or, you know, use technology more, I still feel like the in-person engagement, particularly on the front end, pays huge dividends as you go through the process.

Greg and Jeremy, both of your presentations were insightful and helpful. All I can think of as you go through all of that is how we're going to do all of this, and, you know, what is our biggest challenge to doing all of this going forward? Is it staffing? Is it skill set? Is it standardization by industry that's going to make the difference? Is it project management, like --

MR. BOWMAN: So, we may have different perspectives. I would say from my perspective, I think we're very well positioned to review what we have in-house today for the next year or so. I think our challenge is going to be building the capacity we need to review applications when they come in on the nth-of-a-kind scale several years down the road.

So, I think that's our biggest challenge and Jeremy is doing a lot of great work to build our capacity across the Office of NRR, and across the agency actually, to help with those reviews. We've done a lot of work kind of within Jeremy's division, but we're now trying to branch out to get that capacity built up. I think from my perspective, that's our biggest challenge, but --

MR. BOWEN: Yeah, so it's a good thing I'm in line with my boss.

(Laughter.)

MR. BOWEN: So, I'd agree. I think like Greg said --

COMMISSIONER CROWELL: I'll watch Mirela's face while you speak.

(Laughter.)

MR. BOWEN: We're set up for success for what we foresee for the near term. We have areas where we --

COMMISSIONER CROWELL: Near-term being a year or two?

MR. BOWEN: Two, three, four years, and it's really building on the additional efficiencies we've seen from the first few reviews and kind of enhancing on that. I think it's what comes after that in the four or five, six-year time frame, when now we're not looking at one, two, three applications at a time and we're looking at potentially ten, 12, 15 applications at a time.

Certainly, there's opportunities in there for nth-of-a-kind reviews and efficiencies there, but there's going to be new first-of-a-kind reviews as well. So, that's kind of what we need to look for is how do we build that capacity for when we get to that stage of licensing?

COMMISSIONER CROWELL: And Mirela, maybe I'll punt this to you, but, you know, how confident -- I mean, I know we're making some plans based somewhat on insight from licensees and applicants about, you know, receiving these things in a staggered way, but best laid plans are what

they are.

It's very likely that that staggeredness won't match, won't be as pronounced as we hope, or we just end up with a deluge of applications at the same time across a range of topics. If that happens, are we in a world of hurt or are we able to triage and make it happen?

MS. GAVRILAS: We'll have to make it happen. So what gives me some comfort is the level of detail to which these guys are tracking the likelihood of an application materializing and the kind of factors that they look at when they evaluate the possibility of having something in-house next year, the year after that.

So there are concrete things that they are looking at that give us additional insights. So we're tracking that. But even with that, there will be surprises, and we'll be prepared for them. And when they come, we are going to need to prioritize and figure out a way to prioritize. We just are starting to think about that.

MR. BOWMAN: If I can add just one thing. So preapplication engagement has been a huge element of the program that we've been emphasizing with the applicants. So while it's true that everything could converge and cause us resource challenges, we should have a hand on that pretty early through the preapplication engagement we are having. That's giving us a pretty good handle on when things are coming and at what time frame.

COMMISSIONER CROWELL: And the quality of the material relates directly. Thank you.

Thank you to my colleagues for indulging me with a little extra time.

CHAIR HANSON: Thank you, Commissioner Crowell. I mean, I think the conversation about capacity is a really, really good one in how we're going to accomplish that. And I think in speeches recently, several of you have heard me say that in addition to kind of continuing the risk-informed thinking that we are permeating throughout the agency, I think Meena gave a great presentation in the previous panel about this about Be Risk Smarter, the reinvigoration of the Be Risk Smart approach in the agency, right?

They were kind of in my view three additional things in what I call consistency, sustainability and then the third one being capacity. Consistency being, I think of it as the horizontal, right, where people are seeing similar kinds of decisions coming out of the agency, risk-informed decisions regardless of where you interact with the agency, whether that's Greg in your division or whether that's license renewal or whether it's fuel facilities or whatever, right?

Sustainability I see is kind of the vertical, right, where we're seeing the right kinds of decisions being made not just at the top of the organization, but all the way down into the branch chief and project manager piece as well.

And then that last piece is capacity. And I think, you know, you hit on a lot of the really good things.

Mirela, you were talking about -- I was thinking about this as Jeremy was giving his presentation, the prioritization is going to be really

important, the add/shed work that's getting started under the ADVANCE Act is going to be important.

We have a lot of really smart people in this agency who maybe are pointed at things, and we are going to need them in this other area. And we are going to need to think about where we have to qualify people now to be able to get ready down the future.

And so it's reassuring to me that we've got the folks for the next couple years. I don't know if I'm -- I spent a lot of time thinking about the timing of the wave and how we are going to be ready for that and so on and so forth. And there is no great pool of people out there in the world.

You know, we're going to continue to hire. We're going to continue to focus on this. The emphasis that some of my colleagues have had on strategic workforce planning is exactly right, continuing capacity through the right metrics.

You know, I want to associate myself with Commissioner Wright and Commissioner Caputo about having the right metrics and being aggressive about revising those. And, you know, if we've got something we're hitting 95 percent of the time, we might need a better metric, et cetera.

So there's a lot that's really going into this in addition, I think, Jeremy to the knowledge management stuff that you brought up.

There's not really a question there, but I will give Mirela a chance to respond if she wants to.

MS. GAVRILAS: Oh, a couple of things, which is why I think the project management initiative that we're hearing about a lot will matter so

much. We need to know that when we are spending time on something, we are spending the right amount of time on something so that every capacity that we have available can go to support the emergent issues and issues that we all care about.

CHAIR HANSON: Okay. Great. Thank you. So with that I've got actually a couple questions. Michelle, I'm going to start with you if I can. And it was just something that Commissioner -- usually it's when I go last where all my questions have been taken. This time I'm going second and all of my questions have been taken. No, no, you're good.

But you were talking about tribal consultation and early engagement. Is that -- you know, we've got this process under the Endangered Species Act where licensee participation has been baked into that, right? Where you said -- and I'm going to have a couple questions on this. But you said that licensees can go work with National Marine Fisheries or Fish and Wildlife or whatever, kind of independently and then we get kind of the readout of that for our purposes.

Is there a similar kind of process or opportunity under Section 106 in terms of like state historic preservation organizations, et cetera, there?

MS. ROME: Thank you, Chair, for the question. So there is for working with the State Historic Preservation Office but part of the Section 106 consultation also includes tribal engagement. And that would stay with the NRC.

CHAIR HANSON: Got it.

MS. ROME: And so we've considered this in the past

whether we want to use this approach. But what we've determined is that there is a higher risk with this approach the way it is set up like that and that there are other approaches we can implement that have a higher return on investments, similar to what I was talking about with front loading consultations in-person and then also really encouraging the licensees or applicants to do a lot of that outreach with tribes earlier as well.

CHAIR HANSON: Is that because we really want to honor the government-to-government relationship that we have with the tribal entities?

MS. ROME: Exactly, yes. Thank you. So we're really striving to build that trust relationship with the tribal governments.

CHAIR HANSON: Okay. Great. Thank you. You had mentioned by having the licensee participate directly with these other agencies on ESA, endangered species stuff, that we were saving 50 to 80 percent. Is it just on that piece or are we saving 50 to 80 percent across the board?

MS. ROME: Thank you for that question. Let me clarify it is just on that piece, on the Endangered Species Act consultation --

CHAIR HANSON: Okay.

MS. ROME: -- specifically.

CHAIR HANSON: And is that baked into the 5,500 hours on SLRs or is there going to be -- are we going to be able to see some additional efficiency on that?

MS. ROME: That is not yet included because we are just starting to pilot it with some licensees that are currently operating right now. We have not started implementing it yet on license renewal.

CHAIR HANSON: I promise not to hold you to it, but do you have a thumb in the air kind of estimate on that?

MS. ROME: Well, we're actively reaching out to licensees right now, including on the material side, to gauge who would be interested so we need them to also want to do this.

And so far we have heard mixed results. So some want us to do it and some don't want to do it. But we will be reaching out to all licensees that plan to come in so let them know about this approach assuming that the pilots work well.

CHAIR HANSON: Thank you.

MS. ROME: Thanks.

CHAIR HANSON: I really appreciate it. All right. Christian, thank you for the work that you and the Office of Research are doing on the codes and standards.

I wanted to ask -- I was really intrigued by Slide 44, or something right, where you're talking about kind of the three areas. And then you've also got swift actions kind of near-term and then longer-term things.

So, you know, in the area of leveraging commercial standards, what would be an example of like a swift action in that space, like a near-term kind of output?

MR. ARAGUAS: Yes. So thanks for the question. I think the first thing I would sort of view as one of the swift actions is just getting a handle on what the interest is across the industry. What are the needs? What are the commercial standards that exist out there that are being contemplated for use

and for advanced reactor developers? And then getting a sense of timing.

And then I think for us is making sure kind of tying back to what falls under how we engage on the codes and standards committee is making sure that we're prioritizing having the right focus, the right people there and participating with them to ensure that we can enable timely creation of those standards and then more importantly that we're well-positioned to do the endorsement as quickly as we can.

CHAIR HANSON: Okay. Okay. So I want to connect, if I can, the two ends of the table here, right, between what you're doing and what maybe Jeremy is seeing in terms of applications that are coming in, alternatives to particular codes and how that might be informing your work.

So how are you guys coordinating some of this?

MR. ARAGUAS: Go for it.

MR. BOWEN: So thank you for the question, Chair. Yes, that's definitely an area of focus for us. Again, Christian has been doing a tremendous effort to help us out there.

Kind of behind your question, there are alternatives that are coming in. And it's based on the new materials, new uses, you know, a lot of unanticipated challenges that are being developed as designs are being matured and everything so applicants are proposing new and different approaches.

You know, we anticipated there would be a lot of interest in ASME Section 3, Division 5, for high temperature materials, but that has created challenges in and of itself. So they've proposed different aspects of the

code.

So some of that we've worked with Christian's group, and he's helping kind of us figuring out well, how can we kind of compare and contrast the codes and standards that are being proposed with the codes that we've endorsed? What challenges do we foresee? Is this an area that we even need to be interested in at this point? What testing is being planned?

So not just what the applicants are doing, but what else might be out there in an industry that we can leverage to kind of help move the review forward.

MR. ARAGUAS: And I'll just second. So, again, I probably should have prefaced with I'm some two months into the job. But I will give credit to my predecessor Michelle Sampson, who was doing a fantastic job I think coordinating with the DANU folks and across the agency. And so, you know, my role I think is to continue the great work, making sure that we're plugged in with Jeremy and his team and, you know, making sure that they understand the work that we're doing and vice versa.

CHAIR HANSON: Now, I know that this is a topic that's super detailed and a little weedy as we say. But when, you know historically reactor construction, 70 percent of the cost has been steel and concrete. And we have these new designs that, you know, leverage functional containment, leverage atmospheric pressure and other kinds of things, I think it's timely to revisit, you know, what really needs to be -- what codes and standards we're endorsing and for what applications and also potentially what components and other kinds of things need to be what we called "N" stamped or nuclear grade and which

ones aren't.

So I appreciate the effort here. And with that, I will hand it over to Commissioner Wright.

COMMISSIONER WRIGHT: Thank you, Chair. This has been a good conversation. This panel is loaded with information and opportunity to talk about stuff.

Michelle, I'm going to come back to you and start. I really appreciated your exchange with Commissioner Crowell and then with the Chair on the tribes.

I want to ask a -- you know, I think you noted in FY24 that you had consultations with like 200 tribes. Is that an increase over past years or is that pretty standard?

MS. ROME: That's typical for the amount of tribes that we reach out to in a typical year. It could vary slightly depending if we happen to have more projects in-house or less projects in-house. And I'll say what's really changed most recently as I was mentioning is how we're reaching out to tribes and just making sure we're being as effective as possible when we do get to meet with them and figuring out how to meet with them on their terms to make sure that we are effectively building that trust relationship.

COMMISSIONER WRIGHT: Yeah. I'm wanting to drill on that. My initial thought was to ask you a question like, you know, what kind of feedback were you getting from tribes. But you kind of made it -- let us know in your conversations here that you all are trying to be proactive and do things better or, you know, just make sure that you're getting to the right person,

maybe the right way.

Is that coming from feedback that you got from the tribes on how they wanted to be approached or is that coming from just your read of how things might go? Because the follow-up question for me is going to be, you know, are the tribes happy with our engagement process with them?

MS. ROME: Thank you for the question. So it is a combination of this is our procedures of how we reach out are consistent over the years. But we always strive to make sure we ask the tribes how they want to be engaged and how they want us to communicate with them.

So for example one of our first meetings with them is always that question. Do you want emails? Do you want us to call you? Do you want newsletters? So really taking the time to build that relationship in a way that they want to hear from us.

And I will say that the most consistent feedback we've heard from tribes is that they appreciate in-person meetings very early in the process. So ideally during pre-app if we can get out and meet with tribes, that has the highest return on investment for us.

COMMISSIONER WRIGHT: That's great. Thank you for your efforts in that area. I think that's critically important. And I think we do it better than anybody in government quite honestly. So you should feel good about things. And any way we can support you, we want to do that.

Christian, I want to come to you real quick. The codes and standards conversation has been good. And it seems like that everything that we're focused on, we're doing advanced reactors, you know, trying to identify

efficiencies going forward, this seems kind of like aligned well with the spirit of the ADVANCE Act.

Keeping that thought, are there actions that you are thinking about that might similarly enhance our codes and standards program for the operating fleet?

MR. ARAGUAS: Yup. Thanks, Commissioner Wright for that question. And, yes, I think that some of the items that I identified, particularly in the process enhancements areas aren't going to be unique to our focus on advanced reactors.

Certainly, I think the push right now, because of the timing right now in the interest for supporting advanced reactors, that's our focus. But if I could kind of highlight some of the areas where I think we could also apply some of the process improvements, it would be how we engage -- or how staff engage in the actual standards committees.

You know, certainly as we engage if there are things that we are seeing as potential challenges, you know, we are thinking about having public meetings to get our positions -- our draft positions out early and making sure that we're getting stakeholder feedback and bringing that into the standards discussions. So I think that's not unique to advanced reactors.

I think on the endorsement side, similarly, you know, we are going to start to look at developing the endorsement reg guides no longer going with the serial approach but doing it in parallel with the codes and standards that are being developed.

So, you know, we are anticipating that being an efficiency

gain that, again, we can apply for any standards that would need to be endorsed for the operating feet going forward.

So I think there are certainly things that are going to apply to the operating fleet. And, you know, just even thinking a little bit more broadly. You know, even some of the standards that we are going to be focusing on for new technologies, they are not even unique to just advances reactors. And I think about advanced manufacturing technologies.

And so I think to your question, and I appreciate again, I think there is certainly going to be things that we can apply to the operating fleet.

COMMISSIONER WRIGHT: Thank you for that. Jeremy, good morning to you.

And you do have the longest title of most of the team at the NRC. I'd ask you for a business card, but I don't have a wallet big enough.

So you spoke about the -- how the new reactor business line's evolving to meet future demand. Can you tell me a little bit more about this? I mean, can you expand on some of the lessons learned maybe from the reviews that have been conducted in the past year and maybe how those will lead to more efficient reviews hopefully in the future?

MR. BOWEN: Yes, sir. Thank you. for the question, Commissioner. Quite honestly, I could probably talk about this for an hour or longer. But I'll try and kind of keep it summarized, keep it at a high level and kind of put it in different groups.

So I would say the first issue -- the first area for learning for us is how we look at technical issues. We had a great discussion about the

codes and standards, the materials. The more we are understanding all these different designs, we're seeing, like, where do we actually need to look? Where do we need to focus? And where is it not as important? Where can we kind of gain some efficiency back in our review?

So I think that's one area, relearning some of the lessons about construction permit versus operating license, what sort of different technical information did we need at each stage of the review? Our research and test reactor versus a power reactor, the differences there. Right now we're learning a lot about the first implementation of the licensing modernization project and how that all fits together, how we can look at the application comprehensively with the review of Natrium. So I would say that's our first group, kind of the technical aspects.

The second area where I think we have a lot of learning is what I call process discipline and communications. So what I mean by that is there is a lot of processes that we have had in place. And we need to be more disciplined in applying them.

So developing a draft safety evaluation before we go out with questions to the applicants so that we have a clear understanding and are able to communicate what the regulatory concern is and making sure that we are going through that.

How we are implementing the core teams, right? The core team concept, the integrated review idea, it's really -- you know, we've learned a little bit. The concept was out there before. But the ability to actually put it into practice, okay? How is the communication of the team working? How did

they interact? What happens if one individual on the team identifies an issue? How is that brought it to bear?

We have weekly meetings on each of the projects. So we discuss, like, areas of challenges and how can we work through those collectively? And we kind of hold each other accountable there.

And then building on that from the communications standpoint, I touched on it briefly. But recognizing that we are not talking to the same type of licensee that we've been talking to for 50 years. This is a different group of applicants, and they're not all the same.

And we need to recognize that we need to meet them where they are and be able to communicate to them in clear and plain language of what the expectations are and why and be able to, again, meet the applicants where they are. So that's the second group.

And then third group, I say, is really just leveraging the data and process enhancement. So I talked about the details about our schedule estimates and our resources. We've got three data points at this point, four if you count the Navy. I think that's helping inform where we're going forward.

As you probably saw, we've overestimated in some cases. I think we need to get better in that. But also I'll go a level deeper about some of our process enhancements of finding where the pinch points are in the review process.

So a great example is the Hermes 2 safety evaluation. It was the first time we had used a full template from the beginning and where we had incorporated by reference another safety evaluation. The first time that had

ever been done. We weren't really sure how to do it.

A great partnership with our colleagues in the Office of General Counsel -- Brooke, thank you to your staff to kind of put that together -- and figure out how we could do that. That saved hundreds of hours, hundreds of hours on the staff's part, hundreds of hours on the OGC's part. So stuff like that we can find -- we have the data. We can kind of drill down and find out where can we make it more efficient so.

A long-winded answer, but I hope that helps, sir.

COMMISSIONER WRIGHT: Well, it does help. And two things that you made comments of that are really important to me, and that is that you are meeting them where they are because they are a different group, a different breed. And I am glad that you recognize that and that you all are making that effort.

And, you know, the second thing, which I would ask Jeremy as well -- but, I mean, Greg as well, but we don't have time, this whole metrics thing that you all are also reviewing and keeping that forward in thought so that we're making adjustments if we need to. And so I appreciate the presentations. This has been a great meeting. So Chair, I am done.

CHAIR HANSON: Thank you Commissioner Wright. Commissioner Caputo.

COMMISSIONER CAPUTO: Good morning. Thank you all for your presentations. I am going to start with Mr. Araguas. Welcome.

MR. ARAGUAS: Thank you.

COMMISSIONER CAPUTO: I'm recognizing since you're

new, this question is going to be a little bit unfair. So if you need to take the question and follow-up with me later, I'm fine with that.

But I have a question regarding American Society of Mechanical Engineers Code Case N-8833. This has been an issue for several years. The Code Case is intended to allow the production of certain components before an owner is identified, which seems important concerning manufacture of microreactors.

So the NRC endorsement of this Code includes an odd bureaucratic limitation that within the U.S. the only people who can use this Code Case are those that already meet the ASME definition of owners as holders of construction permits, operating licenses or combined licenses.

But as owners, the Code Case would then be irrelevant. So it's unclear why the Agency expended the effort to endorse it but with a limitation that precludes its use in the U.S. And furthermore, it sounds like ASME is now revising the Code Case to add holders of manufacturing licenses.

So I am concerned that this is going to end up being a Catch-22 that becomes a problem for anyone considering a business model that includes deployment of significant numbers of microreactors. Are you familiar with the issue?

MR. ARAGUAS: So I will just pivot really quickly. And I'll say, Commissioner Crowell, you thought the seat wouldn't get a lot of love, and it's getting a lot of love.

COMMISSIONER CROWELL: I jinxed you. I apologize.

MR. ARAGUAS: I appreciate the question and also

appreciate the -- before I take that, I did just want to see if there was somebody else on the panel that had a bit more background before I took it away.

MR. BOWMAN: Did you want to talk to that or did you want me to start? So we did a lot of work as part of reviewing the application of that Code Case, the NuScale. Obviously, you're aware of that.

What we ultimately found out was that there are Atomic Energy Act prohibitions against applying the Code Case the way NuScale wants to apply it. We tried through our review of the Code Case to give options that we could.

Some of those are short-term options. Some of them are longer-term rulemaking options. I think we know that the outcome is not probably satisfying to NuScale and other people that might want to use it. But we are limited by what the Atomic Energy Act allows us to do.

I do understand completely kind of the circular logic in the Code Case saying that you have to be an owner. You can't use -- I understand the circular logic. I'll just put it that way.

COMMISSIONER CAPUTO: So is it unique to NuScale or is it a matter that would then affect anyone who attempts to use the Code Case, which then raises the question why did we spend the time and effort to endorse it if it's actually not applicable to anyone in the U.S.?

MR. BOWMAN: I think the idea was that it could be used internationally, I believe. But you're right, that in the U.S. it wouldn't be -- it could not be used in the U.S. based on our framework.

Mirela, did you want to add anything or was that --

MS. GAVRILAS: I don't have anything to add to it.

COMMISSIONER CAPUTO: Okay. So there's no apparent resolution to the issue?

MR. BOWMAN: So we did provide --

COMMISSIONER CAPUTO: Is there a limitation in the Atomic Energy Act that would preclude --

MR. BOWMAN: If you're an applicant --

COMMISSIONER CAPUTO: -- the manufacture of anything before an owner is identified?

MR. BOWMAN: If you are an owner or an applicant or -- an applicant would be someone who is considered an owner. So one option that we discussed with NuScale is apply for a manufacturing license. When the application is docketed, you become an applicant and an owner. And so then you could apply the Code Case.

That's a decision for them to make. But we have committed to working with them to discuss options, other options that they might want to consider. So, yeah, go ahead, Mirela.

COMMISSIONER CAPUTO: But this is going to preclude if manufacturing licenses are now rolled into this Code Case. You can't have a manufacturer who then proceeds to manufacture things for which the owner is not identified.

MR. BOWMAN: So if they are an applicant for a manufacturing license, they are an owner and the Code Case would be irrelevant. They're owner and they can --

COMMISSIONER CAPUTO: I think you are missing my point.

MR. BOWMAN: I'm probably --

COMMISSIONER CAPUTO: If someone wants to build a factory to manufacture microreactors, they would be the holder of the manufacturing license. But could they then manufacture microreactors if they don't actually have identified customers who sign contracts?

MS. GAVRILAS: We believe so. So if they hold a manufacturing license, then they can manufacture and be subject to everything else that they needed. So that's my understanding right now.

MR. BOWMAN: That's my understanding.

MS. GAVRILAS: Yes. All it would take for NuScale to be able to avail themselves of the code is for them to have a manufacturing license.

MR. BOWMAN: Not have a manufacturing license, apply for a --

MS. GAVRILAS: Apply.

MR. BOWMAN: -- manufacturing license.

COMMISSIONER CAPUTO: Okay. I'm thinking more broadly than just the NuScale example. But we're going to have to follow up I think a little bit more on this because I think this is potentially not necessarily a good place for us to be in if people are looking at wide scale deployment of microreactors.

MS. GAVRILAS: We're also contemplating rulemaking on the subject.

COMMISSIONER CAPUTO: Because this is going to be a broader supply chain issue than just NuScale.

Greg and Jeremy, both of you are new to your current roles. So thank you for stepping up and taking on those responsibilities. So I am now going to ask a question -- well, put forward a discussion on something that transpired before you took on those responsibilities.

Regarding the recent publication of the Part 53 proposed rule, when NRC needs to act to ensure adequate protection of public health and safety, that action will be taken regardless of cost. In all other cases, the efficiency of a regulatory action has always played a role or should always play a role.

This was recognized when the Commission established its Safety Goal Policy Statement, "An explicit policy statement on the safety philosophy and the role of safety and cost tradeoffs in NRC safety decisions." That policy, together with the backfit rule provided a framework for determining whether regulatory actions that are not necessary for adequate protection should be pursued in that framework if a proposal provides a substantial safety benefit that is cost justified, it warrants regulatory action. This approach is both risk-informed and efficient, focusing agency action on safety significance with appropriate consideration of cost.

The reason I raise this again is because in its current state, Part 53 proposed rule includes a requirement to establish a comprehensive risk metric, something the agency has heretofore abstained from for 50 years. This is one area that needs robust stakeholder feedback to ensure that Part 53 will

be an efficient framework to ensure the safe and secure licensing of advanced reactors.

Staff has emphasized that this metric is not to be interpreted as a real-time speed limit for risk. However, that seems overly optimistic. It seems more likely that compliance with this metric will supplant the backfit rule's mandate to consider safety significance and cost.

And in its decision on the Part 53 proposed rule, the Commission rejected codifying the quantitative health objectives from the Safety Goal Policy Statement, otherwise known as QHOs. The Commission rejected codifying the QHOs as a regulatory requirement, but a majority of Commissioners voted to include an undefined comprehensive risk metric.

The preamble to the now published proposed rule states that the QHOs could be used to satisfy the requirement for that metric, something the stakeholders have commented would make the rule unworkable.

This seems to be an attempt to sidestep Commission direction by requiring applicants to use the QHOs or bring the staff a rock or some other proximity solution. At a minimum, it's a cautionary tale for Commissioners on why it's important for the Commission to take ownership of and responsibility for rule text.

Some of my cautionary comments during the previous panel apply equally to Part 53.

As currently contemplated, all three licensing frameworks, 50, 52, and 53, would include a regulatory requirement for PRA superseding its role as a tool contrary to the PRA Policy Statement and adding regulatory burden

without a compelling analysis of safety benefits or cost justification. It's exceedingly difficult to square this with our principles of good regulation or the direction provided in the ADVANCE Act.

Our nation is coming to a time where our energy security needs are quite likely to become profound and the country will need us to perform more effectively and efficiently than this agency has in decades.

The demands upon us are going to be significant. To me it seems like common sense that the NRC would enable the safe and secure use of nuclear technologies by efficiently licensing and regulating civilian uses for the protection and benefit of public health and safety and the environment.

Unfortunately, what I have described here today diverges from this. Thank you.

CHAIR HANSON: Thank you, Commissioner Caputo. We are at the end of our time together this morning. Thank you to both panels. Thanks to the staff for your preparation. Thank you for the substantial information density associated with all of your presentations. I think it prompted a good discussion among the Commission.

Thanks to my colleagues for your questions. And, with that, we are adjourned.

(Whereupon, the above-entitled matter went off the record at 11:48 a.m.)