UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

+ + + + +

MEETING WITH NRC STAKEHOLDERS

+ + + + +

TUESDAY,

JULY 26, 2016

+ + + + +

ROCKVILLE, MARYLAND

+ + + + +

The Commission met in the Nuclear Regulatory Commission Auditorium, Two White Flint North, 11555 Rockville Pike, at 9:07 a.m., Stephen G. Burns, Chairman, presiding.

COMMISSION MEMBERS:

STEPHEN G. BURNS, Chairman

KRISTINE L. SVINICKI, Commissioner

JEFF BARAN, Commissioner

ALSO PRESENT:

ANNETTE VIETTI-COOK, Secretary of the Commission

STAKEHOLDER REPRESENTATIVES PRESENT:

DALE ATKINSON, Chief Operating Officer and Chief Nuclear Officer, NuScale

SHELLEY BUCK, Tribal Council President, Prairie Island Indian Community

FRED FAHEY, MD, SNMMI President and Medical Rep to CRCPD, Director of Nuclear Medicine/PET Physics, Boston Children=s Hospital, Professor of Radiology, Harvard Medical School

ASHLEY FINAN, Senior Project Manager for Energy Innovation, Clean Air Task Force

SHERRIE FLAHERTY, Chairman, Organization of Agreement States

PETER GAILLARD, Manager Licensing Operations, TerraPower, LLC

PAUL GUNTER, Director, Reactor Oversight Project, Beyond Nuclear

BRYAN HANSON, Chief Nuclear Officer, Exelon

YASSIN HASSAN, Nuclear Engineering Department Heads Organization, and Head, Department of Nuclear Engineering, Texas A&M University

DAVID HEACOCK, President and Chief Nuclear Officer, Dominion Nuclear

ANNA JERRY, International Representative, International Brotherhood of Electrical Workers

DENNIS KOEHL, Chief Executive Officer, STPNOC

MARIA KORSNICK, Chief Operating Officer, NEI

DAVID LOCHBAUM, Director, Nuclear Safety Project, Union of Concerned Scientists

ALLISON M. MACFARLANE, George Washington University, Professor of Public Policy and International Affairs; Director, Center for International Science and Technology Policy; Director, International Science and Technology Policy M.A. Program

JEFFREY MERRIFIELD, Partner, Pillsbury Law

GARY MIGNOGNA, President and Chief Executive Officer, AREVA

PHILIP D. MOELLER, Senior Vice President, Edison Electric Institute

WAYNE NORTON, President and CEO of Connecticut Yankee Atomic Power Co. and Yankee Rowe Nuclear Power Station; Chief Nuclear Officer of Maine Yankee;

and Principal Spokesperson for Decommissioning Plant Coalition

JIM RICCIO, Nuclear Policy Analyst, Greenpeace

JANET SCHLUETER, Senior Director, Radiation and Materials Safety, NEI

KATIE SWEENEY, Senior Vice President, Legal Affairs, and General Counsel, National Mining Association

P R O C E E D I N G S

9:07 a.m.

CHAIRMAN BURNS: Well, good morning everyone, and welcome. We want to thank you for being here today. We're in a different room than usual, but we also have a larger meeting than usual this morning, and I'm -- I know we have a -- a large group representing a variety of interests, public interest groups, states, tribal governments and tribal organizations, power plant operators, vendors, as well as some former NRC Commissioners, one of whom was a former NRC Chairman, my predecessor, in fact.

It has been a number of years since we've had a similar meeting: initially, one in 1998, conducted by former Chairman Shirley Jackson; the last one was in 2001 in this type of format. Those meetings focused largely on such issues as the NRC's transition from the systematic assessment of licensee performance, the SALP program, to the reactor oversight process, as well as other organizational and regulatory changes and challenges. The meetings gave us insights into ways to improve our programs and processes, and I hope that will be the case today.

As many of you know, the NRC marked the 25th anniversary of its Principles of Good Regulation, which were adopted in 1991, and we continue to focus on ensuring safety and security while appropriately balancing the interests of those who are interested in our -- our mission and our responsibility to protect public health and safety and provide oversight of our licensees. And then additionally, in line with our Project Aim goals, we are also focusing on and hope to gain insights into enhancing our efficiency and effectiveness.

The purpose of today's meeting is to allow participants to share perspectives on the NRC's regulatory programs, to provide examples to illustrate particular concerns, engage in a roundtable discussion. We're open to hear about any

topic you'd like to present and welcome the discussion on things you think we could do better and observations as to what we do well. Those would also be appreciated.

We've agreed as a -- as a Commission to depart from our regular meeting format in the hope that this, the format of this meeting, will provide the Commission a rare and valuable opportunity to meet at the same time with a diverse set of participants on a broad array of topics, and I look forward to today's discussions and feel confident that the meeting will inform our ongoing efforts to take a fresh look at how we do our business.

Before I go over the ground rules, I will ask my fellow Commissioners if they'd like to say something. Commissioner Svinicki?

COMMISSIONER SVINICKI: Thank you, Mr. Chairman.

To any of you that I did not have a chance to greet this morning, good morning, and thank you for being here. When this meeting was first suggested by the Chairman of our Senate Oversight Committee, Senator Inhofe, and seconded by the committee's ranking member, Senator Boxer, I realized, as the Chairman noted, it has been some years since a meeting of this type was conducted. The agency, of course, has extensive engagement with those outside our own doors, but we rarely have a meeting where the topic is the agency itself and its operations, so I welcome all of you for being here today because we agreed as a Commission to hold this meeting, but it would not be possible without all of you who have traveled here and come here today to share your perspectives with us, so thank you.

CHAIRMAN BURNS: Thank you. Commissioner Baran?

COMMISSIONER BARAN: Well, I want to join my colleagues in just briefly thanking everyone for being here today. I know many of you traveled to be here. We really appreciate you taking the time to join us.

We worked hard as a Commission to pull together a balanced slate of

participants representing, we hope, the full diversity of our stakeholders. NRC frequently interacts with all of you on specific topics like Commission meetings, public meetings, and drop-ins, but this is a chance to have a broader conversation about whatever topics you think are important.

I see it as a great opportunity to hear whether there are issues we're not focused on that we should be. I am looking forward to talking with all of you more informally than our meetings normally allow and listening to the discussion you have with each other, so thanks in advance for sharing your thoughts and perspectives, and again, welcome.

CHAIRMAN BURNS: Thanks, Commissioner.

Now let me go over the ground rules just so we -- given the large number of -- of speakers and participants, just so we sort of understand how to be recognized and how to go on through things.

We've broken just for logistical reasons the meeting today, this morning and this afternoon, into four segments, and there is no particular logic to the grouping other than we wanted to try to mix participants in and have a discussion of multiple topics and viewpoints within each set, so we tried to do that in the four groupings. There is no order of priority, and it's not purposeful. Just an idea, try to get a good mix to help discussion and get different viewpoints in.

Now we'll start in each group with opening statements from each speaker, and again, I reiterate, not to exceed seven minutes. And the Secretary will help you out, okay, by raising -- the yellow will give you when -- a yellow flag is one minute, a red flag means time, and please honor that -- that time. A couple words over is fine, and it's not like in soccer, the red flag doesn't mean you're out, but it does mean you're going to -- about to be out --

(Laughter.)

CHAIRMAN BURNS: -- if you don't honor it, but I know -- I know you all will, and as a courtesy to the other speakers.

Due to the number of microphones, I caution you, we are live throughout the meeting, so you don't need to turn them on or off individually, but also be careful and try not to have sidebar conversations that are going to be -- would be picked up while others are speaking.

We're going to hold questions and comments for each panel, each grouping, until we reach the open discussion segment, and panelists at the table can provide comment. We appreciate, again, discussions being kept within the time allotted. Between our segments, there will be a ten-minute break, and there are some refreshments for our presenters on the side, and then we'll break for about an hour-and-a-half for lunch before reconvening in the afternoon.

Now for the discussion period, this is what I'd ask you to do. If you want to contribute to the discussion, get my attention by standing your name tent on its side, and members of the Commission will do the same when seeking to be recognized for comment, and we'll try to make sure, list -- we keep a list and try to do it in order as best we can. We'll try to recognize in order but also balance the need to give multiple presenters a chance, and when recognized to comment, try to be brief. Try to be limiting comments or -- comments for about one minute, if possible.

We highly value the input we have today. We're not going to try to reach a consensus on issues. This is really a listening session. And we recognize there are going to be a lot of diverse views. That's part of, I think, what will be the interesting thing about this meeting. And I know we'll all show each other respect, and I look forward to the discussion today.

So let's go ahead and get started. In Segment 1, we have Maria Korsnick, Chief Operating Officer of NEI; Shelley Buck, Tribal Council President of the Prairie Island Indian Community; Dave Lochbaum, Director of the Nuclear Safety Project, the Union of Concerned Scientists; Dennis Koehl, Chief Executive Officer, STPNOC; Dr. Ashley Finan, Senior Project Manager for Energy Innovation, the Clean Air Task Force; and Mr. Gallay, I think they were not able to attend from Riverkeeper. Right, okay.

So we'll start -- Maria, we'll start off with your statement.

MS. KORSNICK: Great, thank you very much, and thank you for this opportunity to address you today.

The allotted time for this presentation is in fact limited, and so I'm going to limit my discussion to some key areas that you see here: NRC efficiency and effectiveness, risk-informed culture, and a stable and predictable regulatory framework. But I would note that NEI will follow this meeting with a letter that will highlight the key points that are in today's industry presentations, and we'll use that as an opportunity to discuss issues that we believe need some further attention.

I will start with NRC efficiency and effectiveness. We commend in fact the efforts underway with Project Aim. We would say this is directionally correct, although we do believe that there are further efficiencies to be gained. There are a lot of key similarities between Project Aim and the industry's own initiative, Delivering the Nuclear Promise, both initiatives striving, in fact, to achieve improvements in efficiency and effectiveness while maintaining if not improving our core missions of safety and reliability.

Bottom line is you've gone on a diet, don't gain the weight back. So it's important that we look at these processes that we've maintained to gain efficiency and that we identify the changes necessary in processes and in culture that will enable those gains in efficiency and effectiveness to be maintained.

A hallmark of the U.S. regulatory system, and in fact, NRC, is the discipline in the adherence to the Principles of Good Regulation. In fact, today's example of this meeting is the principle of openness. Equally important is the principle of reliability, and that states in part that regulatory actions should always be fully consistent with written regulation and should be promptly, fairly, and decisively administered.

To that end, we encourage the efforts within the Office of Nuclear Regulation as part of Project Aim to improve the licensing efficiency and are pleased to see in a recent memo from Bill Dean where he outlined a common set of expectations that are necessary to achieve consistency of process, sound decision-making, and a discipline of schedule.

There's a couple of areas that I would like to highlight. The first is the backfit rule. We believe that the backfit rule, or 10 CFR 50.109, provides an important means to ensure that the agency and the industry resources are properly focused. We're concerned, however, that there are several situations where the compliance provision is inappropriately applied, and to this end, we think it's important that the Commission provide appropriate guidance and direction.

We're very encouraged by recent direction from Victor McCree, a tasking memo to the staff which has asked them to evaluate the backfit process, so very interested, something is in flight, want to make sure that action results.

Adherence to established processes like requests for additional information: during the past decade, we think that the efficiency and reliability of NRC's licensing activities have really not kept pace with the industry's needs, leading to increased review time, excessive costs, and uncertainty in outcomes. We encourage the acceleration of licensing improvement efforts that are being taken under Project Aim, and we hope that these improvements are in fact institutionalized within the agency.

And last, we'd like to make sure that additional metrics should be established to ensure that we have ongoing performance measurement. We strongly encourage the establishment and monitoring of key metrics. We are working together with you through the Regulatory Issues Task Force to do this, so again, good plans. We want to make sure that that comes across the finish line.

I'd also like to mention under this section Foreign Ownership, Control, or Domination, FOCD, and really just make a note that we sent you a letter yesterday, and it was comments on a proposed revised FOCD standard review plan and new FOCD regulatory guide. We want to emphasize that that draft guidance, in our view, does not reflect the substantive reassessment of FOCD that the Commission had ordered. It lacks technical basis. It's inconsistent with the realities of the global nuclear market and the U.S. policy on foreign investment. In short, we think that needs a lot of work. There's more details in the letter that we just sent to you.

Among the other principles of good regulation is that of efficiency, and that establishes the need to ensure that regulatory activities are consistent with the degree of risk reduction that they involve. If you look at the risk-informed culture and processes, the improved safety focus from risk-informed programs helps both the NRC and the industry to target resources on the items of greatest safety benefit. In recent years, progress has slowed in this area, and we ask the Commission to take actions to establish a more disciplined, reliable, and predictable regulatory process relative to risk-informed decision-making.

There's multiple examples of issues where NRC and industry spend large amounts of time and resources addressing concerns that we agree have little safety or security significance. Whether we're talking about temporarily opening an electrical breaker cabinet and its impact on seismic qualifications or fibrous debris on PWR sumps,

which we have been in discussion for more than 15 years, we simply must have a more efficient way to address them.

For stable and predictable regulatory framework, I want to commend the Commission for its reinstatement of the use of rulemaking plans. That involves early Commission involvement in rulemakings. We think that's a step in the right direction. We think it's very important that we -- that there is a process for prioritizing regulatory activities and actions. We also want to have increased accountability to resource estimates. We think licensees deserve improvements on the part of the agency in their identification and subsequent management of the cost of licensing and regulatory oversight actions.

Estimates of the cost for licensing actions, and we understand it's just an estimate, need to be established up front, and progress needs to be tracked and communicated to the licensee. For decommissioning, we look ahead and we see about seven plants that are going to be going through the decommissioning process in the near term. There's about 12 exemptions for every decommissioning process, so we appeal for a focused rulemaking to be performed that would enable more efficient use of NRR resources, so do it once through rulemaking rather than 84 times through exemptions. In this case, an ounce of prevention worth a pound of cure.

And I'd end with advanced technology, and with that, I'd like you to think broadly. When I talk advanced technology, it's licensing advanced plants, of which we have speakers today that will address that; licensing digital systems; or whether it's accident-tolerant fuel. I ask that you reflect, throughout history, any instances where we've accomplished very significant things, it is through strong leadership and management, and we urge the Commission to assist us in ensuring that these advanced

designs are in fact available to meet our country's needs. Thank you.

CHAIRMAN BURNS: Thank you. Ms. Buck?

MS. BUCK: (Native language spoken.) Good morning, Chairman Burns, Commission Svinicki, and Commissioner Baran. My name is Shelley Buck, and I'm the President of the Prairie Island Indian Community. I appreciate the invitation to be here today to give our views on a couple of views that are important to the Prairie Island Indian Community.

Before I begin, I would like to recognize and thank the staff from the NRC Region III for their unfailing dedication to our community and for making my job easier. We believe that our strong working relationship with the NRC, both on the federal level and Headquarters level, is based on mutual respect and a shared goal of protecting people and the environment.

My tribe's reservation is located on the ancestral homeland of the Mdewakanton Dakota on Prairie Island. It's approximately 35 miles southeast of Minneapolis-St. Paul. The Mdewakanton, or Those Born of the Waters, have lived on Prairie Island for countless generations.

As you can see, the Prairie Island Indian -- the Prairie Island Nuclear Generating Plant and ISFSI are immediately adjacent to our reservation. The Prairie Island Nuclear Generation Plant and spent fuel storage facility are located right next to our homes, our government center, our community center, our business, and our church. There is no other community in the United States with a nuclear power plant and ISFSI literally in their backyard.

From this vantage point, you can see our community. The Prairie Island

ISFSI is located -- or is currently licensed to use 48 TN-40 and TN-40HT dry casks. To date, 40 dry casks have been placed on the pads with no date for removal, as we are all well aware.

For the remainder of my time, I would like to discuss the NRC's involvement with Indian tribes and request that the Tribal Policy Statement be finalized and released soon, and that the agency endeavor to revise its guidance documents to recognize that potential impacts to tribal peoples, lands, and resources must be evaluated differently than impacts to the general public.

For your information, the Prairie Island Indian Community is one of 55 federally recognized tribes in the United States. You will probably be surprised to know that there are over 275 federally recognized tribes in Region IV alone. Each tribe should be considered a unique government entity with its own structure, leadership, land base, criteria for membership, language, and culture. It should be noted that there are differences among the tribes and that there is no one-size-fits-all approach when it comes to interacting with and understanding the tribes.

Indian tribes should be thought of as sovereign nations with the ability to exercise jurisdiction over its land and its people. Each tribe's land base may be different: large or small; established by a treaty with the U.S. government, Presidential executive order, or through a trust land acquisition; but in all cases, each federally recognized tribe has regulatory jurisdiction over its land.

With regard to the principles in the Tribal Policy Statement, the most important one is that the NRC recognizes the federal trust relationship and will uphold its trust relationship with federally recognized tribes. The basis for the tribal/federal

government relationship is that -- is the trust relationship, a general trust responsibility to federally recognized tribes. That means that the United States Government has a legally enforceable fiduciary obligation to protect tribal sovereignty, self-determination, tribal lands, tribal assets and resources, and treaty and other federally recognized and reserved rights.

This is especially important when we consider the potential consequences of radiological impacts to tribal lands and resources. It has been argued that as long as a federal agency complies with its statutory duties, it fulfills its trust responsibilities. Prairie Island Indian Community believes that the trust responsibility means more than solely complying with existing statutes and regulations, the same protections that are available to other persons.

In our view, the NRC is required to do more, not less. This is especially true when the issues concern lands held in trust by the United States for a tribe and tribal, cultural, and historic resources in a tribe's homeland. Most of the Prairie Island's lands are held in trust for the benefit of the tribe by the U.S. Government. Although individual tribal members have a home on a land assignment for some period of time, the tribal member does not own the land, and, as such, cannot be compensated individually for economic impacts resulting from nuclear power plant accidents. This is an important distinction to make.

Another aspect of Indian land tenure relates to tribal culture. Tribal culture is based on the traditional or aboriginal homeland of the tribe. Prairie Island is a place of cultural and traditional significance to the members of Prairie Island Indian Community, whose ancestors have lived on Prairie Island for countless generations.

According to archeological evidence, Prairie Island has been a place of historical and cultural significance for thousands of years. The traditions and culture of the Prairie Island Indian Community are related to one place: Prairie Island. If a severe accident were to occur at the Nuclear Power Plant or at the ISFSI, the Prairie Island Indian Community would be financially and culturally devastated.

One might ask: if the tribal members are so concerned about being so close to the nuclear power plant, why don't they leave? Of course, no tribal member is required to live on tribal lands. There are, however, important traditional and cultural benefits from residing on tribal lands that cannot be measured or quantified. By residing on tribal land and being a part of the tribe, each member not only gains traditional cultural knowledge from their elders, but they help to carry on that knowledge and culture to the next generation.

This is the land reserved for the Prairie Island Indian Community by the United States for the common benefit of all tribal members, now and in the future. In perpetuity, this is the only land our tribe has, the land promised to us by the federal government that allows Prairie Island tribal members the chance to maintain their traditions and culture. Accordingly, we would like to see NRC revise its guidance documents to better reflect the Tribal Policy Statement on trust responsibility with respect to environmental or economic impacts on Indian lands.

The NRC must bear in mind that tribal lands are different than lands that might be owned by a member of the public near a power plant or other NRC-regulated facility and must be analyzed differently. It is relatively easy to assign a land to fee-owned or private land because these lands are readily bought and sold. Determining economic

consequences to a homeowner or other property owner would be fairly straightforward. Determining economic consequences to Indian lands will not be as easy but nevertheless should be included in the analyses.

We are concerned that the traditional tools used by the NRC to analyze and quantify potential impacts such as economic consequences from radiological releases cannot and do not consider the unique impacts to Indian lands and culture. On a final note, I would like to reiterate the importance of government-to-government consultation with federally recognized tribes. It is important to remember that there is no one-size-fits-all.

The most important point is to initiate the government-to-government consultation process early at the highest level, and then let the individual tribe determine how best to proceed.

(Native language spoken.)

Thank you.

CHAIRMAN BURNS: Thank you, Ms. Buck. Mr. Lochbaum?

MR. LOCHBAUM: Good morning. We are focused on the climate change that is needed for nuclear power safety. Next slide, please.

My remarks will outline the gaps between the NRC's safety culture goals and its internal safety climate and the urgent need, even without the added stress imposed by Project Aim, to narrow these gaps. Next slide, please.

The NRC finalized its safety culture goal in 2011. While intended for the NRC's licensees, it is equally valuable when met by the NRC. In other words, nuclear safety culture must not be a "Do as I say, not as I do" proposition. Next slide, please.

The results from the survey conducted during 2015 of the safety culture and climate within the NRC were made publicly available earlier this year. The results showed many positives. They also identify significant climate problems just begging to be addressed. Next slide, please.

The NRC's focus on quality received the second lowest score in the survey. The survey suggested that the reason for the poor quality focus was that the agency considered good bean counting to be more important than good beans. Next slide, please.

Somewhat mirroring the obsession with the metrics theme, the survey suggested that the agency viewed an open, collaborative work environment as a destination rather than as a journey, steering the NRC off course by not sustaining that initial effort. Next slide, please.

The NRC quite properly considers a safety-conscious work environment to be an essential trait of a strong safety culture. Next slide, please.

Yet too many NRC workers feel that raising concerns within this agency can be hazardous to their careers. Next slide, please.

Many workers see the non-concurrence program as merely an accounting measure and equate initiating a different view with career suicide. Next slide, please.

Many NRC workers who submitted non-concurrences believe they experienced some kind of negative consequences for having done so. How many? What kind of negative consequences? Next slide, please.

Three-quarters of the workers who non-concurred felt that management

downgraded their performance appraisals as a result, while two-thirds felt that management took them out of the game altogether. The NRC would not sit back and tolerate the workforce at a nuclear power plant having such feelings. It must not tolerate such perception within its own workforce either. Next slide, please.

Four percent of the people who left the NRC in the past year cited fear of reprisals as a major factor in their departures. Once all the workers who would dare to raise a safety concern have fled the agency in fear, the silent majority who remain will make future survey results look much, much better. Next slide, please.

The climate is currently bad, and trending in the wrong direction. Only 47 percent of the respondents last year gave the differing view processes a favorable score, the lowest rating among the 16 categories covered in the survey, and that unacceptably low rating is even lower than the rating from the previous survey in 2012. Next slide, please.

The NRC's quality focus score also declined from the 2012 survey. Next slide, please.

There is a huge gap between the perspectives of the overall work force and the NRC's senior managers regarding the three scores rated lowest by the workforce. This gap may explain why the negative trends: those who could fix the -- could fix the problems just don't see them. Next slide, please.

More than a quarter of the NRC's workforce fear they cannot disclose suspected violations of laws, rules, and regulations without reprisals, and that result is worse now than in 2010, the year before Fukushima and the year before the issued its safety culture goal. That nuclear disaster and that -- and that safety goal expression

should have boosted freedom within a nuclear safety regulator for raising safety issues, but the NRC's bad climate only got worse. Next slide, please.

Nearly four times as many NRC workers fear, dread Project Aim as worry about the next Fukushima. Project Aim is clearly stressing the workforce. A strong safety culture is vitally needed for Project Aim. Otherwise, Project Aim will miss its mark, and the safety climate within the NRC will continue to worsen. Next slide, please.

Only slightly half -- or slightly more than half the NRC respondents to the 2015 Federal Employee Viewpoint Survey felt that the agency would use the results to make things better. Next slide, please.

For the millions of Americans living near U.S. nuclear power plants, and for the thousands of dedicated workers who toil within this agency to make those people safe, please take the steps necessary to prove the majority wrong on this viewpoint. The NRC feels that it is important for nuclear plants to have strong, good safety cultures. It is imperative that the NRC also acquire one, from eBay or wherever. Thank you.

CHAIRMAN BURNS: Thanks. Mr. Koehl?

MR. KOEHL: Thank you, Mr. Chairman. Good morning, everyone.

I'd like to follow up on some of Maria's points in that we truly have not kept pace with industry needs when it comes down to NRC licensing activities. I appreciate the fact that the NRC staff has worked to deliver licensing amendments in a targeted 12 to 18 month period, but we truly do need to do better.

My staff has been actively involved with your staff since early 2011 to pilot the risk-informed response to Generic Safety Issue 191, the containment sump blockage. I am pleased to say the efforts are now focused and aligned to complete that

effort by the end of this year.

It has been five years and $20 million spent, and it does not include what you've absorbed in review fees because it was a pilot. That said, I feel we both can accelerate the licensing improvements and progress under Delivering the Nuclear Promise and under Project Aim's operating reactor license process improvement initiatives.

We need to take steps to ensure these improvements are institutionalized within agency processes and procedures, and then we need to train and change our behaviors. We need to define the level of reasonable assurance of safety and compliance for judging the technical adequacy of licensing requests and establish consistent acceptance standards for use by reviewers. By establishing the acceptance standards in the licensing review and approval process, it should minimize the influence of individual reviewer preferences, reduce review time, and reduce overall cost of passing RAIs back and forth between licensee and the regulator.

We truly can do better. I know Gary Mignogna is going to be talking about this later, but in the area of topical reports, we both end up touching that information multiple times because topical report has not been reviewed, prioritized, or completed by the NRC. The portions that are needed are referenced in different licensing submittals. Thus, if resources are allocated to review topical reports when first issued, we could gain some efficiency there as well, but I will leave the examination of this to Gary.

In the area of risk-informed regulatory approaches and decision-making, there is clear evidence that risk-informed initiatives result in greater safety focus and improvement in overall plant safety. The improved safety focus from risk-informed

programs helps both the NRC and the industry target our resources on items of greatest safety benefit. As Maria said, in recent years, progress has slowed in this area, and there can be many reasons for the decline in progress, but I do feel lack of clarity and reliability of the regulatory process has contributed to the decline.

When I look at all the efforts the industry has done in response to the Fukushima event and the work the Industry Risk-Informed Steering Committee has done to better define how FLEX equipment should and could be considered in risk-informed decisions, and then look at the industry task force, how much time has been devoted and resources to develop different approaches for crediting the use of FLEX equipment and risk-informed decisions, however, after a year of effort involving numerous meetings, tabletop exercises, and NRC workshop, the equipment is installed, yet the industry has not received any position on this issue from the NRC.

I know the NRC staff thinks progress has been acceptable in all areas of the Industry Risk-Informed Steering Committee, but by not having a clear position from the NRC, FLEX equipment that could provide a far greater safety value to our operators, our security officers, our maintenance personnel, as well as to the community, sits not being leveraged to its maximum value or fullest extent.

Maybe it is a prioritization issue. I cannot say for certain. But we frequently devote significant time and resources to resolve issues that are not important from a risk perspective or have a minimal impact on safety.

Let's take the risk posed by non-conforming conditions associated with plan components exposed to potential tornado missiles. The NRC has acknowledged that the risk is low and not significant. The NRC has granted the industry several years

of enforcement discretion for this generic issue, but only after several plants spent millions of dollars installing physical protection for the components in order to expedite -- on an expedited basis to comply with technical specifications.

A more thorough examination, a risk-informed approach of this risk posed by the non-conforming item or discrepancy, would likely have led to a different, more efficient solution for both the industry and the NRC. Therefore, the process being considered to address tornado missiles should be developed into a generic process that can be used on a plant-specific and issue-specific basis, and within the generic process, provide the needed guidance to clarify the risk-informed decision-making process to avoid the confusion, especially on low-risk issues.

I firmly believe our industry is at a tipping point. The work the industry does on Delivering the Nuclear Promise must ensure safety and reliability at the highest order. The work that the NRC does on Aim 2020 as the sole regulatory authority able to service the licensing docket, your actions must ensure cost beneficial licensing actions that are -- that improve plant reliability and the economics of operations are appropriately prioritized and reviewed in a manner that results in timely, predictable, safe, and reliable regulatory actions.

Thank you for allowing me the opportunity to speak today.

CHAIRMAN BURNS: Thanks. Dr. Finan?

DR. FINAN: Thank you. Thanks for the opportunity to participate today. Next slide.

I'm with the Clean Air Task Force, which is an environmental organization dedicated to accelerating the commercialization of zero emission energy technology. We

do a lot of work on carbon capture and sequestration and advanced nuclear, but we also have programs in black carbon, methane emissions, and biofuels.

One of the things that we've done in the nuclear space is we've helped to establish the Nuclear Innovation Alliance. Next slide. And most of what I'll be talking about today comes out of a project that the Nuclear Innovation Alliance did over the last year-and-a-half. Next slide.

There is a website and a little bit more information about the NIA online. Next slide.

The strategic priority of the NIA that's most relevant today is the need for a staged and more technology-inclusive licensing process. Next slide.

This is a chart developed by the NGO Third Way, and actually, Samuel Brinton who did the work I think is in the room, so thank you, Sam. It just shows the diversity and the number of advanced reactor development projects around the country, and it shows that we really have a big opportunity. So this is a big opportunity for the country but also a major challenge for the NRC because there are a lot of technologies here, and they are quite different from most of what the NRC does day-to-day. Next slide.

The key challenges to commercialization for these technologies that -- that involve regulation include that the regulations designed for light water technologies don't easily fit advanced reactors. In some cases, they require major revisions to requirements, exemptions, and high costs and long time periods interacting with the regulator. The current process requires a major investment of time and money without clear interim steps to provide concrete feedback, and some innovators need to build a prototype or a demonstration reactor, and that process has not been recently exercised,

so there is a good amount of uncertainty around that. Next slide.

This is a schematic that just shows the project risk investment profile relative to licensing, and you can see that there are some minor measures early on that are small investments and reduce risk a little bit, but then there's a very long stage of detailed design, detailed engineering testing, and licensing, that has -- it requires a large investment of time and money without really a transparent reduction in the licensing risk until the end of the process. Next slide.

This is a process that we think would be more conducive to innovation. It would allow companies to retire risk in stages, and it would have more steps along the way: not necessarily taking longer or being more costly, but allowing for interim feedback that was clear to the companies and to their investors. Next slide.

So the goal of the NIA's project has been that a process be implemented that incorporates discrete stages; is more predictable, efficient, and cost-effective for advanced reactors; is more technology-inclusive; and maximizes the use of current regulations while recognizing the limitations of LWR-centric features. And that last point is because many of these companies are ready to go today, and they really want to get moving, and so we don't want to have a whole new development of a brand new regulatory framework. Next slide.

The key team members on this project, some of whom will be familiar, were Ed Wallace, David Matthews, Chip Cameron, and Joe Gray. Next slide.

And the NIA released a report in April which is available to the public on the NIA website, and I'd encourage folks to take a look at it. I think and hope that it has provided some useful ideas. Next slide.

Some of those have included suggestions for staged licensing to provide that interim feedback that I mentioned. The -- that can be used -- done through a licensing project plan, topical reports, and standard design approval. Next slide.

A licensing project plan can provide up-front planning as well as some cost and schedule accountability and reduce the amount of uncertainty that the advanced reactor companies face. Next slide.

And a statement of licensing feasibility could provide early-stage feedback that would be useful, and this is based on the CNSC's Vendor Design Review, Phase 1.

And so a lot of these things -- next slide -- have already been considered by the staff, and they're moving on them. They've talked about a conceptual design assessment. They've released a vision and strategy document on non-LWR licensing, and that has been fantastic, and I really commend that. And I think a lot of these ideas have been incorporated, and, you know, thought of at the same time by all different parties, so I think things are moving forward. Next slide.

There are also some important regulatory development opportunities around risk-informed and performance-based licensing that need -- need attention. Next slide.

And then we made some policy recommendations, that the regulatory infrastructure work could be done off the fee base. So we recommended that Congress revise the NRC's budget structure. Also that Congress appropriate funds for the NRC to prepare for advanced reactor licensing and continue funding to DOE for competitively awarded grants for early efforts to license advanced reactors.

Next slide.

We really intend these recommendations to serve as a foundation and a set of ideas for deliberation and then decisive action to help improve the regulatory pathway. I want to commend the work of the NRC staff, industry organizations, and Congress. They have all been taking steps to prepare for the technologies of tomorrow. There's a lot of work going on that I think is fantastic, and I would strongly encourage the Commission to really elevate the priority level of this work because it is a huge opportunity and a challenge, and to support and encourage the staff's efforts.

I also would suggest holding a Commission meeting on the topic of advanced reactors and the topic of NRC readiness to review advanced reactors. Thank you again for the opportunity to speak today.

CHAIRMAN BURNS: Excuse me. Thank you. And that concludes our first set of panelists, and I would like to open the discussion. I realized during the middle of it, for the Commissioners, it was going to be pretty hard if they were going to put that thing up, but again, if you want to be recognized, put your -- we used to say at the OECD, put your flag up and we'll -- we'll have a discussion. If -- I think, again, if there are comments you'd like to make, maybe a question you want to pose to others, we're pleased to do that, so let's get started. Anybody?

COMMISSIONER BARAN: All right, Mr. Chair.

CHAIRMAN BURNS: All right, good, thank you, Commissioner.

COMMISSIONER BARAN: I'll do it.

(Laughter.)

CHAIRMAN BURNS: Break the ice.

COMMISSIONER BARAN: Break the ice.

I wanted to follow up on something that -- that Dennis mentioned that I know has been a topic, and I am interested to hear some additional thoughts on this, and that is FLEX equipment and -- and what are the permissible uses of it outside of beyond-design-basis accident situations? In other words, is it something that operators should be using to reduce risk in various ways during outages and at other times that provides an opportunity for operators to get familiar with this equipment and use it in real-world practices? On the other hand, I take it there are issues around crediting non-safety-related equipment for safety-related functions.

I am interested, Dennis, if you have additional thoughts on that, but also just to open that topic up more broadly for -- for thoughts people may have. Thanks.

MR. KOEHL: Well, when you look at the volume of equipment that we've placed in there, we have actually laid in front of our operators a -- a large amount of equipment that can provide them a good bit of defense-in-depth, both in, you know, an event or a loss of another piece of equipment, but it will also provide some defense-in-depth with everyday operation.

You know, you had mentioned, you know, in outages, that there are certain situations that would provide additional -- even though the equipment is not safety-related, we do maintain it at a high level and a high standard. The other place that it really comes into play is it does change the security footprint, and -- and that I believe does need to be looked at from the regulator.

CHAIRMAN BURNS: Dr. Macfarlane?

DR. MACFARLANE: Thanks, Chairman.

So on the topic of risk-informed regulation, what I want to try to understand from both Dennis and -- and Maria is whether you really mean risk-informed or risk-based, because the NRC defines risk-based as entirely depending on performance assessments, probabilistic analyses. Risk-informed uses those probabilistic assessments but also uses deterministic measures. So do you really mean just simply risk-based?

MR. KOEHL: From my perspective and when you look at, you know, our submittal that we=re working on that=s risk-informed, it is risk over deterministic. I mean we actually even call it “R-over-D”. It=s a combination of the both.

So, from what I was talking about is to really look at that from a risk-informed and, you know, take into account both.

MS. KORSNICK: Yes, I would just reiterate that. In fact, it is risk-informed. The idea is, in fact, that you would use probabilistic risk assessment and also some deterministic methods.

Our observation just is as we interact with the Agency, once you introduce the deterministic methods, people are far more comfortable with the deterministic information.

And so, the initial conversation that started out in the probabilistic risk area really gets dwarfed by the deterministic discussion.

And so, it doesn=t, in our view, come out ultimately as a risk-informed process. But, rather, results ultimately in the use of the deterministic factors.

MR. LOCHBAUM: I wanted to get back to Commissioner Baran=s question about FLEX equipment.

I had the pleasure of visiting the Palo Verde plant in May of this year and saw how they use FLEX equipment during their outage.

We had some concerns about how that was being done. Those concerns were addressed. They don=t substitute FLEX equipment for equipment that=s required by technical specifications, but they do use FLEX equipment to reduce the risk during the outage.

And, depending on how they do it, it does or does not count against the FLEX N+1 equipment. If it does, if they deployed such, it does count and increase the maintenance and testing on the other equipment to ensure its reliability. If it does meet certain criteria, it doesn=t affect the N+1.

So, it seemed like it was a sound use of FLEX equipment to manage risk without undermining or changing regulatory requirements in any way.

COMMISSIONER BURNS: Commissioner Svinicki?

COMMISSIONER SVINICKI: David, I wanted to thank you for your presentation. I want to assure you of two things.

First of all, I=m personally very determined to prove those NRC staff wrong that are skeptical about our internal processes.

I also want to note that you were a presenter at the first of these meetings, I believe, that Chairwoman Shirley Jackson had.

In rereading that transcript again last night, sadly or happily, some of your insights and perspectives, I think, if you had elected to present on those today, you might have had the same view.

And they also were reflective of some presentations you=ve made about

some significance determination process. And, I don=t think that that process was fully formed at that time.

So, again, thank you for your long observation and engagement within NRC on these issues.

The topics that you discussed are subject of a very close examination, the results of the surveys that we=ve done inside the NRC.

I know it has the focus of our current EDO and leadership team.

It=s not your job to have suggestions for us of why you think there might be this growing divergence of perception between SES or leadership and employees. That=s really had -- well, all of it=s had my attention, but that particular aspect has had my attention.

Do you think it=s just the broader uncertainty about the future that feeds part of that? Do you have any perspectives on the why that might be happening?

MR. LOCHBAUM: I don=t. The one thing that=s closest to that is that the Agency, or at least the entity that was hired to do the safety culture survey of the NRC also looks at other federal agencies.

And, one of the things they reported, at least not in the most recent one, but two or three surveys ago, was that the NRC=s gap between the workforce and senior management was wider than any other federal agency they looked at which suggests to me, but doesn=t prove, that there=s a communication aspect to this.

That, if the reasons for why senior management=s doing certain things or not doing some other things were better understood, it may not close that gap, but it would likely narrow that gap.

COMMISSIONER SVINICKI: Okay. Thank you. I think that=s a good point for us to think about.

Not so much that we aren=t communicating but maybe our communication is not as effective as we need it to be.

CHAIRMAN BURNS: Mr. Merrifield?

MR. MERRIFIELD: I want to stay with that issue for a moment.

In the presentation I=m going to make later, I=m going to talk a little bit more in terms of my views about the DPO process.

But, there is one point I=d like to make, Commissioner Svinicki, when you look at the history of the Agency dating back, and I was here at the table when David and Shirley Jackson were having that meeting, we were in a period where we had just gone through a period very similar to this where Congress is putting a lot of scrutiny on the Agency, its size and its budget.

And, we had some, I think at that point, as I recollect, some similar results coming from our staff.

That -- we had a very large improvement in that. There was a series of years where the NRC was evaluated as being the best Agency in the federal government.

There=s no, I think there=s no coincidence that was also at a time when the Agency was growing. You know, there was a sense that they were going to be, you know, 17 orders for 30 plus reactors. We were working as hard as we could to bring on, you know, hundreds of people every quarter.

You=re in a different position right now. You=ve got to cut the size of the Agency. You=ve got to cut your budget. You have different expectations from Congress.

You have a group of utilities who are in a different position than they were ten years ago.

There=s no question in my mind that that carries over into some of the results from the survey.

And, perhaps, some of the gap between the workforce and management may also be that management has a better understanding of the parts and pieces of how that comes together and perhaps the workforce is understandably nervous about where am I going to be, is there going to be a place for me five years down the road.

So, there may be some very good reasons to delve into the details of what David has suggested, but I would suggest that there=s also an overlying underlay that may drive some of the results.

CHAIRMAN BURNS: Thank you.

I=d like to pose a question and it goes to, and perhaps both Ms. Korsnick and Mr. Koehl or Ann as well as Mr. Lochbaum maybe want to comment.

One of the things that he mentioned on the issue of a tornado missiles and one of the things I think the staff is seeing in some areas and engaging with the industry is this idea that things that are in say a license or a license design basis or other licensing documents may have or are perceived to have a low risk component.

It may be that that could be a result of a number of things, further evaluation, a more deterministic approach to the license when the -- particularly you=re talking a license that may have been issued in 1980 or early 1980s.

And, while understanding the desire to not focus on particularly low risk items, what>s the best way of doing that?

Because I also read a letter from Mr. Lochbaum and one of the concerns is, if you -- is, in effect -- these are my words, not his -- sort of a floating licensing basis or a floating compliance perhaps.

And, having come start a career basically in the enforcement arena myself, you know, I take his point in that.

How would you say, Maria or Dennis, maybe can address that and David, I=d appreciate maybe afterwards any comments from you.

What do you see as a path forward for that?

MR. KOEHL: Well, you know, from my perspective, I=m not sitting here saying the industry shouldn=t address the nonconforming issue. I think what we have to take into consideration becomes, you know, the time table and the urgency of doing it once we=ve assessed and evaluated what the true risk is.

Because moving a unit, there=s risk with moving a unit as well as, you know.

So, I think by taking some of that risk-informed decision making approach where you take into account the true risk and some of the deterministic items that we have to put in place that there are comp measures that we could actively deploy that would be cost-effective and cost-efficient for the utility, still service the community from providing the needed, you know, health and protection to the community.

That=s what I=m looking at when I look at some of these.

And, I think we divulged a lot of information, you know, I chose that item because I think we are putting together some generic guidance and we should look at that generic -- that guidance to be a little bit more generic to take on some of these lower

risk-significant issues such that there is guidance for the regulator for us to move forward, and it would assist the utilities.

MS. KORSNICK: Yes, to build on what Dennis said, I think the journey that we=ve taken on the tornado missile risk, I do think there=s an opportunity there that we can take a step back and say, is there some generic guidance, if you will, that could be put together and really look at sort of other issues that are out there so that we=re not really taking an individual journey on each one of these, but rather that we have the more broad discussion on really what is the impact to risk.

And then, I think that puts into perspective the time, energy and effort on both the NRC side as well as the industry side to address some of these issues.

CHAIRMAN BURNS: Okay, David?

MR. LOCHBAUM: The only thing I would add would -- I recognize that not all issues have the same safety significance, but also recognize that even issues of whether tornado protection, that=s not having the same risk impact on all plants. It may have a higher or lower risk.

What I feel is missing from the picture is the consideration of all risk fact -- unresolved risk issues at a plant, we tend to look at them individually, tornado risk, flooding risk, Fukushima risk.

But, the reality is, that they all affect a plant synergistically. I think the approach to look -- consider the fact that risks are broader than just individual risks, and that might justify postponing a tornado risk at one plant a couple of years or longer that it wouldn=t support delaying a tornado risk at another plant because of other factors.

I think those kind of risk decisions are not being made because we don=t

look at all the risks that affect individual plants.

CHAIRMAN BURNS: Okay, thanks for that.

Any other?

Go ahead.

COMMISSIONER BARAN: Just to follow up on that, at a recent Commission meeting, I expressed some significant skepticism about this low-risk compliance approach.

Can you talk a little bit about, you know, why the processes that we have now not adequate to address this issue? Why isn=t enforcement discretion enough or a tool that would work here? Why wouldn=t a license amendment request on a very short time frame, why wouldn=t that rectify this situation?

What=s the need for an entirely new process to address a currently undefined set of low-risk compliance issues?

It doesn=t have to be Dennis, it could be anyone.

MR. KOEHL: Well, I=ll start.

I think a little bit of what we=re challenged by is all of our demographics are changing. And, you know, I=m not saying it has to be a new process, but I do feel we=ve got to put guidance in place or clarify the guidance so that the reviewers or the staff, as they look at it, they can and take credit for some of the things that were done in the past.

Just because it was done in 1980 does not mean that it=s unsafe to do it today in 2016. I mean, when you look at some of the dialogue that we have going back and forth, we re-analyze items that were analyzed by very intelligent people in the >80s

and >90s and we hand it back and forth and we don=t get to a solution in an efficient manner.

That=s where I=m looking at, is by providing the guidance and then training both your staff and our staff on the guidance, it=ll aid us in being able to do it more efficiently.

COMMISSIONER BARAN: Do you think an underlying problem here is that we have tech specs that are out of date or unnecessarily stringent? I mean, is that a core issue here or not really?

MR. KOEHL: We have tech specs. We=ve got to comply with the tech specs. But, as we=ve matured and we=ve better understood the risk-informed, we need to be able to apply them to those rather than sit and say we=re just going to rechange them. Because that=s not cost, you know, effective for us to do it that way.

MR. HANSON: If I could just add, Commissioners, Bryan from Exelon.

It=s not typically tech spec issues, it=s licensing bases issues that are not as clear cut. And, you know, to the inspectors credits, they have to follow their guidance and their regulatory inspection manuals. And, when it gets to inspections, it=s black or white.

And, therefore, we need some threshold to say that it=s not risk-significant. We can deal with it as the time comes. Just as if, when you moved, you update your driver=s license in the first day you=ve moved or does that come at some period when you have opportunity to address it.

COMMISSIONER BARAN: Going back to David on this, do you see this, I mean, is this, again, it can be open to anyone, I mean, is this an issue of just refining

guidance or is this a paradigm shift in how we approach compliance issues?

MR. LOCHBAUM: Is that for me?

COMMISSIONER BARAN: Yes, well, yes, sure.

MR. LOCHBAUM: I have no clue why the NRC staff is doing this. I think it=s good news from a Project AIM standpoint because, apparently, there=s a lot of extra FTEs running about this Agency, that they can waste it on this.

I looked at NODs, it looks like that would work. License amendments are pretty quick, it looks like that would work.

I don=t understand what problem is being solved here which was one of the points you made during that July 7th meeting. I=ve looked at it, calling into the meetings, I have no clue why the staff=s doing what -- I don=t know what problem is being solved.

COMMISSIONER BARAN: And, you=ve been participating in these public meetings on this issue?

MR. LOCHBAUM: Yes. I still don=t understand. I=m slow.

MR. HANSON: Well, David, I=m not sure why you say license amendments are pretty quick. Right?

MR. LOCHBAUM: Compared to 2.206s and allegation responses.

MR. HANSON: Sure, okay.

MR. LOCHBAUM: Lightening fast.

MR. HANSON: Okay, compared to a DPO or something.

CHAIRMAN BURNS: Commissioner Svinicki?

COMMISSIONER SVINICKI: Well, we have a historical point of

reference, since I=m kind of known for this, so I was rereading that transcript last night. There was a lot -- this was in 1998, so this was a while ago and David was here. But, I=m not going to --

He had some earlier comments about NRC trusting in its processes. That was interesting and I found that very philosophical. You said, why does NRC have processes and not trust them and want to constantly be deviating from them.

So, that was a different thread of a discussion for the participants at that meeting 18 years ago.

But, what was interesting is an industry presenter made a comment, there was a lot of discussion about various compliance issues. But, an industry presenter said, “That means the time and effort is going to have to be put into developing an understanding and to make judgments that are defensible based on the fact that they truly are related to safety, not simply that it is a noncompliance and that is my sole justification for writing it up period.”

And, the next speaker was Sam Collins who, at the time, I believe, was the Director of Nuclear Reactor Regulation. And, he made the comment, and this is interesting, I wonder what today=s Director of NRR, if he would ever conceive of making a statement like that.

But, after listening to this about compliance, he said, “We have to be...” this is NRC=s Director of NRR -- we, meaning NRC, “We have to be willing to accept licensees processes as being able to disposition items of less than significant safety impact. We have to be willing to let go of our current processes and we have to be willing to have a different type of follow up to violations and focus on those types of issues that

are truly safety significant and bring us meaningful information on the status of the industry."

So, I think it=s interesting -- would anybody who agrees or disagrees with those statements like to offer a commentary on that?

Have we made any progress in 18 years? Or, if you disagree with it, are we where we need to be?

MR. LOCHBAUM: Yes, I=ll take a -- at least my answer on that.

I think there has been progress made. I thought the ROP was one of the best things the Agency=s done next to the maintenance rule. Those would be the top two things during my tenure.

I think the ROP -- one of the hallmarks of the ROP is that safety significance. Not all violations are treated the same, there is -- I think that properly allocates NRC and the industry resources on the more significant issues while freeing up resources or downplaying, if you will, the less safety.

So, I think that=s been an appropriate tool.

And, also, the other thing I like about the ROP is it=s considered a work in progress. There are adjustments made to it periodically to re-calibrate if necessary, and reallocate things.

So, I think that=s a good process that=s gone to address a lot of Sam=s comments during that meeting.

COMMISSIONER SVINICKI: Would anyone from the industry like to respond?

MS. KORSNICK: Yes, I also would agree that I think there has been a

lot of progress. There was a lot of statements in there about not following the process. And, I would just suggest that that=s not typically the relationship that we have with the NRC, either at the licensee, we=re very good on following our process and likewise, within the NRC.

In fact, that=s, I think, really why we need to step back and say, let=s make sure we have an efficient process because we all really want to adopt and to follow a process.

And, to Commissioner Baran=s question earlier, it=s not that we can=t use license amendments and it=s not that we can=t use some of these other vehicles, but, you know, a typical license amendment is somewhere in the neighborhood of 12 to 18 months and sometimes much longer.

And, the real challenge we have is, we need to be much more efficient than that. And, I think we can when we appropriately prioritize and have the discussions.

But, I do think we have made -- the Agency has made significant progress. And, I would also point to the regulatory oversight process. I think that was the result, quite frankly, of a lot of the discussions of that first panel.

I think the ROP was sort of in formation. And, I think that was a very significant success or product, if you will, after those initial stakeholder meetings.

And, I think it got us roughly in the right neighborhood. I think there is cases for ROP, for example, with security, maybe for emergency planning, that, as an industry, we feel need to be tweaked in, but we have that ongoing dialogue with the Agency.

MR. MERRIFIELD: Well, I would -- I agree with that. And, I think, you

know, if you look back to Sam Collins and he did -- Sam was the Director of NRR at that point, a significant person, terrific leader in that part of the Agency.

There was significant alignment between where Sam was coming from in those statements and where the Commission was at that time.

And, I think meetings like this are helpful to review and reflect for the Commission on where it is.

A lot of discussion ever since then about risk-informed, performance-based regulation and we sort of talk about that without even thinking about it. But, really focusing, as you=ve pointed out, in that testimony is really aligning, what is important from a risk standpoint and what is not important from a risk standpoint? Really focus on those things that are and put in a process that appropriately bin and judge those things that aren=t.

And, I think that=s something that is useful for the Commission to reflect on and look at now. Are you in the right place? And, I might suggest that some of the comments would suggest that there does need to be a little bit more realignment there.

MR. GUNTER: This is Paul Gunter.

I do have to comment, though, that when the Director of NRR, Sam Collins, looked at the issue of Davis-Besse and the vessel had penetration corrosion and the fact that there was an order underway at the time, that staff felt there was significant risk given that six of the seven combustion engine reactors had experienced corrosion.

I think that that risk was deliberately overlooked at Davis-Besse. And, it=s that kind of disregard for risk and NRC process that had led to the issuance of that order. I think it continues to be of concern today.

MR. MIGNOGNA: Just for the record, Paul, they were B&W design plants, not combustion engine.

MR. GUNTER: Okay, thank you.

CHAIRMAN BURNS: If I may, I=ll maybe change the topic a little bit.

I appreciate the comments that Ms. Buck with respect to the Tribal Policy Statement and also the importance in the environmental review.

I think the Commission is having a meeting early fall, I think in September time frame -- do I have that right -- as we proceed toward finalization of that.

I might ask you, Ms. Buck, it says maybe if you would highlight, perhaps, best practices or best approaches in terms of the engagement from both the NRC and its licensees with respect to Tribal governments and Tribal authorities on some of the issues that we have?

MS. BUCK: I think first and foremost, it=s important to know that Tribes aren=t the same. Tribes are very different throughout the country. There=s 566, like I said.

They=re all different in their own ways. They all operate differently. They call themselves different things, whether it=s tribes, pueblos, rancheros, villages, communities, they=re all the same, whether they call themselves the president, governors, tribal council, community council, those are all their governing bodies.

And, we are a sovereign nation. Each one will run their operations differently. When a lot of times when we work with other communities, whether it be the Goodhue County Sheriff=s Department, the Red Wing Police Department, Dakota County Sheriff=s, whatever it may be, we like to work with an MOU or some similar type of

agreement. Not all Tribes will want to do that.

It=s best if you just allow them to take back what the discussions with all of you have been to the group and let them decide what=s the best course of action for themselves from there.

Does that answer?

CHAIRMAN BURNS: Yes, that=s good.

MS. BUCK: Yes, don=t think we=re all the same. We=re not all the same. We all have differences.

MR. MERRIFIELD: Mr. Chairman, I want to -- I was going to raise this when I originally put up my flag.

I wanted to compliment President Buck and also the Commission. You were asking for some positive things.

I had the opportunity when I was on the Commission to be the first individual to have a government to government meeting at a Commission level with the predecessor to President Buck. And, I was very heartened by her comment of how much she appreciated all the work that was being done by Region III.

I can assure you in 1978, that was not the kind of comment that we received from her predecessor. We came back and collectively as a Commission, at that point, we changed the mission of our then Office of State Affairs to be State and Tribal Affairs.

And, I think the increased attention that the Commission as a whole has given to the importance of government to government relationships with the Tribe is an important improvement on what the Commission has done over the years.

So, I wanted to leave that compliment. I think it=s very heartening, President Buck, the comments you=ve made. I think it=s a lot of progress on the part of the Agency. It=s certainly I commend the Commission to continue.

CHAIRMAN BURNS: Commissioner Svinicki?

COMMISSIONER SVINICKI: I wanted to ask Dr. Finan, first of all, thank you for your presentation and your specific recommendation to perhaps have a Commission meeting on advanced reactor licensing. We can take that back into the Chairman=s agenda planning and pre-agenda planning process.

I struggle a little bit in the advanced reactor area between kind of the perfectionist side and the pragmatist side. In a perfect world, we would have this type of frame work in place, all the necessary elements well in advance of having to review an advanced reactor design.

In the real world, you tend to prioritize that work when you think you have some sort of application on your doorstep that=s about to come in.

Did the Innovation Alliance discuss this issue of, you know, maybe the getting of one at NRC and the review of it is kind of the proof of the process that that will show you what you need?

And then, inside NRC, we have given some weight to the staff=s effective, at least, first stage review of a medical isotope production technology. That was very novel and unique for the SHINE facility and Janesville, granted that was only up to the construction permit stage. So, that is already two-step licensing or will be a two-step process.

But, you know, in this chicken and egg of how ready can we be until we

really know one that=s coming and have some broad strokes of what it=s going to look like, how did the Alliance struggle with that issue?

DR. FINAN: Thanks for the question.

I think we see that issue also and really saw that there are some near-term opportunities to adjust the process and the staff are working on that. And, it=s not a very big lift. And, it will help a lot for the companies that want to come in soon.

I think the idea of, you know, just waiting until a reactor project comes along and doing the first test case at that point, that can work if you have a government supported project that has a lot of time and a lot of budget and a lot of patience from lawmakers who want to commit to that.

But, for a private company to invest in a process that may take ten plus years and they really don=t know how long it will take, it=s just not feasible.

So, we=re missing out on a lot of opportunities if we don=t adequately prepare for those private sector projects which are really exciting at this time.

So, I think that, you know, it is an issue. There are some things that can be done in the near-term and the staff are starting to do them. And, I think the Commission should try to support that and encourage that and really be knowledgeable about that work.

The longer term things, they need to have some segmented, you know, space where they can be worked on without the pressure of the day to day priorities. And, I think that part of that is having Congress make some changes to the budget structure so that those can be done off the fee base.

And, it=s helpful if the NRC asks for that. If the NRC says, yes, we

actually do need that, that would be helpful.

So, if both sides, if it=s clear to both sides that both sides want that, that will be more likely to move forward.

So, I think that both sides can talk about making that a priority and making space for that preparatory work that will allow for projects to come in from the private sector and not necessarily with a huge amount of government support and patience.

Thank you for the question.

COMMISSIONER SVINICKI: Thank you.

CHAIRMAN BURNS: Thank you.

We=ve come to the close of the first portion of our program. We=ll take about a ten minute break and then we=ll continue with another round of presentations and then a discussion.

And, the mics are still on.

(Whereupon, the above-entitled matter went off the record at 10:20 a.m. and resumed at 10:32 a.m.)

CHAIRMAN BURNS: Well, welcome back everyone.

One thing, another logistical thing I=ve been asked from talking to the person transcribing the meeting, if you have a cell phone, this is classic, you know, this is a 21st century problem, if you have a cell phone, please keep it in your pocket or your purse and not close to the mic because it does provide interference and, you know, whoever=s listening in. Actually, it provides some interference in terms of the transcription and some feedback. So, if you don=t mind, stick them in the pocket or at least keep them away from the microphones themselves since it does have that

interference.

We=ll proceed -- let=s proceed to the -- our second round here. And, we have -- we=ll start out with five speakers.

Unfortunately, Mr. Brossy from the Navajo Nation Washington Office was not able to attend at the last minute.

But, this morning, we=ll hear in our second round from Allison -- Dr. Allison Macfarlane from the George Washington University, Professor of -- being a graduate, I know I=m appropriately trained.

She=s Professor of Public of Policy and International Affairs and Director of Center for International Science and Technology Policy, Director for International Science and Technology Policy Masters of Arts Program, and also former Chairman of the NRC.

Philip Moeller, Senior Vice President Edison Electric Institute and also former Commissioner on the Federal Energy Regulatory Commission.

Janet Schlueter, Senior Director of Radiation and Materials Safety for the Nuclear Energy Institute.

Gary Mignogna, President and Chief Executive Officer of AREVA.

And, Katie Sweeney, Senior Vice President, Legal Affairs and General Counsel of the National Mining Association.

And, again, we=ll hear the statements and then open up for discussion on, again, topics maybe suggested by our speakers, but whatever is on anybody=s mind.

So, with that, I=ll ask Dr. Macfarlane to begin.

DR. MACFARLANE: Great, thanks, Chairman.

It=s wonderful to be back here at the NRC and I really appreciate the opportunity to address the Commission today.

I=ve had the pleasure of visiting the White Flint complex quite a few times actually this past month and it=s great to see all of you. And, I actually here there are a few vacancies on the Commission, so, you know, if you --

Anyway, one of the benefits of being outside the Agency is that you can gain perspectives on the Agency=s work.

I now sit on a National Academy of Sciences Panel that=s examining performance-based regulation, especially in the transportation sector.

We had a meeting earlier this month where a number of regulators from other sectors of government gave presentations about what and how they regulate.

This experience emphasized to me what a great regulator the NRC is.

The NRC began to tackle the issue of performance-based regulation literally decades ago. The other regulators that were at this meeting were sometimes confused as to what performance-based regulation was, how it differed from management-based regulation and none seemed to include safety culture in their regulations or even aware that they could do so.

As Dave Lochbaum said, and I totally agree, the reactor oversight process, in particular, I think, should be held up as an example to all regulators of effective regulation.

This experience has made me proud to have served with the men and women of the NRC.

But, of course, this is not to say there isn=t room for improvement at the

NRC. So, let me make six points in that area.

First, and I think you knew this was coming, the term stakeholder. I encourage you to give up this loaded term. I know that some in the Agency mean industry when they stay stakeholder and others mean public interest groups or even anti-nuclear groups.

Plain language, I know Glenn likes plain language, is important and we shouldn=t have to decipher what you intended to mean. Say what you mean.

Second, the industry is changing, the NRC must, too. Every staff member must have a role directly related to the Agency=s mission. It=s very important that staffing is done appropriately so that areas that need staff have the right staff to do the job.

And, for management, succession planning must be done carefully. Selecting those who have the appropriate skill sets necessary for managerial positions, not those who simply put in the time.

You must also continue to be mindful, to encourage diversity and management positions and ensure that women and minorities are better represented at the top of the Agency. I know this is difficult, but you have a strong set of diverse talent at the Agency and I know that you can be successful in this endeavor.

Third, with the announcements of additional plant shutdowns or planned shutdowns since I left the Agency, the decommissioning rule has become more necessary than ever. I urge you to prioritize it and work quickly to finish it.

Fourth, the backfit rule. Two comments here, three actually, but we=ll start with two.

A, though industry has put a lot of pressure on you to abandon the use of qualitative factors in your cost benefit analyses, please do not do so.

You all know that some aspects of regulatory analyses cannot and should not be quantified. Stand your ground.

B, the backfit rule prevents some reasonable actions from being taken because they can never meet the cost benefit hurdle.

For instance, while Chairman, I heard from many local public interest groups that they would feel more secure if levels of radiation at the plants close by to them were available real time on the web. Since many plants collect this data regularly, it wouldn=t take much to make this information available on a plant website.

But, NRC cannot compel this reasonable and low cost, trust building measure because of the backfit rule.

Fifth, since we=re talking about the backfit rule, another thing I learned on the National Academy of Sciences Panel is how extremely far out of step the NRC is with the rest of the U.S. government in regards to its valuation of the cost of a human life in it=s cost benefit analyses.

As you know, the NRC has been using the value of $3 million for a human life since 1995. At my National Academy meeting, Senior Office of Management and Budget Managers told me that, on average, most U.S. regulatory agencies use a value of $8 to $9 million.

Now, how can the NRC continue to use a figure a third of that which everyone else uses? How is that legally defensible?

I urge you to look into this discrepancy immediately.

Sixth, public engagement. I=m sure many of you on the staff here remember me making this issue a central part of my program as Chairman.

First, let me applaud you for having this meeting and ensuring that many different and differing voices are heard.

But, there is still much work to do, work that you need to do, both to increase trust in the Agency and protect the staff that worked so hard to ensure the mission of the NRC.

As I emphasized as Chairman, there are plants and regions that need -- some plants and regions need more attention than others where trust has been lost.

And, I saw this recently when I had the opportunity to address the San Onofre Nuclear Generating Station Community Engagement Panel.

To develop trust, you must listen to concerns and address them effectively. And, to do this, you must train your staff to engage.

Engineers learn nothing about this type of interaction at university, I can assure you. And, of course, you don=t have to start from square one. Others have trod this ground before you. Reach out to your sister agencies such as the EPA Super Fund to jumpstart this work.

If the NRC is not a trusted regulator, it=s simply not fulfilling its mission.

And, finally, a question for you, my former colleagues, what will you do with what you hear today? How will you take actions that address the concerns you have heard? And there will be contradictory concerns. What concrete steps will you take to make change happen?

Thank you again for this opportunity to address you. I really appreciate

your attention.

CHAIRMAN BURNS: Thank you, Allison.

Mr. Moeller?

MR. MOELLER: Mr. Chairman, Commissioners, thank you for inviting me.

I=m Phil Moeller with the Edison Electric Institute, the association that represents all the investor run electric utilities in the country.

But, I think the main reason I was invited was because of my career nearly ten years as an economic regulator. We would have joint meetings with you every couple of years. Those were very helpful to facilitate the relationships between the Commissioners and the staff. And, must say that you serve much better food than we did at the time as well.

We have a number of nuclear plants that are at serious risk of being shut down in this country solely for economic reasons. And, that=s pretty serious for a couple of reasons.

Number one, they are a zero emitting sources of carbon.

And, number two, replacing them, and they will have to be replaced eventually, will be much more expensive than the sum cost into the existing plants.

Why is this happening? It=s because wholesale prices are very low right now and, arguably, too low for a number of reasons, some that are physical, some that are artificial.

We have an abundant supply of natural gas in this country that=s really emanated in the last ten years. That is usually the fuel that sets the marginal price of

electricity in the wholesale market, hence, it has effects.

Secondly, we have tax policy that prefers some zero emitting sources over others and whenever they produce power, which any hour of the year, they are suppressing wholesale prices. You might like it, you might not, but it=s a fact.

The third is that we have lower demand in the country. We always anticipated higher demand, but because of economic conditions and the fact that energy efficiency programs have been successful, demand is looking to be flat for the foreseeable future.

The fourth is we have some issues with price formation in the wholesale markets where prices aren=t accurately reflected, especially at those times of high demand, and that=s important in terms of revenue for the generators.

So, what can be done about this situation? In the short-term, we=re looking at state solutions that will value these resources as zero carbon emitters, either solely as that or increasingly discussion about including them in these state renewable portfolio standards that have typically, when they were put together didn=t value the zero emitting aspect of nuclear. That will take legislative changes, but we=re hopeful that many states will take a look at that.

My colleagues at FERC are working on what now is a three year project on improving prices in the wholesale market. They=ve done a number of things, they still need to do a few more things so that, again, prices accurately reflect demand and result in the kind of compensation that units need, particularly in high demand times.

The organized markets in this country were developed without an emphasis on fuel diversity. And, there=s an ongoing discussion, I think an increasing

discussion, of trying to find a way for these markets to actually value that fuel diversity, particularly the zero carbon emitting resources like nuclear.

But, it=s pretty important because, again, you can=t blame the markets if they weren=t designed to value this, but this is something that needs to be valued.

The tax code as well, efforts to reform it so that it would include more zero emitting -- if the priority is zero emitting resources, include nuclear and other technologies that are zero emitting so that they are more on an even playing field. We hope that Congress will consider that this year and going forward.

And, I just hope that, as the NRC recognizing that you are primarily safety regulators and, at FERC, we were primarily, or I was an economic regulator, just be very cognizant of these economic pressures. I realize you can=t necessarily come up with a proposal to make it easier to mothball a nuclear plan, given the dynamics of nuclear power, but being very cognizant of these economic pressures I think is extremely important.

Going forward, we=ve got a lot changes going on in the electricity industry. There=s a lot of exciting technologies that are out there, the smart grid being a two-way system now at the distribution level is empowering consumers and that=s a good thing.

One of these promising technologies is energy storage which can be defined about 20 different ways, whether it=s delivered at the wholesale or the retail market.

It is a great technology. It=s being expanded, but we have to be realistic that storage will never take the place of base load. It just won=t.

We had a great presentation in Nashville yesterday at the National Association of Regulatory Utility Commissioners that outlined what Germany would have to do in terms of the amount of storage if they wanted to go to zero emitting resources by 2050 and it=s just, it=s overwhelming. Baseload is going to be needed.

And, if we=re moving toward a zero emission energy fleet domestically and internationally, it=s going to have to be nuclear and advanced nuclear that fills that gap.

So, associating my comments with Dr. Finan, if there=s anything you can do through the regulatory process to assure that the advanced reactors can come online as soon as reasonably possible through an efficient and safe regulatory process, it=s going to be important for just -- not just the United States, but for the world to meet this gap of increasing energy consumption, which is probably going to double worldwide in the next 25 to 30 years, if we want to keep the zero emission aspect of the low carbon emission aspect of this, it=s going to require nuclear and advanced nuclear to do it.

With that, again, we have a number of units at risk in the short-term. We need to have not only actions at the state level, the federal level, hopefully, you=ll be cognizant of it. In the long-term, we need the nuclear fleet here as we move forward to a lower emitting energy sector, both domestically and throughout the world.

Thanks again for inviting me.

CHAIRMAN BURNS: Thanks, Mr. Moeller.

Next is Janet Schlueter from NEI.

MS. SCHLUETER: Good morning and thank you.

I=m going to represent the views of the members of our fuel cycle

facilities at NEI on NRC=s regulatory program.

And, I=d first like to mention a couple of compliments to the NRC staff as well as opportunities for additional collaboration and improvement.

With regard to compliments, a few years ago, the NRC staff put together a regulatory issues integrated schedule which they are maintaining on the NRC web page. It was done in the context of cumulative impacts.

It=s the staff=s efforts to collect all those initiatives that are impacting the fuel cycle facilities.

We=ve had quarterly meetings on those initiatives. Those have been very productive. NRC staff has solicited our input and made adjustments to those initiative from time to time, whether it was the scope or the milestones and time lines associated with them.

So, that=s been a very positive experience.

Of late, we=ve had some very productive public meetings on a couple of different topics, in particular, cybersecurity for the fuel cycle facilities. We=ve had a productive exchange and I think the staff=s thinking is evolving.

Also, on program -- inspection program improvements, there are some that are underway. The NRC is more routinely using the team leader concept for a single point of contact, both before, during and after inspections.

The NRC has bundled some of the inspection modules which has made the inspections more efficient.

And, we=re working with the NRC to fine tune the document requests from the NRC prior to the inspection. And, we=ve done some electronic sharing of

documents in advance of inspections which has made things more efficient as well.

Also, the licensing project managers have been communicating more routinely with the sites and I think this is just helping overall working relationships improve in that area.

With regard to opportunities, we believe that there should be fewer inspection hours based on our safety record and the low risk profile of these facilities. And, I=ll go into that in a little bit more detail later.

We need a more efficient and predictable licensing process, not only is it costly, takes a lot of time, as has been mentioned by others, but there is the issue of the Request for Additional Information aspect of that process. It=s not predictable.

I understand that NRR has an initiative underway where the RAIs should be tied to the safety evaluation report and perhaps a limited number of rounds of RAIs.

I would suggest that we need some similar discipline applied to the fuel cycle licensing process.

Also, NRC=s risk should risk inform and prioritize the regulatory initiatives that are on our plate at any one given time.

While the integrated schedule is a good inventory, it=s not representative of the risk associated necessarily with any of those initiatives.

Sometimes there is really no perceived or calculated safety benefit or improvement that=s associated with some of these initiatives.

For example, a couple right now that we believe should be terminated in the absence of a safety issue is the potential rulemaking for prompt remediation during operations as well as the development of a quantitative exposure standard for workers at

fuel cycle facilities. No value added from our perspective.

Also, we believe there should be more transparency in the NRC invoices. There=s a lack of sufficient detail for our licensees to pay their bills in some cases as well as increased transparency in the fee process and fee rule.

And, I give Maureen Wylie and her staff credit for reaching out and conducting a lot of different public exchanges on this topic and we look forward to the September Commission briefing on this issue as well.

With regard to the industry safety record, we do have a very strong operational safety record. Some of these facilities have been operating for as many as 50 or 60 years.

They often times have an annual license performance review with no areas for improvement or very little areas for improvements. So, we have a long track record.

We have a very low number of enforcement actions. For example, if I look at the years from 2010 through 2015, our entire fleet has had an average of less than four escalated enforcement actions per year.

We also have a low operational risk profile when compared with other facilities. For example, our average annual worker is typically a fraction of NRC=s 500 millirem limit which even requires monitoring of workers.

In one case, a facility averages 9 millirem for its workers. So, this is an extremely low level.

There=s no NRC general emergency criteria for significant events and accidents, unlike the power plants.

And, the International Atomic Energy Agency considers risk from the fuel facility events, even the most significant ones that have happened internationally, to be about three orders of magnitude less in risk when compared to operating power plants.

We=re very proud of our long track record of high quality fuel and I=m sure that we=ll continue to provide the plants with such.

Further, the NRC regulatory framework is unchanged since approximately, well, since 2000 when the final Part 70 went into effect.

And, many of the managers at the fuel facilities today have been there since well before that time, participated in that rulemaking and know the rule and its basis and related guidance very well, extremely well, much better in many cases than the staff and managers because, of course, those have turned over, in some cases, quite a bit.

Yet, if you look at the NRC program for the fuel cycle facilities, it=s quite large. The average annual inspection hours, if we look at 2010 through 2015, for the Category 3 facilities, it=s about 1,800 hours per facility.

For the Category 1 fuel facilities, it=s approximately 5,600 hours per facility.

Now, the Cat-1s do have resident inspectors. So, perhaps the NRC should consider having the resident inspectors conduct some of the routine inspection modules to take the inspection activities away from the Regions a little bit.

The FY 2016 budget for just nine facilities, although there are more licensed, but there are only nine that are operating in some phase or another, is approximately 175 NRC full-time equivalent, which equates to a ratio of 19 to 1. That seems extremely high.

It=s also $44 million of the NRC=s total fuel cycle budget, which, of course, as you know, has to be recovered through the fees.

As I hope you can see by these facts, we believe that the fuel cycle facilities are regulated to a higher level of risk than they actually pose.

On the next slide, you=ll see the history of the fee structure for this category of licensees. It=s a trend that is not sustainable. As you can see, we=ve had as much as a threefold increase for the low LEU or the Category 3 facilities in the time period of FY 08 to FY 16.

Now, I do acknowledge that in the FY 16 fee rule, there is a decrease for this category of licensees from 6 to 7 percent. We certainly hope that trend continues because we cannot sustain the one that was occurring up until this time.

And, just for comparison, if we look at the HEU, the top line for the Category 1 facilities, they were paying as much as $8.4 million, which is almost two times the fee for an operating power plant.

And, finally, we will maintain our focus on operational safety and security. We=ll constructively continue to engage with the NRC to identify legitimate safety issues. And, we=ll identify effective and efficient solutions for us both to implement.

This will make our resources more available for facility specific operational improvements.

Thank you.

CHAIRMAN BURNS: Thank you, Janet.

Mr. Mignogna?

MR. MIGNOGNA: Thank you. Thank you for hosting the meeting and

thank you in advance for having the patience to listen to me.

Suppliers are struggling to introduce new products in a reasonable time frame including new reactors under the current regulatory time frames.

I=d like to provide an industry supplier perspective on the current state of licensing efficiency in three specific areas, topical report and, in particular, in support of fuel designs, digital instrumentation and control systems and new reactor designs.

The timely completion of topical report reviews is showing a negative trend over the last ten years. The average time up until 2006 for the NRC to review and approve topical reports was 14 months.

This average has increased to 51 months in 2016 with the longest being submitted 76 months ago and not yet approved.

Hence, we can longer wait for the NRC to review and approve topical reports before introducing new fuel products which then requires licensees to introduce the same technical content for review in multiple license amendment requests.

Which, in turn, causes the NRC considerable resource inefficiency with multiple review teams reviewing the same technical information.

Working with the NRC staff, we are starting to make some progress in this process through frequent status meetings, more efficient use of audits, and we appreciate the additional interface time where we reach a common understanding of issues and reach resolution much more quickly when we communicate in real time than relying on Requests for Additional Information as a primary communication path.

However, I=m concerned that our licensing process will still not move fast enough to get important new fuel innovations deployed in a reasonable amount of time to

meet licensing needs.

New fuel products improve uranium efficiency while accident tolerant fuels will improve safety margins in the near-term by a few hours and enhanced accident tolerant fuels have the potential to improve coping times up to 72 hours.

Progress on these innovations can be improved by applying the ongoing initiatives and by applying the following requested initiatives.

First, I=d like to acknowledge and greatly appreciate the staff taking the initiative to revise LIC-500 to include a new prioritized scheme as well as metrics for review and approval times as were in a previous reviews of LIC-500.

Please continue to give the revisions focused attention.

We request that you allocate additional resources to the topical report reviews to catch up.

Additionally, restore the value of precedence and establish standards in a review and approval process to minimize the influence of individual reviewer preferences.

Restore the discipline and the use of LIC-101 governing licensing reviews.

And, define the level of reasonable assurance of safety and compliance for judging the technical adequacy of licensing requests and establishing consistent acceptance standards for use by reviewers.

Consider a new process where the precedence of approvals of codes and methods accepted in a LAR can subsequently be accepted in a topical report without the whole new reviewing of the same content from scratch.

That is, allow NRC acceptance precedence to be applied from LARs to topical reports just as you do when going from topical reports to LARs.

Further, it would be helpful for the NRC and DOE to be aligned with each other and with the licensees and vendors to deploy accident tolerant fuel lead test segments, rods or assemblies, depending on the technology in 2019.

Please factor this into your priorities.

The second topic is digital I&C system. Digital I&C modifications for non-safety related systems have been successfully implemented at all sites and the benefits are being realized.

Many of these modifications such as turbine and feedwater controls have resulted in increased reliability and fault tolerance, resulting in fewer transients, trips and operational challenges.

However, even after the successful implementation of safety related digital reactor protection and emergency safeguard systems at three U.S. nuclear units and dozens worldwide, the industry is still struggling with the timeliness, efficiency and predictability of the licensing and oversight processes for subsequent safety digital I&C upgrades.

We acknowledge and welcome the NRC effort on the Digital I&c Integrated Action Plan. Currently, there is a significant amount of effort by the NRC staff, utilities, vendors, Nuclear Energy Institute, Electric Power Research Institute and the DOE to improve and modernize the regulatory infrastructure that is used for safety related digital I&C designs.

We will fully support and will continue to cooperate with the NRC staff in

their effort develop clear technical guidance and consistent regulatory requirements so we can implement safety related digital I&C projects on a reasonable schedule and cost efficient budget.

We request that you please keep resources dedicated to this important effort and continue to work efficiently with a sense of purpose towards more pragmatic solutions to specific regulatory issues such as common cause failures while maintaining the quality and integrity of these systems vital to safety.

The third topic is new reactor designs. The design certification review and approval process has been arduous and financially painful experience for the major suppliers. The costs for a design certification for light water reactors, similar to those already operating is between $600 million and $1 billion.

This does not include the detailed design effort which, in fact, is much less than the licensing process itself. This is quite inverted from a historical perspective.

Further, we have seen that many LARs and design changes have been required during construction. Some of which are arguably not improving the safety of the unit.

And, even after completion of multiple units approving the design, regulation requires a resubmittal of the DC for renewal after 15 years for another approval cycle.

This inefficient process significantly increases the cost of new nuclear units and significantly discourages future investments while doing little to impact safety.

Although we don=t see the need for a renewal requirement, at a minimum, we again request that you follow NRC acceptance precedence when folding

LAR resolutions into the DC resubmittal and not launch a new team to review the same content for renewal.

So, I=ve identified from improvements, topical reports, safety related I&C and new reactor licensing.

We acknowledge that vendors much incorporate lessons learned and implement improvements to do our share to increase efficiency. Please know that we are committed to improve.

We are eager to be part of this solution to assure a safe and cost effective nuclear future.

Thank you again and thank you for your leadership.

CHAIRMAN BURNS: Thanks. Thank very much.

And, finally, for this panel, Katie Sweeney from National Mining Association.

MS. SWEENEY: Thank you for the opportunity to be here.

I do want to echo others on the efforts of the Commission to improve processes. It=s important to take this step back every once in a while and look and see where improvements can be made.

I could say ditto to a lot of the comments from earlier this morning, especially those of Ms. Korsnick, Mr. Koehl and Ms. Schlueter.

But, I want to say that one thing that I think that there are good processes in place. I think the one thing we really need to focus on is the risk-informed performance-based process that you have in place. And, that=s what actually needs to be enforced and make sure that it=s consistently adopted throughout the Agency.

I represent the uranium recovery industry and we are a very small sector of NRC licensees. But, I found it interesting, you know, Mr. Moeller said we need the nuclear industry here in the United States and talked a lot about low, no emission energy source, very important.

Well, the uranium industry is an important component of this. We currently import over 90 percent of the uranium used by our nuclear power reactors, despite very large resources of uranium in this country.

The greatest source of uranium imported in the last year, according to the Energy Information Agency, was Kazakhstan.

So, we, as a uranium industry, need a roadmap and we need your help to succeed. It=s an industry that=s increasingly under pressure. It=s a very small industry and the costs of regulations continue to grow and they=re not commensurate with the risk.

What the industry truly needs is regulatory certainty. The certainty allows better project proposals, allocation of resources in the right way, the ability to budget, and, I would say that=s not just for the industry, but for the Agency as well, and the ability to attract investment for projects.

And, the uncertainty creates delays in licensing and other approvals, misuse of resources and really, the inability to get investment dollars here in the United States.

So, I think that the Commission has a very important role in providing regulatory certainty. We=re not asking for fewer regulations, we just want to know which regulations policy and guidance to follow.

So, we feel like we need a roadmap and we feel like once the rules, policies and guidance documents are in place, that those should be used consistently.

I mean, obviously, if changes are needed to reflect new understandings, new technologies, information we have learned about new risks, they should be updated accordingly.

But, if there has been no change and there=s no difference in the risks, then the regulations and policies that are in place should be used.

I really was interested in what Mr. Koehl had to say. You know, he was looking back and saying some of those guidance documents, yes, they=re from the >80s, but there has been no reason to change those. And, yet, they=re re-analyzed by the staff over and over again.

One thing that is unique, I think, to the uranium recovery industry is we are regulated, not just by the Nuclear Regulatory Commission under the Uranium Mill Tailings Radiation Control Act, but also by the Environmental Protection Agency and, to some degree, the Department of Energy as well.

And, I think one area where some -- the Commission could be critical in providing regulatory certainty is making sure that it defines and indicates to the other agencies involved where NRC=s authority begins and ends.

We found a lot of mission creep recently by the Environmental Protection Agency into NRC=s authorities and we think that creates so much uncertainty for licensees that it=s really important for NRC to step out and defend its authorities and indicate to the other agencies where they believe that NRC=s authority begins and ends.

The role of risk-informed regulations, as many people have already said,

is critically important. I just want to talk through a couple of examples where we think this has not happened.

And, I do not mean to condemn the entire program, there are many effective relationships we have with NRC and many issues that have been well addressed, but I just wanted to highlight a few examples of where things could be better, could be improved, particularly by the use of risk-informed regulations.

And, one of them is the use of the generic environmental impact statement that was developed for the uranium recovery industry. I thought it was interesting that Dr. Finan earlier was talking about how her group didn=t want to waste time on developing a whole new regulatory framework to move forward.

But, that=s exactly what we did on the uranium recovery side. We worked with the Commission and the staff to develop this generic environmental impact statement so we could expedite and understand all the risks involved with uranium recovery licensing because it hadn=t been done in 30 years. There hadn=t been many new uranium mines developed.

So, in our -- so industry put a lot of money and time and effort into developing that as did NRC. And, it was all with the sole idea of expediting, permitting and making sure that everybody understood the risks. And, if you had risks that were outside what was in the generic environmental impact statement, then you would analyze those separately.

But, if you feel within those risks, then the industry should move forward under that roadmap.

Well, that roadmap has not really been used well. It hasn=t come to

fruition. If you look at the cost of the first few licenses that were done under that roadmap, they cost about $2.6 million.

One of the last licenses that came under that roadmap was $4.4 million and it took longer.

And, we=re finding that we=re not using that tool effectively. And, I think this is a great example of where the risk-informed performance-based approach to regulations and policy decisions is really important.

I think if you look, the GIS identified all the safety hazards, looked at NRC=s mission, judged these type of projects against that and we thought we had it all down. And then it just wasn=t used effectively.

And, I know I=m out of time, so I=ll -- you guys have the rest of my information that I=ve provided.

So, thank you.

CHAIRMAN BURNS: Okay, thank you Ms. Sweeney.

We=ll start off, Commissioner Svinicki, thank you.

COMMISSIONER SVINICKI: I can go all day, but people don=t have the energy.

CHAIRMAN BURNS: I think we will.

COMMISSIONER SVINICKI: You think we will? I=ll be here all day.

I want to start out with Dr. Macfarlane. I do appreciate everyone=s presentations, but, Allison, I=ll just give this little soliloquy, you don=t need to respond to it.

But, we were sisters united here in the notion that NRC needed to be

willing with senior leadership vacancies and hires to look both maybe deeper in its own bench strength of capability for diverse candidates.

And, also be willing, in this environment, it=s generally just taking expressions of interest from other federal agencies, but that it was okay to consider resumes from other people coming from other government experiences might have some wonderful new ideas and blood that they would bring in here.

So, thank you. I don=t think anyone else, I=m just mentioning it because I don=t think it will come up in anybody else=s presentation.

But, I will tell you, before you left and even today, I routinely encounter activities here that I think are evidence of the fact that NRC has leaned into that challenge a little bit more. And, I see the positive results of it.

So, thank you for your leadership on that and I continue the cause as best I can.

We=ve heard -- I=m trying -- I am making note of specifics that you all are bringing up, but I=m trying to identify for myself is maybe some themes of observations that we=re hearing.

Something that I think I=m hearing from the previous segment and the presenters right now is the call for an efficient and predictable licensing process.

But, again, I=m going to go back to my, you know, a world of perfection and a world of pragmatism.

I have developed a view that if confronted with a choice as a regulated community, between being promised an efficiency that may or may not occur or being given greater certainty about review time frame that might take longer, my sense is that

your industry is so dynamic right now that if you were offered a review that could take as little as three years but might take five, or a high, high confidence level in a four year review, that my sense is, in general, you would weight that certainty over efficiency.

Am I wrong about that? Would anybody like to comment on that?

And, please, don=t give the answer that you want both, because we all want both. But, or is it situational? Is there anyone who would like to respond on that?

And, it=s an important thing for us as we allocate both our human capital resource and make budgeting decisions. So, I=ve developed that sense, but if I=m wrong, would anyone like to comment on that?

MR. MIGNOGNA: Yes, I=ll comment and I=ll give the vendor perspective that having certainty so you know how your investment is going to play out and what your business model looks like is extremely important to us.

So, given that, we have a very, very high confidence in say for topical reports that it=s going to be 24 months.

I would take that over a hope and a prayer that it could be 12 for example.

COMMISSIONER SVINICKI: Okay. No other -- there=s one other -- okay, thank you.

CHAIRMAN BURNS: Mr. Atkinson?

MR. ATKINSON: Yes, I=m weighing in for NuScale here. Certainly, the predictability of review time is very important to us.

So, I think it=s a little bit of a false choice. And, I think what we want is -

COMMISSIONER SVINICKI: Well, we=ll see, won=t we?

MR. ATKINSON: -- certainty but not unreasonable certainties.

So, kind of to build on Gary=s point, you know, what we would probably determine to be a reasonable time for the review that is predictable is preferable for certainly our investors to continue their investment over an open ended review period.

So, it=s not quite as black and white as I think you would like it to be there or suggesting, but a reasonable review period with some certainty is certainly preferable to an open ended process.

CHAIRMAN BURNS: Mr. Merrifield then Dr. Finan and then Ms. Korsnick?

MR. MERRIFIELD: Yes, just very briefly. I think, you know, I agree with Dale. I think what happens is, when you say, well, do you want, you know, go for timeliness or do you want, you know, you want to have a predictable date?

I think the problem that the Agency can get itself into is that, if it=s choosing the latter, well, we=re going to go with that predictable date, I think there=s a tendency of conservatism in the Agency to push that line out.

And so, I think you continue to lower the bar such that there is a willingness to take dates which are longer than they ought to be. And, I think the staff needs the challenge from the Commission that you need to be timely and you need to think about efficiencies that will allow that bar to be raised such that the timeliness is greater rather than less.

DR. FINAN: Thanks. This is on the same topic.

I think that following on what Jeff said, I think that the Commission or the staff could set some stretch goals for time lines, even if those are internal. It=d be great to try to exceed the expected time line. And, that would be useful, just other agencies try

to do that and I think that would be productive.

I also wanted to mention, relative to the SHINE example that you brought up, and I didn=t really address in the last session.

I think that was a really good example of where the NRC did some preparatory work. So, the NRC Research and Test Reactor Office developed regulatory guidance for aqueous homogenous reactors in advance of that application being submitted because there had been a national call for the need for Moly-99 sources.

And, I think we need a similar national call for the need for advanced reactors and advanced technologies to address the need for carbon-free generation.

And, then the NRC with the right resources can do some of that preparatory work that would allow us similar pathway to the SHINE case in the advanced technology case for power generation.

CHAIRMAN BURNS: Okay, Ms. Korsnick then Ms. Sweeney and then Mr. Riccio.

MS. KORSNICK: Thanks.

Well, in response to your challenge, Commissioner Svinicki, I think the thing we need to be careful of is you=re going to hear that people were going to take that certainty for business reasons, et cetera.

But, the challenge then we leave is there=s not the hunger within the organization to pursue those efficiencies.

And so, I think that=s the challenge we have to be careful of is, let=s just not go for an accepted time frame 24 months or whatever it might be, and not ultimately be working towards a goal that it=s more efficient.

MS. SWEENEY: She just said it.

CHAIRMAN BURNS: Okay.

MR. RICCIO: Hi, this is Jim Riccio with Greenpeace.

As we=re debating efficiencies versus certainty in licensing process, it raises a frustration that I=ve had watching this Agency over the last ten years and that=s watching as a lot of FTE has been wasted licensing reactors that are never going to be built.

We=ve now suspended more new nuclear construction than is actually being built. And, I sat in Third Way=s presentation on Capitol Hill last year. And, a gentleman from Babcock & Wilcox stood up and said, listen, you face a valley of death ten years long and a billion dollars deep. And, he was talking about the new reactors.

I would hate to see us waste more effort by this Agency and a lot of FTE licensing reactors that are never going to, you know, come to light.

So, unless you have a reactor that can actually meet the tests of the marketplace, that actually will stand a chance of ever getting built, I suggest that we not waste NRC resources and, you know, focus our effort on the 100 reactors you still need to regulate.

CHAIRMAN BURNS: Dennis?

MR. KOEHL: Yes, to answer your question directly from the utility aspect or at least mine, I would be looking for the predictability to know what=s coming, especially in the realm of the economic conditions we=re in so that I can appropriately budget for that.

COMMISSIONER SVINICKI: Mr. Chairman, I consider that question a

success because it had --

CHAIRMAN BURNS: Yes.

COMMISSIONER SVINICKI: -- a lot of tents raised, so I=ll be trying to do that throughout the day.

CHAIRMAN BURNS: All right, thanks, thanks.

MR. KOEHL: If I may, this question really is going over to you, Dr. Macfarlane, I understand how easy it is to put radiation dose numbers and put them on the Internet and everything else.

But, from the standpoint of looking at it from the utility, it is a cost. And, it is a cost that I would ask, how many people will truly use it? How many other regulations that are out there in the world for different items and, it=s not on the Internet and we depend on the government agencies and all those to monitor it and make sure it=s being complied with?

So, in the economic conditions of our industry, I=d say some of the things that are nice to do, I don=t think are cost effective to do.

DR. MACFARLANE: Maybe not, but I don=t know that it would really cost you that much because you collect this information anyway. But, and don=t worry, because there=s no regulation coming.

But, I think there are certain facilities, and yours is probably not one of them, but there are certain plants where this kind of information would make things much better in terms of the relationships with the local community. And, that would ease things.

I mean, you all saw Vermont Yankee and Pilgrim and I think that the relationship with the local communities there had a part in their demise.

MR. KOEHL: As just one little follow up, and having been at several different sites, I think what really adds to the community is where the workers live. Because, living very close within a lot of times, you know, one to two miles of the plant, most of the people that live around me feel the comfort that, why would you live there if you didn=t think it was safe?

DR. MACFARLANE: No, that=s part of it. But, to be honest with you, what my observation, having visited a number of the plants around the country and talk to the different utility companies and also the local people and the local government people, it=s an attitude of the owner/operator really and whether they are -- they feel invested in the community and feel that they are part of the community. It=s not just the workers.

MR. KOEHL: And, I would agree with you there.

CHAIRMAN BURNS: Mr. Gunter?

MR. GUNTER: I would support Dr. Macfarlane=s suggestion and, you know, from a sense of public confidence, it=s also about accountability.

The industry has to be held accountable. I know for a fact, you know, we=ve gone through public meetings with the NRC on tritium releases, for example. And, it=s constant -- the whole issue of tritium is constantly trivialized by the Agency and by the operators.

But, we do know for a fact that some operators, when they discharge large volumes of tritium on the order of curies in a batch release, that there are communications to city water intake systems down river from these discharge pipes where there are -- where there=s a telephone call. And, the telephone call alerts the city

that you should shutdown your water intake system because there=s a batch release of tritium coming downstream.

Now, that should be publically noticed. That should be a part of a record that communities that are in that discharge path could be responsibly communicated to.

And that also goes to the fact that these similar batch discharges are occurring to the atmosphere.

You know, there was a interesting event, and I=ll just wind up with this because I think it=s poignant, that a couple of years back, the Hope Creek Nuclear Power Station in New Jersey found an icicle on an exterior building that was 10 million picocuries per liter in the icicle hanging off this building.

Now, those kinds of discharges, I think, are worth noting to not only to those who are monitoring but just as a matter of accountability for the continued operation of these facilities.

CHAIRMAN BURNS: Thank you.

Ms. Buck?

MS. BUCK: Do you know when the Commission will be a full Commission? And, has only having three hindered you in any way?

CHAIRMAN BURNS: I can=t answer the first question, it depends on the President and the Senate.

I don=t think the absence of two, I think it=s good to have five, four or five. And, it=s good to have that.

From -- and I=ll speak in my capacity as a lawyer -- from a legal perspective, we have a quorum so it=s adequate from that standpoint. I think we have

good communication with each other and that=s good.

COMMISSIONER SVINICKI: Don=t keep looking at me.

CHAIRMAN BURNS: Oh, no, I=m looking at her. Checking up on me.

So, I=ll just leave at that. I think we do hope that sometime in the near future that we will have a fuller Commission. So, I=ll look at Commissioner Baran.

COMMISSIONER BARAN: I agree with you, Mr. Chairman.

Let me take off on some of the commentary we=ve had, I think, from Mr. Gunter and from Jim Riccio and some others in terms of -- and Dr. Macfarlane in terms of public communication and public outreach by the NRC.

Where would any of you say there are opportunities or areas of focus? And, I think Dr. Macfarlane spoke a little bit about that, but I=d be interested in hearing from others on that.

Are you happy what you=re able to do on the Internet with the NRC? Do you like the social media? Do you think that=s silly?

DR. MACFARLANE: ADAMS sucks.

CHAIRMAN BURNS: What=s that? Was that from the transcript of the 1998 meeting?

Mr. Gunter?

MR. GUNTER: Well, I think that since I=ve been engaged with the Agency, and that=s been quite a while, I have to say that the public document room for the Agency, by far, is one of the more responsive, one of the more complete and one of the more informative public document rooms of any government agency.

So, I think that, to the credit of the Agency, and I would take some issue

with Dr. Macfarlane, I think that ADAMS is, again, one of the top performers for electronic communication of the government agencies operating today.

CHAIRMAN BURNS: Okay.

Anybody else? Jim?

MR. RICCIO: Again, I have to admit to a certain level of frustration over the last five years. This Agency has been consumed by Fukushima.

I=m wondering if we are -- if we=ve actually learned the lessons or just given ourselves a false sense of security?

But, I will speak to, you know, some things that may speak to other things that have been raised here this morning.

And, you know, the one thing I have learned over these last five years, is that you have very good people in this Agency who try to regulate reactors.

Some of the differences you may see in your surveys between management, middle management and staff is over that willingness to regulate.

When Professor Macfarlane was Chairman Macfarlane, I begged her to defend her staff. I=ll do the same with you guys.

It=s been a pleasure to meet people who actually are sound regulators and believe that reactors need to be soundly regulated.

But, I do find a level of frustration where, you know, in this country, we don=t have filters for our reactors and in Europe we do. And, I=m wondering, and this, you know, kicking it back to the former chairman, do you think if we had a better estimate of the value of public life within this Agency that we might have ended up with filters on reactor vents --

DR. MACFARLANE: Yes.

MR. RICCIO: -- rather than basically being treated like second class citizens when compared to my European colleagues?

So, again, it=s been both encouraging to work with some very good individuals in this Agency, but it=s been very frustrating to watch middle management get rolled by industry, in some instances, for decades.

CHAIRMAN BURNS: Thank you.

MR. LOCHBAUM: I wanted to speak to your public outreach question.

I think one of the great things in the ROP were the annual meetings that are held in the reactor communities. I think it=s important for the NRC to do that whether a reactor=s performing good or bad. Because it sets the foundation for more trusted communication from the Agency and the communities. So, I think that=s a great thing.

But, I also recognize that the attendance at many of those is very small. And, the NRC puts a lot of resources into small meetings with little return.

There was a meeting in Sequoia recently, there were 18 NRC people, 10 licensees and 3 members of the public and I brought my dad because he was paying for dinner, so it would have been two.

CHAIRMAN BURNS: I went to one of those once. It was before the ROP, it was when Vic Stella was then Director of Inspection Enforcement. If you issued an enforcement, you=re required to have -- he required them to have a public meeting. And, I think the only member of the public was the wife of the resident inspector. So, I didn=t mean to cut you off.

MR. LOCHBAUM: Well, I=ve had some discussions with Region II Office

of Public Affairs about still conducting the meetings, but lessening the burden by finding out who=s in advance having webinars, teleconferences, having rotating meetings.

Because several reactors are in the same community, rather than have one at each site, have one for that Region so people would have to talk to the community, find out kind of like the Tribal guidance you=ve got. Find out what that community=s needs are and tailor an outreach tool that better meets -- better applies the NRC=s resources to meet those needs. I think that would help the communities as well as the NRC.

CHAIRMAN BURNS: Okay, thanks.

Ms. Korsnick and then Mr. Merrifield?

MS. KORSNICK: Yes, thanks.

I just wanted to respond briefly to your comment relative to Fukushima response and specifically filtration.

Obviously, the industry worked very long and hard, if you will, on that. I just wanted to provide assurance that our focus was on preventing land contamination. And, that was at the heart of our response.

We have additional equipment and procedures in place today that give assurance to prevent land contamination that exceeds what we would have received by just putting a filter in place.

So, I didn=t -- I am responding to sort of the second class citizen status, you know, I have folks that live next to nuclear plants. I=ve lived next to nuclear plants and we would never want to put something in place that would treat anybody like a second class citizen.

Thank you.

CHAIRMAN BURNS: Mr. Merrifield, Ms. Schlueter, Dr. Macfarlane and Mr. Gunter?

MR. MERRIFIELD: Yes, just briefly. I happen to now live within a ten mile EPZ of McGuire Station. And, like David, I took the opportunity a few years ago to go to one of the NRC meetings and I concur with David=s response. There were, you know, less than a handful of us there.

Surprise, surprise, I did take the opportunity to speak up as a citizen.

But, I think his suggestion is a good one. The Agency ought to look at ways at how those are staffed. Are there ways to do it via video conference and otherwise to make it more efficient both to the Agency and others involved. I think it=s a great suggestion, David.

CHAIRMAN BURNS: Janet?

MS. SCHLUETER: Just briefly on the fuel cycle side.

I think the staff are implementing those sort of efficiency gains for the license performance reviews that are done annually.

They=re using an open house concept. We don=t have in some -- at some sites a lot of public attendance. But, I think in part that is sort of testament to the good relationship that the site officials have with the local community.

And so, I think they=re making some strides in that area. They also do a good job of always noticing, of course, our public meetings that we have with the NRC. We don=t get a lot of participation in those public meetings.

Again, I think the concern generally around the fuel cycle facilities by the

public is low.

CHAIRMAN BURNS: Allison?

DR. MACFARLANE: So, David, and I=d be interested to hear from Jim and Paul maybe on this.

In terms of the public meetings that, you know, I agree are central and they=re foundational and they set the NRC apart from other regulators.

You know, in some areas, the NRC had moved to the open house format and I heard a lot of negative comment on that. I don=t -- and I=m curious as to your view, David, on that in particular.

But, you know, the inspectors themselves and many of the Regional staff are the -- they are the public face of the Agency and they, for the most part, do a fantastic job.

But, again, you know, I urge the staff to make sure that those folks do get some kind of adequate training. They weren=t when I was around, but I=m hopeful that they do.

CHAIRMAN BURNS: Okay. We=re going to hear from Mr. Gunter and then Jim or Dave want to respond.

MR. GUNTER: Well, I just want to address your question about public outreach. And, I think that we went through a particularly egregious process with the hardened vent where the public was essentially looking at the possibility of commenting on the containment venting system.

And, this was offered through initially through a rulemaking, a proposed rulemaking. And, when that was taken away -- when that was taken out, and essentially

at a Commission level, that we were, in fact, denied a process that we thought was pretty important in terms of building a public -- addressing public confidence issues around the GE Mark I and Mark II Boiling Water Reactors.

That was particularly egregious to essentially what we interpreted that as a bait and switch.

And, when you enter into the public arena and offer a public rulemaking process, you should be very, very careful about the process by which you exit the process at the same time denying the public its opportunity to present its experts in that process.

CHAIRMAN BURNS: Okay, thank you.

MR. LOCHBAUM: To respond to Chairman Macfarlane=s question, when the open house concept was first introduced or announced, I thought it would be a step down. But, I attended several and I found that in some ways it=s better because it=s more informal.

There are poster boards, there are people. Members of the public can ask questions that interest them rather than listening to an agenda of five or six topics and questions off those topics aren=t really encouraged by the formal meetings.

So, the open houses, I think, better met the communities interest because they got answers directly to their questions that didn=t have to be off the menu.

COMMISSIONER BARAN: Dave, can I ask, and this could be -- others can chime in on this.

I know the Regional offices, the Regions work very hard on this question of tailoring to the expected audience.

Do you have a sense or do you have advice for us, Allison may have

thoughts on this, too, if we=re looking at a -- if the staff is looking at making a change, you know, if historically, at a particular plant it=s been done one way, and the staff is looking at a change, who do you think they should be consulting with to get a sense of whether the public in that area would find that to be an acceptable change or would find it to be an unacceptable change?

I don=t know if you have thoughts on that. I know you=ve been involved with Watts Bar. I mean, is it the local governments? Is it the NGOs in the area? Is it others? Who should they talk to to figure out how it=s going to be received?

MR. LOCHBAUM: Well, I think there=s a couple. You have a service list where you send information out to mayors and local and state elected officials around the plant.

You also have people who sign up to be on listservs for communications about individual plants. So, those would be two almost automatics. Plus, the attendance list at the public meetings the NRC=s held in the area for the last year or whatever the time period.

Those would be three sources that, and you=ll probably see some duplicates, but you ought to start from that.

DR. MACFARLANE: Jeff, that=s a good question.

I had a person on my personal staff who=s job was outreach. And, to maintain and develop lists of those folks.

And, I think that the Agency needs that specifically, you know, to interact with and be the point person, not just send them to public affairs. Public affairs has a media role, it=s not -- this is a different job. It=s worthwhile to have a person as the point

person there to, you know, to not just direct traffic, but to figure out -- to identify who the people are, the different groups.

And, it=s not just public interest groups or members of the public, neighbors, it=s also the local government officials. I mean, you know, and it=s up to the state level. They all need to be touched.

MR. MERRIFIELD: Yes, I would reinforce what David said. I do think that local elected officials are the most, to me, the most important contact. They are the elected representatives of that region. And so, they=ve got a great network of involvement and I think they need to be engaged.

The other thing I would say relative to David and poster board sessions, one of my concerns about the way in which some of the meetings occur, and this is not a rub on either side, but occasionally what you get is a meeting.

And, this happened at Pilgrim and otherwise where you had folks who wanted the plant to go and you had folks who wanted the plant to stay. And, my concern is that when meetings get like that, what you miss is the group of folks in the middle who want to ask questions. They=re not for or against the plant, but they want to understand are they safe and they want to have a conversation with the NRC staff to understand what is going on.

And, I agree, that the poster board sessions and those environments are a safer environment for people who don=t have a predisposition view on what=s going on.

CHAIRMAN BURNS: I recognize Commissioner Svinicki.

COMMISSIONER SVINICKI: This is a different topic, so I hope I=m not

truncating that discussion much, which was a good one.

In a number of the opening statements we=ve heard about the use of the various NRC regulatory instruments like topical reports, standard review plans, the generic environmental impact statement, in some cases, calling for more predictability about those processes, maybe more effective use of those instruments throughout the Agency.

I=m wondering if there=s anything -- so I=ll ask a very specific question of Ms. Sweeney and then just generally ask people to comment on.

Are there things we used to do with those types of instruments that were more effective that we should return to doing? Or, if there were specific examples there?

I was going to ask Ms. Sweeney, though, on reference or incorporation and reliance on a generic environmental impact statement, you mentioned that in the uranium recovery area, are you familiar at all with the use of a generic environmental impact statement in the reactor license renewal process?

If you were familiar with that, I would ask you, are you seeking, do you think of that as kind of a template and you would seek to have that kind of use or reliance on a guide in the uranium recovery or are you simply not familiar with the use of a generic environmental impact statement?

MS. SWEENEY: I=m not familiar --

COMMISSIONER SVINICKI: Okay.

MS. SWEENEY: -- with it --

COMMISSIONER SVINICKI: Okay.

MS. SWEENEY: -- in the context of reactors. Sorry.

COMMISSIONER SVINICKI: Okay, thank you. Was there anyone who wanted to -- it looks like there=s at least on tent up on the use of other generic instruments. Oh no, it=s not, okay. All right, a swing and a miss on that one.

Thank you, Mr. Chairman.

CHAIRMAN BURNS: Okay, thanks.

We=re basically at the time -- our time now, I think we=ll break. We=ll do our break. We have about a, what, about an hour and a half lunch break. So, tell when that would be, I can=t add those numbers. I=m lawyer, not a mathematician.

So, we=ll -- what we=ll do is we=ll convene back about 1:15 and for our third and fourth sessions.

I appreciate the discussion this morning and look forward to seeing you again back this afternoon.

(Whereupon, the above-entitled matter went off the record at 11:41 a.m.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

CHAIRMAN BURNS: Well welcome back everyone for our afternoon session. I want to welcome everyone back. Ms. Buck did have to leave. I just want to let folks know and so she won't be with us this afternoon.

We'll move on to our third panel or third group of speakers, and we'll start off this afternoon. I'll read the names and then start. I'll recognize in that order. Dale Atkinson, Chief Operating Officer and Chief Nuclear Officer with NuScale; Paul Gunter, Director of the Reactor Oversight Project with Beyond Nuclear; Paul Gaillard, Manager of Licensing Operations for TerraPower, LLC; Jeffrey Merrifield, partner in Pillsbury Law and also working with the Nuclear Infrastructure Council and of course a former Commissioner

on the NRC; Bryan Hanson, Chief Nuclear Officer of Exelon; and Dr. Yasin Hassan, Nuclear Engineering Department Heads Organization, and head of the Nuclear -- Department of Nuclear Engineering at Texas A&M University.

Welcome to you all again, and we'll start off with Mr. Atkinson.

MR. ATKINSON: Thank you. We appreciate the NRC engagement to make improvements to the efficiency and the effectiveness of the new plant licensing process and encourage continued improvement in this area. NuScale continues on schedule to submit its design certification application by the end of 2016.

At that point, as an indication of just how much goes into the design certification process, over $500 million will have been invested by that time in design engineering testing and application preparation prior to the review and approval process. I'd like to talk about some positives, some examples in particular of the NRC incorporating lessons learned, including use of the April 2013 new reactor licensing process lessons learned review, 10 CFR Part 52.

I'd like to compliment the Office of New Reactors as they managed a more disciplined RAI process. Additionally, we encourage continued efforts to incorporate lessons learned with respect to recent design certification application and combined operating license, ITAAC, and I'll comment more on that later.

With respect to NuScale topical report reviews, our experience has overall been positive. I believe that a high frequency of interaction between NuScale and the NRC has helped to improve communication and ensure that submittals have the appropriate content and level of detail and the technical reviewers are better informed in anticipation of this submittal.

I compliment some of the interactions we had prior to Jennifer Uhle, with Glenn Tracy opening up those lines of communications and kick-starting it, and with respect to the current Director of the Office of New Reactors, very effective communications. We have had over 70 public meetings in this pre-application process, and I think that rate of communication is necessary to make sure accurate information is provided.

We look forward to continued effective communication in anticipation of our DCA submittal, and we encourage a risk-informed review of applications.

Next slide. With respect to security, security by design means incorporating design features into the physical security design, by addressing security concerns with structures, systems and components designs. This is consistent with the recent NRC regulatory guidance that encourages incorporating security by design during the design phase in lieu of identifying mitigating strategies after the design is complete.

It should be pointed out that the NuScale design and I suspect follow on Advanced Reactors, are going to have different security strategy options available to them. We encourage efforts to improve the security regulatory process and thus improve regulatory efficiency uncertainty, and help with the adoption of principles appropriate for essentially the target sets and other situations that exist with small modular and advanced reactors.

We also encourage usage of the principles, the NEI security white paper, which NuScale is utilizing in preparation of our design certification application.

Next, the NuScale design does not require electric power to be available for safety functions. We anticipate that follow on advanced reactor designs will have a

similar lack of dependence on electric power and we encourage the development of regulatory guidance and acceptance criteria needed for those designs, primarily in lieu of having to do some exceptions to the general design criteria, some exemptions rather.

It should be noted that the ability to operate the facility without reliance on external power enables the implementation of microgrid applications in support of mission-critical activities.

Next, I'd like to talk for a moment about ITAAC. That acronym stands for Inspections, Tests, Analyses and Acceptance Criteria. ITAAC is intended to identify those items necessary to verify top level design features and performance characteristics of the plant. Those items included in Tier 1 design description provide reasonable assurance that the constructed facility conforms with NRC regulations related to design and performance of safety functions.

In particular, Tier 2* really was not envisioned at the time the Commission approved the two tier change process in 1991, to provide the flexibility that licensees would need to procure equipment and to construct the plant. It is our belief that Tier 2* implementation has caused excessive regulatory burdens with no real safety benefit.

We recommend that Tier 2* be eliminated, and that the elimination not result in the expansion of Tier 1. Other than that, again I just want to stress the importance, I think as we go forward, of a high frequency of communication, keeping both the Commission and the applicant well-engaged with accurate information. With that sir, I turn over the floor.

CHAIRMAN BURNS: Thank you. Mr. Gunter, you have the floor.

MR. GUNTER: Well good afternoon. I thought I'd pick up the topic of

the effectiveness of enforcement activity by the agency, and in opening, there was a recent analysis that was in the -- offered in the *New York Times* by Bloomberg New Energy Finance that recently reported that by 2019, over 56 percent of U.S. operating reactors will be unprofitable.

And the fact is, aging reactor economics is tied directly to safety, and there is growing concern on how the continued operation of uneconomical and increasingly expensive nuclear power plants are impacting reactor safety and site security, as the industry looks to cut its operating costs by 30 percent, and the Nuclear Regulatory Commission aims to downsize.

Fire protection is a recurring and continues to be a major area of concern for those of us that are tracking safety and security at U.S. nuclear power stations. Currently, the NRC and the industry are straddled between two approaches to regulating fire code, each with its own set of adverse cost consequences for industry under this increasing economic strain, each with its own set of non-compliance and non-enforcement issues.

One fire code standard initiated in 1980, following the Brown's Ferry fire is a prescriptive code. We're all familiar with Chapter 10, 10 CFR 50, Appendix R, with which we have long-standing now focus on the industry's failure to comply with passive design fire protection features for cable separation and fire resistance cable wrap systems for electrical systems, necessarily to reasonably assure the safe shutdown of the reactor during a significant fire, and the NRC's decades-old failure to enforce these standards.

Roughly now just over 50 percent of the remaining 100 operating units rely on this prescriptive standard. But the high cost of coming into compliance with

Appendix R, particularly the 3G2 standard, however, has led reactor operators and the NRC to overly rely on exemptions from requirements, the substitution of passive design features with dubious manual actions and even more dubious compensatory actions, like roving hourly fire watches that are absent from non-compliance fire zones more than they are present, and the extension after extension of NRC enforcement discretion.

Now the alternative standard initiated in 2004 is a performance-based standard developed in conjunction with the National Fire Protection Association's Standard 805, that utilizes reactor-specific information to develop specific risk analysis and computerized fire models that are designs essentially to prioritize risk, to manage and to reduce fire protection costs without reducing fire protection, and that's the principle.

While NFPA 805 has the advantage of refocusing industry's attention and analysis on fire protection, it has proven to be extremely expensive, time-consuming and with questionable accuracy of the fire models and the reliability of risk assessments given the unpredictability of fire.

Of this remaining roughly half, 50 percent of the reactors that are pursuing NFPA 805 according to NRC 805 plant status lists of April 25th, 2016, too many of these units are still getting these extensions for the compliance code. The fact is that this is not the case. That leads us to conclude that the agency is involved in stonewalling and foot-dragging right along with the remaining industry.

We continue to monitor degraded fire safety conditions at U.S. nuclear power stations and multiple violations that link non-compliance and non-enforcement of both standards to industry's willful falsification of reporting requirements to the federal agency involving supervisors. That must raise questions about the deliberate

involvement of management as well.

This was most recently illustrated by the violations and willful falsification of safety reports at a growing number of reactors in the Entergy fleet, without any meaningful NRC enforcement action. For example, Waterford from February 2014 to May 2015, NRC investigation disclosed fire watch personnel willfully failed to conduct compensatory fire watch inspections and falsified fire watch logs.

A Waterford supervisor willfully failed to take corrective actions. Caught red-handed, Entergy committed to hire an industry psychologist to evaluate previous fleet-wide training activities for integrity events. Again, another plant, Pilgrim, over 200 violations of compensatory fire watches and falsification of fire watch logs that also involved the NRC waiving of civil penalties.

Palisades, we've been in touch with whistleblowers at Michigan's Palisades nuclear power station that initially revealed that 22 security personnel that were placed on fire watch patrols through non-compliant fire zones throughout the plant have been put on paid leave for falsification of completion of duty.

In our view, that many workers could not be involved without the involvement of supervisors, and the fact that, you know, the supervisors are involved in mandatory checks of these fire watch logs. As more Entergy reactor sites are involved in the failure to complete these compensatory actions and the falsification of reports, the investigation must be expanded to include the involvement of Entergy management for willful and deliberate wrongdoing.

I'll just close by saying that this wrongdoing should be expanded to include the substitution of compensatory actions for compliance. I recall a hearing that

NRC Commissioner Ivan Selin explained to the U.S. House Oversight and Investigations Committee that these fire watches were originally just a temporary set of eyes during risk op, significant onsite activities like welding, operations around safety-related equipment.

But instead, now we're seeing industry has now apparently expanded its reliance on these indefinite fire watch compensatory actions. As one Entergy official was quoted in a recent edition, nuclear power plants are designed with multiple layers of safety and security. Fire tours are just one tool in our defense in depth fire protection program, which includes fire prevention, fire detection and fire suppression.

I'll just note in closing that this is a conspicuous omission here of any mention of the engineered passive fire protection features that can be independently tested by Underwriter Laboratory and regulatory inspections to assure compliance that things like cable separation and fire-resistant cable wrapping systems involving electrical circuits for safe shutdown are protected. Thank you.

CHAIRMAN BURNS: Thank you. Mr. Gaillard.

MR. GAILLARD: Good afternoon. My name is Pete Gaillard. I am the Licensing Manager for TerraPower, which is a nuclear design firm based out of Bellevue, Washington. Like many of the other speakers, before I get into my prepared remarks I'd like to thank the NRC, Chairman, Commissioner, staff and the numerous people working behind these scenes to make this meeting come off as well as it is. We appreciate that.

As you're already aware, TerraPower is developing the traveling wave reactor, which is a full-sized sodium cooled fast reactor. We're now eight years into this development effort, so I'd like to say that we're not a paper reactor. We're a real reactor.

We're also working with Southern Company, Oak Ridge National

Laboratory and EPRI on the molten chloride fast reactor, which is another technology that we think has great potential. We've also received the DOE Advanced Reactor Concept award in the January time frame.

Because of our background and years of effort on advanced reactors, we've gained much experience on advanced reactor technology, and as a result of that, we appreciate the opportunity to speak here today share TerraPower's perspectives on the efficiency and effectiveness of NRC's regulatory programs, especially as they apply to the advanced reactor community.

Before I get too far into my remarks, I'd like to acknowledge some current and ongoing initiatives. I don't want my remarks to imply that we're unaware of these activities. NRC is developing draft advanced reactor criteria as we speak. DOE has issued their vision and strategy for the development and deployment of advanced reactors, and recently there's been activity, Congressional activity related to nuclear energy that shows interest in advanced reactor technology. So we're paying attention to that, and that's what we feel is a really good move.

TerraPower endorses NRC's efforts to develop the advanced reactor design criteria, as well as other guidance for non-light water reactor technology. We support the continued development of a regulatory infrastructure that supports advanced reactor licensing, but we also encourage the NRC to seek to understand, evaluate and understand the differences between the light water reactor technology and the non-light water reactor technology.

Again, I refer to the advanced reactor design criteria earlier, and the NRC recently issued a draft of the criteria that had been developed, working with the DOE to

some degree on that. TerraPower was given the opportunity to review the design draft criteria and recognize -- and provide those comments to the NRC, which we did.

This was a very important first step for developing requirements for non-light water reactors, because it really required the teams developing the criteria to get together to evaluate the criteria, and especially to evaluate them against the technologies of the advanced reactors.

Our review of these draft criteria, as reflected in the comments that we provided to the NRC, indicates that a more in-depth understanding of the technology would definitely be beneficial. Comments provided by Terra Power, as well as others in the industry provide insight that may indicate important differences between the technologies that should be considered.

So while the revised design criteria are definitely a very important first step, we think more will be needed to ensure that they are appropriate and adequate for advanced reactors, and that they account for the differences between the two technologies.

I'd like to provide one quick examples that has been talked about a few times already today, and that has to do with TerraPower's review of NRC's draft criteria related to electrical power systems. Again, there have been numerous discussions on this criteria already, not only for non-light water reactors but for the light water reactors. I don't intend to rehash the details associated with the pros and cons of that particular criteria.

I would suggest, however, that this is a great example, where the fundamental differences between the two technologies really need to be evaluated and

taken into consideration when developing the regulatory framework. TerraPower's comments as well as comments provided by others, if they're examined, will provide specific details that may be taken into consideration, when looking not only at this criteria but the other criteria.

I stated earlier, I want to share our perspectives on the regulatory programs, especially as they relate to efficiency and effectiveness of NRC's regulatory programs. If criteria are developed for advanced reactors that may result in future applicants repeatedly seeking exemptions or license conditions or what have you, for the same criteria, then it's possible that an efficient, reliable framework for advanced reactors has not been developed as well as it could be.

Careful considerations of the differences inherent between the two technologies can avoid this outcome. So why is important to TerraPower. If we move even further into our development, we expect and anticipate increased interaction with the NRC on both domestic and international projects. The NRC already has an international relationship from counterparts from Europe, from Asia and from China's National Nuclear Security Administration.

The NRC regulations developed as a result of current and ongoing NRC initiatives will continue to be looked on as models for the international community. Therefore, it's important to TerraPower that the NRC's regulations be effective and efficiency, and recognize and account for differences in the technologies.

In wrapping up my remarks, I'll state that we do understand the challenge that the NRC faces in developing a regulatory structure without an application or near-term deployment. However, addressing the regulatory infrastructure advanced reactors

in the short term would not only result in a model for the international regulators to review, but also provide a model with clarity and confidence for the domestic advanced reactor community.

Considering the time frames for nuclear project development, including design, license application and review and construction durations, addressing the regulatory infrastructure in the near-term would be very beneficial for the advanced reactor community and result in efficient and effective regulations. Thank you for the opportunity to speak to the roundtable this afternoon. I appreciate it.

CHAIRMAN BURNS: Thank you. Mr. Merrifield.

MR. MERRIFIELD: Mr. Chairman, members of the Commission, thank you very much for inviting me to appear today. It is an honor having served as a Commissioner here and knowing that the excellent staff that we had when I was here has continued. This certainly is an agency of excellence.

So I appreciate your focus on this. I did participate in earlier meetings of this forum when I was on the Commission and found them to be important and useful in my decisions as a Commissioner. Today I'm going to focus on four principle topics.

The first one regards Project Aim and some of the issues with which you are currently grappling with on resources and resource effectiveness. The second is some comments that have on the differing professional opinion processes that relates to the time when I was here. The third is some commentary on security concerns and some of the effectiveness of that particular mission, and then finally I want to talk about advanced reactor deployment. That is in my role as Chairman of the Nuclear Infrastructure Council’s Advanced Reactors Task Force.

Turning to the next slide, I don't want to belabor this slide, but I think it's important to note that red slide is the full-time equivalent staffing here at the agency. The green box is the size of the NRC budget, and the blue line is the licensing actions undertaken.

Suffice to say I think when we were grappling with agency issues and the size of the staff and the challenges we were receiving from Capitol Hill from the period of the late 90's to the early 2000's, before significant activities associated with new reactors were underway, we were able to do a lot without huge resources.

We had a smaller agency, yet we were able to be very effective and efficient in the work that we did. I think that's something you all need to keep in the back of your mind.

Turning to the next slide, as I said, many of the same kind of challenges you're facing today we were facing at that time. We also were coming off of the 1996 decommissioning of Maine Yankee and a feeling that there would be waves of reactor decommissionings ahead of us. So Congress at that point was giving us the challenge to right-size the agency.

We did that in a variety of ways. We had to make some very hard decisions about the things that we had to accomplish versus the things that we wanted to do. We went through a budget -- we went through a staff freeze for a period of time. That is not something you all have had to do at this point. Looking at the SECY reports, you continue to have some number of individuals that continue to come on.

We really felt at the time, and I think the Commission has to do this now, a line by line review of the budget, and really asking each and every year are these

missions that we have to have? Are we being risk-informed? Do we have our focus in the right place?

The bottom line message I would want to keep is this is something that the agency has successfully gone through previously and I think you can do it again, and I think you will also receive more focus from Congress in that regard.

Turning to the next slide, on the issue of differing professional opinions. This is something that the Commission has grappled with for a number of years. I remember when we had a review here, it was not long after the Space Shuttle accident with Columbia, where differing views were not given the appropriate focus. We had gone through Davis-Besse. We had some lessons learned from there and moved forward with those.

I think the Commission has always felt the need is to provide a framework where all members of the staff can feel free to raise views, where those views are fully heard and where those views are dispositioned, a decision made one way or the other on how to resolve it.

It is not an effort to make sure that everybody is happy about what the outcome is. I sense from the outside a tendency over the course of the last six or seven years, of a tenuousness on the part of some of the senior managers in the agency to want to deal with non-concurrences.

There's more of a -- it seems to me more of an effort to try to get consensus on a view and not go that role. What has resulted is a couple of things. It has dragged out the amount of time that it takes to come to a resolution, and I think in the conversations that I've had with a number of senior managers who are still here, there is

a view, it's a real difficult issue for them to grapple with.

I think the Commission, what I would really implore on you to do is to take another look at that process, to make sure and underline, and I don't say anything different than David Lochbaum in this regard, you really do have to make sure those views are heard, but you've got to deal with it in a timely and efficient manner.

I think the managers that you have need to be empowered to go ahead and make a decision. As long as you can demonstrate that the person has been heard, those issues have been taken into account, sometimes it's going to change the direction of what the staff recommendation is. Sometimes it's not. Fully vet it and document and move on.

I think that was the attitude, I think, we tried to take when I was here and I highly recommend it. The next issue is security. That was obviously an extraordinary issue for this Commission dating through 2001. We stood up a new organization NSIR to deal with that.

We had a huge challenge of what we were going to do with the DBT; how do we impose the appropriate requirements on licensees; a significant number of new requirements placed on utilities; a large increase in the number of staff and the number of regulations associated with that.

In my view, if you look at what we perceived to be the threat in 2001 and the threat that we actually are confronted with today, it is far different. There are not large numbers of folks who are going to attack hardened nuclear power plants. What we are seeing in our society is attacks against civilian populations who are unguarded and are undefended.

I think that causes the Commission to look long and hard what is it that it requires and how do you move forward, and I think looking at NSIR is a part of that.

Finally, as it relates to advanced reactors, I think the NRC has given significant attention to that issue. I think that at NIC have supported the $5 million in funding to move the agency along. We do believe that the development of new advanced reactor design criteria are appropriate. We probably would suggest increasing that a bit beyond what we have, but it's going in the right direction.

I think we look at some of the time lines that have been put out, both by DOE and the agency staff. I think they are looking more at deployment in the 2030's. I think many of the reactor developers are looking at the late 2020's. So there is need for alignment in that regard.

As it relates to adequate protection, we talked about that in various places. I think in the last workshop the agency co-hosted, this is an issue that Steve Kuczynski at Southern Company very appropriately brought up, and that there is a need for a real conversation of what that means for advanced reactors and certainly an over-conservatism in that regard could certainly hinder innovation.

I would quote Ed McGaffigan's former role. The mission of the agency is adequate protection, not absolute protection.

Finally, we believe a phased approach to licensing is appropriate. We are very concerned about some of the time lines on topical reports and an over-reliance on those to get there. Finally, we do believe an appropriate risk-informed performance-based regulation for advanced reactors is needed. Thank you Mr. Chairman.

CHAIRMAN BURNS: Thank you. Mr. Hanson.

MR. HANSON: Yeah, thank you. I'm going to deviate a little bit, mostly because my material was covered during open discussion this morning, which usually makes not only my staff nervous but makes me nervous as well. But the point I want to emphasize is that risk-informed decision-making improves safety, and it allows us to put our resources on things that improve safety.

I think under the leadership of Vic, Michael Johnson, Bill Dean and others, you know, we can see they share our view of focusing on safety as important to the nuclear industry.

If I could skip the next slide please. There are several ongoing risk-informed initiatives in which we are actively engaged and working closely with the NRC staff, and although progress is being made in several areas, improved timeliness of NRC actions would facilitate overall safety enhancements.

The first initiative is the NRC's approach to risk-informed decision-making. Over the last two years, industry has put forth significant effort to address PRA technical adequacy for risk-informed applications. Despite the previous alignment we had with the NRC on the path forward for improvements, new challenges have arisen as new NRC staff have become involved.

For an example, for PRA peer review. The demonstration of closure of previous PRA peer review findings using external peers includes an independence requirement for the reviewers that can be interpreted as greater than that used during the initial peer review. This requirement has slowed the pace of industry and NRC concurrence of the process, and as a consequence subsequent industry-informed risk submittals.

As we spoke about this morning, the NRC is also working on consideration of low-risk, low safety-significance compliance issues. While we appreciate the NRC's recognition that certain non-conforming conditions pose little or no safety risk, we are working closely with the NRC on establishing a process for addressing this issue.

However, while the process currently under development will only get us to the point of enforcement discretion, it does not provide a final resolution path forward dispositioning the issue. And to your question this morning Commissioner Baran, the NRC should develop a threshold such that low-risk, low safety significant issues that fall beneath that threshold would be afforded indefinite enforcement discretion, and will result in no additional regulatory action.

Improving fire PRA realism is another important industry initiative. The joint NRC-EPRI report that provided more realistic heat rates based on fire test results and operating experience, was with the NRC for review for over one year.

In the interim, heat release rates being used were overly conservative. Plant modifications were identified, committed to and in some cases implemented to reduce fire risk that were later shown to be not necessary.

In these cases, resources were wasted on efforts that did not improve safety. Despite the updated heat release rates documented in the EPRI report providing better and more realistic results, there is no sense of urgency at the NRC to endorse that report and to allow its use.

It's not an isolated case. The industry has had extensive difficulties engaging with the NRC to pursue other improvements to realism, such as treatment of transient fire and more refined fire analysis methods.

Dennis spoke this morning that the industry has developed approaches for crediting the use of flux and risk-informed decisions. While we continue to await the NRC's position on this important issue, again to the point this morning, every operator at our power plants would deploy that FLEX equipment if required to, no matter what the initiator was to ensure that plant remained safe.

The equipment's ready, the procedures are ready, the training is done, and we want to be able to credit that significant investment that we've made in our industry, so that our resources can be used on other more significant matters. Thank you Mr. Chairman.

CHAIRMAN BURNS: Thank you very much. Dr. Hassan.

DR. HASSAN: Good afternoon. Thank you for giving me the opportunity to speak today on behalf of the Nuclear Engineering Department Head Organization. The NEDHO is an alliance of heads and the chair of academic program emphasizing nuclear and radiologic health, engineering and the technology across the United States.

NEDHO collaborates with American Nuclear Society, the Nuclear Energy Institute, and the Test Research and Training Reactor Organization. At present, the NEDHO include all the nuclear engineering program in United States, which is about 39.

The next slide, it shows that Nuclear Engineering enrollment for the last ten years since 2001 until 2015, so 15 years. You can see at 2001 we have about 500 undergraduate student enrolled in Nuclear Engineering. In 2015, we have 1,760, one thousand, seven hundred sixty student undergraduates.

At the same time also, the graduate student increase from 200 student to 1,600 student in 2015. The number also of the degree, next slide please. The number

of Nuclear Engineering degrees which were awarded in 2003, it's 160 student got -- earned their Bachelor's degree.

In 2015, 650 students. You can see that's increase of about four times. Also, the Master degree increase from 140 student to 363. I am expecting that there will be degrees less than 600 in 2017.

If you go back for the next slide, that give you the Nuclear Engineering degree awarded since 1966. As you know, the major of Nuclear Engineering started in 1963. 1959 most of the Nuclear Engineering Department. So then in 1970 or 1978, we had about 800 graduate student with a Bachelor's degree. Now in 2015, as you see, it's 600. So around 1990, you can see the low number of the students in Nuclear Engineering.

I wish I don't go back to the 90's, which I feel is -- especially our student hear about shutting of nuclear power plant, they come to talk to me, ask me. Their parents ask are you going to continue in nuclear engineering or you'd like to switch to other department. This is student not really very good and qualified as student we have.

The challenges, next slide, is retaining qualified students in Nuclear Engineering. Having well-prepared workforce is the key for the new advanced reactor, non-light water reactor. NRC program are instrumental to assuring this critical capability for safety goals within the agency and across the industry.

We believe that example of high impact program, NRC internship program, junior faculty support, scholarships that provide excellent opportunity to recruit outstanding students from other major in Engineering.

One of the things also mentioned in the morning, we're working hard to

establish diversity and fellowship, and Nuclear Engineering is less than other department, like Biomedical Engineering and Mechanical Engineering, among other.

So one of the things I believe that NRC initiative to facilitate avenue for the faculty and for student to participate in NRC research is important. That will help for retention of the student in our field.

Next slide. In 2016, NRC integrated university program, this is really appreciated, which provide scholarship, undergraduate and graduate student fellowship, to trade and also funding for trade school community colleges scholarship. Faculty development is very important, especially for junior faculty, which we're trying to attract to come to academia.

Unfortunately, it was zero funding for curriculum development grants, which it used to be five million dollar before. This is -- I believe it is important for development of curriculum, especially for non-light water reactor, for advanced reactor, decommissioning.

This is important topics. We like to get it to our student to become aware of the licensing processes and all of this is all critical to the Nuclear Engineering academic program. Security, physical and cybersecurity also. So I believe this is one of the challenges we're trying to get.

Next slide. NRC supported development for curriculum and we'd like to achieve courses in the area, as I mentioned before. Research opportunity for the students and non-light water reactor like liquid metal reactor, gas-cooled reactor, molten salt among the other, and light water reactor technology like SMR.

Encourage NRC support of grant program and student-faculty

participating in the research, and continue integrated university program scholarship. Also, I believe that -- next slide -- there is Nuclear Engineering academic to participate in NRC international initiative and mission.

We believe that Nuclear Engineering and academia can help that. Can also contribute to building network across national boundaries, students, young professional who will become the future of our leaders.

Next slide. Some of the comments and the remark we get from National Organization of Test, Research, and Training Reactors. TRTR believes -- the community of TRTR appreciates the effort at license renewal streamlining, but the license renewal and license amendment process remain overly burdensome. Even simple license amendments takes time.

NUREGs and Standards have become de facto regulation over the actual regulation in Part 50. The regulator must remain consistent of the low-risk to the public health and environment presented by non-power reactor and utilization facilities. It seems I've run out of time.

Again, in conclusion, really coordination with the NRC and other partners to achieve sustainability. Let me say this is my personal view. I can call your attention for education of the next generation, because I believe I don't want to go back to 1990 when I started as a young faculty member here.

We really have a very high qualified human resources can be obtained and let me say also that our nation history and the leadership in Nuclear Education is the envy of the world until today. We'd like to continue that. Thank you.

CHAIRMAN BURNS: Thank you very much. That concludes the

presentations for this segment, and I'll open up the floor if anybody would like to begin. Commissioner Svinicki.

COMMISSIONER SVINICKI: You can rely on me. Well, I'll begin with Dr. Hassan. Thank you very much for the presentation that you provided. Our Commission has tried, with the crush of other issues of course, to maintain a cognizance and awareness of the educational infrastructure that supports the safe utilization of nuclear technologies in the United States.

Your point about the U.S. academic infrastructure in nuclear being the envy of the world, I found evidence of that as a Commissioner representing this Commission, with other governments around the world, often their head regulators and the leaders of their technical departments were educated at the University of Michigan.

You didn't want me to mention any specific schools, but you know, from places like Jordan and just other places around the world, I encounter other proud Wolverines. But more broadly speaking, I think that we have educated and in that way exported a lot of our principles regarding the safe and secure harnessing of nuclear technologies around the world.

It is an important collateral benefit. It's central to a lot of NRC's work but it is true, nonetheless. I appreciate also that you incorporated some of the challenges that continue with test, research and test reactors. This is an issue the Commission has held meetings on since my arrival on the Commission some time ago.

I'm not satisfied that the current way that we are approaching the renewal or review or recertification of test and research reactors is achieving the sweet spot of regulatory footprint that the Congress intended when it explicitly included language in the

Atomic Energy Act regarding the treatment of these reactors, knowing that it is important not only that we graduate the kind of numbers of replenishment engineers that you mentioned, but that they have the opportunity to put their hands on the technology.

I think that that's an important safety benefit. If many of the programs are not able to maintain their research and test reactors, I think that we lose something to the ultimate qualification and higher levels of safety that come with that.

Do you consider the levels that you presented to be a level of replenishment, knowing that there are many engineering disciplines involved in nuclear technologies and you're discussing only nuclear engineering?

Do you have a general sense that the level of folks graduating with the various degrees is sufficient at least for replenishment?

DR. HASSAN: I believe that Nuclear Engineering as a matter of fact is a multi-disciplinary. So in other words, yes. We as a matter of fact a few years ago in our Bachelor degree, if they couldn't find a job in Nuclear Engineering, they got a job in Petroleum Engineering. This company came to me asking about my story. They telling me that they're doing a bit of job in Petroleum engineers. So that's why I have -- Nuclear Engineering is multi-disciplinary in that sense, so I believe --

COMMISSIONER SVINICKI: Thank you.

COMMISSIONER BARAN: You're looking at me.

CHAIRMAN BURNS: It's your turn.

COMMISSIONER BARAN: Well, I was sitting here trying to formulate the way I would put this question, and I guess I'd direct it to Jeff and Peter, but others can chime in. You know, I think the conversation you identified this, I don't know if it's a

conundrum the challenge we have on the advanced reactor side, the chicken and the egg.

It's hard to justify without knowing when someone's going to come in the door with an application or want to start pre-application discussions with the agency without knowing what technology that might be. It's hard to be in a situation where we would have a fee-based program on advanced reactors.

I think folks would, you know, those that pay the fees would legitimately have a grievance about that. I think the five million that we've requested for FY '17 makes a lot of sense in that regard off the fee base. That sounds like folks are supportive of that. I'm interested in thoughts on that. Do you think going forward that that's the right approach on this, that the primary program in NRC in advanced reactors be something that's off the fee base? What is your sense about how that should ramp up over time?

So if Congress decides to provide five million appropriate non-fee based funds for '17, from your point of view what should it look like in '18 or '19 or '20? You know, of the bulk of that program -- Ashton may have thoughts on that too.

If the bulk of that program is going to be off the fee base or the whole program's going to be off the fee, what's our ramp up curve on that from your point of view? What should that look like, so that we're both ready to engage but not premature in our level of expenditures based on what things may actually come through the door?

MR. MERRIFIELD: There's a variety of different levels on that, and I appreciate the question. I think one of the conundrums that the staff is challenged with, the NRC staff is challenged with right now is they hear these thoughts which are maybe 40 or 50 vendors out there that may have advanced reactor designs.

The law firm for which I currently am an owner, we have a fairly large number of those who are clients. Some of them are very far along and I think they are at a point where they will be willing to entertain, in much more formal engagement with the Commission in a relatively short period of time. Some of the designs out there, as was said, you know, is sort of a PowerPoint presentation, two people and a truck.

And so there is a range there, and I think having access to non-fee based monies, is important for the staff to be able to engage with those reactor vendors and obtain a much better understanding of what is it they actually have, what are the questions that will need to be resolved, and when is it more likely that they're going to come in.

I think what you will find is that there will be a range. There will be a probably smaller group who will engage more actively within the next few years, and some of whom who are going to engage, you know, in a decade. In terms of things that the Commission needs to be thinking about with Congress on funding, some of that is design-specific or general design-specific money.

So enhancing the expertise in molten salt reactors, enhancing the expertise in gas reactor technologies, liquid metal technologies. I think those are things that the Commission is going to have to do and it will require money to ramp up to that.

I think that there -- I think part of what we've looked at is, is it possible for the Commission to identify as many generic issues as possible that can be resolved sooner rather than later, absent a specific design in front of you, to make a more straightforward path for those who want to bring in an application.

So resolving things like requirements based on source term, including EPZ, control room, security, things of that nature. To the extent you can do more of that

in a generic sense, I think that's appropriate.

As far as fees are concerned, I think there's a timing issue. When the current fleet of operating reactors was licensed, virtually all of them or most of them were licensed at a time when the NRC was not a fee-based agency.

So there wasn't a cost focused on either the technology developers or the utilities that were seeking those designs. Today, that is obviously quite different, and at the same time you have advanced reactor developers who are not represented by large companies. They're represented by small, more Silicon Valley-like entrepreneurs.

So having that appropriate balance is important. I think it would start with either direct funding or grants from DOE, so that the very early engagement would be at lower, very minimal cost. The initial stages of the licensing process would be with a low match and as you work deeper into the process, you would ratchet up that level of match base on the greater likelihood that design will actually be deployed.

MR. GAILLARD: Yeah. I'd like to add a little bit to that. I'll be making a lot of the same points I suspect, but one of the first points I'd like to make that -- is that the current programs underway, and I hope it came through my presentation, I think are very valuable.

While I want to encourage additional work to be done, I think the effort being put in to evaluate, evaluating the differences between the technologies and the attempt to draft new advanced reactor design criteria is very important and absolutely the right first step in my opinion.

When you start speaking to non-fee based programs and the ramp up that might be appropriate over the next several years, that's really hard to predict

obviously.

However, when these two programs are put together, meaning the current program and how it matures as well as other aspects of advanced reactor technology development over the next several years with some of the different parties, including TerraPower as well as others that Jeff mentioned, I think there will be a certain level of convergence.

Not an absolute convergence, but a certain clarity that will come through as to the funding that's needed. But right now, it would hard to me to really say anything specific other than what's being done.

Like I said, I think it's the absolute correct first step looking at the design criteria, and trying to craft those in a manner that will help build an advanced reactor regulatory structure that others can use. Thank you.

CHAIRMAN BURNS: Let me pose a question along the lines, this discussion of advanced reactor reviews. I've been something of a student of the licensing process, with the Atomic Energy Commission into the Nuclear Regulatory Commission. We started with a two-step process endorsed by the Supreme Court in the PRDC case. Actually moved the AEC -- the AEC was actually moving towards a different type of process in terms of even design reviews and design approvals.

In the early 1970's, other things happened in terms of where the industry went. After Three Mile Island, the current Part 52 is actually a reformed provision adopted in the light of a commentary after the Three Mile Island accident, because of the variability in reactor designs.

Also, from the industry standpoint there are benefits in terms of a one

stop license and the assertion of design approvals or design certifications, and thus 25 years ago, a little more than that, we adopted Part 52.

We've gone through an experience with most of it except the ITAAC, which we expect to do with the Vogtle and the Summer plants in a couple of years. But given what I'm hearing and some of the things I'm hearing about topical report reviews, a CNSC approach, I've heard a UK approach before, should we abandon the design certification process in Part 52?

Some of what I've heard this morning is that it is too cumbersome, too expensive and may not actually, if there is this new technology, may not actually allow it to come online. So I'll throw that question out. Hopefully it's a little bit provocative.

MR. MERRIFIELD: Mr. Chairman, on that note, in the discussions that I've had with many of my clients and the representatives we have in the NIC are in the same boat, I think there is a significant number of them at this point that are looking at Part 50 as an alternative, because for them as developers, having an ability not to have a design as detailed as what has been driven by Part 52 is more in alignment with their -- with where they're coming from.

Now from a utility standpoint, Part 52 is a much more desirable process in some regard, because you have some understanding of this -- is this plant design approved, and do I -- can I avoid the uncertainty of that two-step licensing process. So there is -- there's a balance there and there are some differences there.

But the point I think where some of the advanced reactor community folks are coming from is to say listen, these designs are simplified. Many of them are simplified to the extent that the source term you're talking about is significantly smaller than what is

the traditional large light water reactors. In some cases, could arguably justify for emergency planning zones at fence line.

So if you are dealing with reactors that have that low level of risk, applying highly detailed processes that come along with the traditional light water process, either via Part 50 or Part 52, is overkill. From a risk-informed standpoint, it isn't in alignment with the actual risks of the technologies that are being applied.

So I think that's part of the process. I would be the first one, and I suspect others would say the same, you know. We're not going to throw out Part 52. It is an important process for certain applicants. But just to let you know, as it currently stands in the absence of change and folks are asking for change, there may be folks who will be coming and saying Part 50 aligns more with what we need for these initial advanced reactor designs.

CHAIRMAN BURNS: Mr. Gunter, then Dr. McFarlane, then --

MR. GUNTER: I think Dave has had -- if I could defer.

CHAIRMAN BURNS: Oh okay. I may not have seen him. Dave, go ahead.

MR. LOCHBAUM: I have a question for Bryan Hanson regarding the low risk, low compliance issue. One of the challenges that the public faces is following the game, because the risk assessments that plants do are not publicly available to the public, and the SPAR models and the other risk assessments models that the NRC staff has is not available to the public.

So all we see are the outcomes, and when I went back through 14 years of yellow and red findings, there's no agreement. The closest agreement was off by 100

percent. In several others, the industry was off by three orders of magnitude from what the staff did.

So whose risk numbers, whose secret risk models are going to be used to determine which things don't get complied with, that were set up through a public rulemaking process?

MR. HANSON: Well, I think certainly the models that the industry has developed collaboratively across the industry are very well-defined and refined, using the best knowledge of EPRI and Defense Labs and other things, David. So I think, you know, our models are absolutely better informative on how we should allocate our resources to make sure our plants are safe.

Now whether you make that public document to, you know, better inform the public, you know, I think we'd have to consider that.

CHAIRMAN BURNS: Thank you.

MR. GUNTER: Well I would just briefly take issue with Commissioner Merrifield's Slide No. 6, which basically sets up dismantling the current level of security at U.S. nuclear power stations, simply because there's not been an active threat carried out.

We're all aware that Belgium was a clear example of how nuclear power facilities are on the target list in conventional -- or I should say this unconventional war that we're now in, and in fact I think that should be enough reason to bolster current security.

Particularly just to go along the line of the fire protection issue again, there should be hardened, bunkered electrical circuits of -- for shutdown of these reactors, that are blast-resistant and not only fire resistant. But again, I think that we're far from

that in terms of a regulatory climate and an industry commitment to give us that kind of security.

But we saw -- what carried on the front page for a rising threat, specifically in Belgium, should be applied worldwide now.

CHAIRMAN BURNS: Let me come back. Let me let the other two speak again. I want to come back. I'd like to come back to the security issue, since I think you have teed it up well there. But Allison you want to -- something you wanted to say first. Then I'm going to go to Dr. Finan and then we'll get back into that.

DR. MACFARLANE: I want to weigh in on a couple of the points that have been made. To your question Chairman about should you just get rid of design certification? I mean why bother? I mean you have now two options on the table. You can go through Part 50 or you can go through Part 52, leave them on the table.

Let the vendors choose, you know. I think great, you've got a great setup now. You don't need anything additional. They can go with whatever works for them best.

Then to the model discussion, Dave you make an excellent point. If the models are not available to be seen publicly, I mean you can tell us, Mr. Hanson, that your models are good, but why on earth should I believe you? I'm a scientist. I want to see the data, you know.

Show me. I want to know what your assumptions are. I want to know what your uncertainties are. I want to know whether you've actually accounted for the uncertainties properly, and models are simply that. They are models. They are not reality. So I think we have to really proceed with caution there.

CHAIRMAN BURNS: Thanks.

DR. FINAN: Thanks. I guess I'm going to go back to the Chairman's question and then Commissioner Baran's question. So no, there's no reason to throw out Part 52. The question that pairs with that is do we need something else? Do we need something new?

I think that the staff are looking are looking at that question, and it looks to me like they're going to see how they can apply more risk-informed performance-based techniques that will be more technology neutral or technology inclusive within the current frameworks, and then maybe assess whether there's a need for a more blank sheet of paper, risk-informed performance-based technology-inclusive process for advanced reactors going forward.

You know, in all of those cases, you know, whatever the staff ends up doing, one of the things that's needed is a budget and a time estimate for undertaking those tasks, so that that regulatory infrastructure work can be off the fee base.

Congress needs to know what that $5 million should be in the future. Really I think only the NRC can estimate what that $5 million should be. So if a little bit of that $5 million could be spent now to understand what the budget needs to be going forward, I think that would help Congress to understand what they should appropriate in the future.

CHAIRMAN BURNS: Okay. Before I get -- and I'll call on Mr. Riccio, Mr. Hanson, was there anything you wanted to say? Okay, good. Jim.

MR. RICCIO: Actually, I was going to hop in on what you were hopping in on. So why don't you pull it forward?

CHAIRMAN BURNS: Okay. Let me come back to the security issue. I think it's an interesting one. There are a lot of challenges that we have, and I think some of the challenges that come to us about this question of "right-sizing" or looking at security in terms of the environment, that I think both Mr. Merrifield and Mr. Gunter touched upon.

In many ways, the idea of looking at the security, there might be some appeal. But one of the questions I would have is how do you approach that issue? On the one hand, you have hardened facilities, a lot of action taken in the post-9/11 environment.

You have, you know, we watched the threat in environment such as it is. So what does it mean -- I'll throw it out to that -- what does it mean to be right-sizing or changing that security profile, because it -- is it a matter of -- or let me leave it at that.

How do you look at it in terms of assessing the current regulatory footprint that we have and determining, you know, whether we're in the right place, what types of things we need to be sensitive to. That can be in a number of areas that we regulate. So let me leave it at that, and if you want to -- Jeff, you want to start?

MR. MERRIFIELD: Let me -- yeah. Let me just sort of start, lest I leave the comment on the table. I was not calling for, you know, slashing the security at nuclear power plants. I don't think that's what Paul was suggesting I was going to do. That's not where I'm coming from.

What I'm suggesting is a couple of things. First off, I would say given the analysis that the Commission was making from the period of 2001 to the establishment of the current DBT, there was -- and I know the Commission right now was grappling with what you want to do regarding the adversary characteristics.

They're in my view looking at where we are with security. I think that there has been a slow ratcheting of security requirements at the current fleet that is -- that is not consistent with the DBT and the adversary characteristics. But I needn't go any further, because that involves Safeguards discussions.

I think the agency can certainly take a look at what is going on. Unlike Mr. Gunter, I don't think just because a bunch of terrorists said they'd like to attack something means that you -- that that's a target that is necessarily a viable one for them. I think there is a -- there is a balance, and I think that there are areas that the Commission could look at and appropriately balance that out in terms of what it requires for licensees.

But certainly we need to maintain obviously appropriate and vibrant coverage for these plants. Part of my comment though was focused on the agency itself. It built up a large capability within its workforce, in looking at security issues. It has never had an opportunity to really go back and say given the fact you are now monitoring and observing rather than building infrastructure, what's the right size and what are the right set of skill sets you have in NSIR?.

I would suggest, as you're going through the process of Project Aim, you need to ask the hard questions. What do you need to have a vibrant, appropriate group of folks in that organization to monitor and regulate, but you're in a position as we were ten years ago of having to build a whole regulatory infrastructure?

CHAIRMAN BURNS: Mr. Gunter, unless I missed -- was it Jim? Okay.

MR. GUNTER: Let Jim go.

MR. RICCIO: Again, this is Jim Riccio with Greenpeace. You know, perhaps I don't have the same level of information that the former Chairman or

Commissioner does, but I'm just wondering how you know that the current threat environment does not justify the same threat posture?

To my mind, we've merely replaced Al-Quaeda with ISIS. They both have an interest in striking nuclear power plants, at least according to the 9/11 Commission report and associated documents. So and this goes to what I've heard Mr. Gunter raise before, that Aim was going to be used as an effort to slice and dice this agency.

This is the first time I've heard a desire to cut NSIR, and given the security track record that this agency had prior to 9/11, this would not be the first place I'd choose to cut.

MR. MERRIFIELD: You know, the fact of the matter is I don't have any inside intelligence information, you know. But if you look at what is it that ISIS has actually been doing and what is the threat that we as a country have right now, it is shopping malls, it is open areas. They are undefended, light targets. They are not nuclear power plants.

So we have, as we needed to, ratcheted up requirements for nuclear power plants post-9/11, because of what we thought was the threat. But the fact of the matter is, continuing to ratchet our nuclear power plants makes no sense given the actual threat that is posed by the people who are attacking us.

CHAIRMAN BURNS: Mr. Gunter.

MR. GUNTER: Well, I think there's a very real concern that we never really came up to the actual DBT that was needed following 9/11, that you know, without discussing numbers, 19 attackers were involved in the coordinated teams, that had a

cumulative effect on this nation's security.

I don't -- I have some very real concerns that our current preparedness does not and did not rise to the level of what was presented to us on 9/11. Given again, going back to the issue, that this industry is in decline and looking for cost saving measures, it is a very real concern of ours that Aim is part of a firing squad.

I don't think that it was intentional to choose that name or acronym or whatever. But it is apparent that the industry is certainly following on in that vein.

CHAIRMAN BURNS: We're about to wrap up this session. I'll call on Allison McFarlane, then Mr. Moeller and then Commissioner Svinicki.

DR. MACFARLANE: Okay. Just jumping in on the security, sorry, I think that the NRC did an excellent job after 9/11 getting the industry to a very good place now. I think they set a standard for the rest of the country in security, and the NRC does an excellent job regulating that.

I think they set a standard for the world, and I think that many other regulators, nuclear regulators around the world, either security is not part of their purview -- it should be. Or they don't regulate it very well. I think the NRC really can help set other regulators in other countries getting up to speed because I think as we --

I don't know what you're reading Jeff, but I feel like we're in a world under siege this summer. I'm sure something's already happened, I haven't checked my email, but something else has happened today. It's really hard to keep up with it, you know. We are in a serious threat environment now, and that we really need to pay attention to that.

This is not a time to slack off, and I think there's plenty of examples. Okay, in the U.S., we've in the last few months just had Orlando and San Bernardino,

etcetera, that terrorists caused.

They weren't nuclear power plants, but a few months earlier we had all this information about what was going on in Belgium, and the identifying of nuclear power plants in Belgium. This is not a winning strategy right now. I think security has to remain where it is.

CHAIRMAN BURNS: Mr. Moeller.

MR. MOELLER: Well this is about advanced nuclear reactors. It's really kind of a question for the Commission on the chicken and egg situation. But do you have, assuming there's a successful license application, do you have a goal of commercial operation of a new advanced reactor in the 2025-2028 time frame and what it would take to get there?

Again my concern -- similarly I think we lead the world on this and the world will be looking for advanced reactors to meet energy supply. I'm just curious if you think that through in terms of a time frame.

CHAIRMAN BURNS: Well I think for us, that the time frame is really going to be dependent on the industry and what it decides to deploy. Like I said, we've heard some differences of view, whether that's a decade from now or toward the end of the next decade, or the decade after that.

I think that will start to be teased out probably within the next few years. We're going to close this session. I think Commissioner Svinicki had a comment or a question.

COMMISSIONER SVINICKI: I just had an observation to share of what I took from the raising of the security issue in Commissioner Merrifield's presentation.

Often, when an agency or an organization takes on something like Project Aim, it moves through, in my view, a kind of an evolution from being kind of task and activity-based, and then you start looking at processes and how those can be improved, and eventually you do look at structure and organization.

Much as we've looked as an agency after Fukushima, how long are we going to have a separate directorate on Fukushima? At some point you say it's nuclear safety, and we need to reintegrate that with the rest of our regulatory program.

What I was contemplating, based on Jeff Merrifield's presentation, was if the Commission on which he served set up NSIR with the standpoint of it was developing the first principles of an original framework, is there any benefit to looking at a structure, if it's no longer under construction, and now what you're doing is you're monitoring and assessing and continuing to move forward.

I do think that under the broad heading of Project Aim looking at that, you know, not necessarily making a decision on any action today, but fundamentally looking at where we are on structure is the valuable part. That's what I took from the conversation. I just wanted to share that.

CHAIRMAN BURNS: All right. Thank you, Commissioner. All right. We'll break again for about ten minutes. Re-gather by quarter of -- I guess that's quarter of three. Thanks.

(Whereupon, the proceedings went off the record at 2:33 p.m. and went back on the record at 2:48 p.m.)

CHAIRMAN BURNS: Well, welcome back everyone as we gather again. This is our last panel and then we'll again have an opportunity for discussion to wrap up

the day.

And we have on this panel six speakers. Sherrie Flaherty, Chairman of the Organization of Agreement States who will lead off. Fred Fahey, Dr. Fred Fahey, SNMMI past President and Medical Rep for the CRCPD. The director and, you can ask somebody else for the acronym, define the acronyms. He's Director of Nuclear Medicine and PET Physics, Boston Children's Hospital and Professor of Radiology at Harvard Medical School.

Anna Jerry from the International Representative, the International Brotherhood of Electrical Workers, IBEW. Dave Heacock, President and Chief Nuclear Officer for Dominion Nuclear. Jim Riccio, Nuclear Policy Analyst with Greenpeace.

And Wayne Norton, President and CEO of Connecticut Yankee Atomic Power Company and Yankee Rowe Nuclear Power Station, and Chief Nuclear Officer of Maine Yankee, and the Principal Spokesperson for the Decommissioning Plant Coalition.

So we look forward to hearing from our speakers, and we'll start off with Ms. Flaherty.

MS. FLAHERTY: Chairman and Commissioners, thank you for the opportunity to be here today on behalf of the Organization of Agreement States and the 37 states themselves. I appreciate the opportunity to speak to items on the material side of the house and to offer some state's perspective.

I'll limit my focus to two areas, the first being prioritization of regulatory activities, and then the second topic that we've discussed a little bit this morning and this afternoon, but probably from a different angle, the licensing efficiency and effectiveness.

Oh, yes, and the NRC under the National Materials Program have

developed a strong working relationship in overseeing the safeties of radioactive materials throughout the country.

As Part of the National Materials Program, the OAS believes an area in which we could improve involves better prioritization of regulatory activities. In 2015, the agreement states had five regulatory actions to adopt. This year there are two, and looking ahead there are already five for 2018.

You're well aware of the difficulties many states have in completing the rulemaking process in the required three year time period. While OAS believes in the need for adequate regulations, we question the requirements for miscellaneous corrections that have no bearing on health and safety, and the mandatory three year requirement for the states to adopt these revised regulations.

In adopting new rules and changing existing ones, states are bound by their agency's regulatory process. Not all states can meet the three year requirement working through those legislative and executive branches. Some states take nearly five years.

In addition, state programs rarely have staff dedicated just to the rulemaking process. So working with their available resources, states are forced to prioritize their programs activities.

When it comes to assigning staff and other resources, incident response, inspections, and nearly all licensing activities will take a higher priority in a state program than making minor changes to the regulations.

And by working around by using license conditions and policy statements to cover these miscellaneous corrections does not meet our mission of protecting the

public and the environment from the unnecessary radiation exposure.

OAS believes a tiered approach to regulatory corrections needs to be established, one that evaluates the health and safety implications while considering the impact to the state programs.

Currently there are two states that are not compatible with the NRC due to overdue regulations. Based on the number of regulatory revision requirements and the amount of effort it takes the agreement state staff to amend their regulations, we foresee the number of states that are not compatible with regulations will increase.

The second item I would like to address today involves licensing efficiency and effectiveness. The OAS believes that the NRC and the Agreement States are working partners in the National Materials Program and our licensing practices need to be performed as such.

The OAS would like to see the NRC licensing process streamlined and be more in alignment with the Agreement States. Perhaps together we can increase our timeliness and maximize our efficiency.

We would also like to see a process for sharing information when NRC is working on licenses that reside in Agreement States. According to the licensee numbers report published November 23rd of 2015 there are approximately 979 licenses that the NRC is maintaining in Agreement States.

Many of these licensees are not exclusively in federal jurisdiction and also hold Agreement State licenses. OAS believes that these licensees with dual state and agreement, or Agreement State and NRC licenses would best be served if the NRC and Agreement States can work together through their licensing process mainly because

the license deficiencies discovered during both the Agreement State and the NRC reviews will almost be the same.

Sharing the information and working together adds consistency and supports the National Materials Program. This proposal will be discussed in more detail at the OAS meeting next month, and we look forward to ideas from the NRC and from the additional Agreement States for implementing this type of a process.

Thank you again for the opportunity to present the states' perspective and be here on behalf of the Organization of Agreement States.

CHAIRMAN BURNS: Well thank you. Dr. Fahey?

DR. FAHEY: Thank you, Commissioner Burns. I am representing the Society of Nuclear Medicine Molecular Imaging, SNMMI. And I am a doctor of science, I am a nuclear medicine physicist from Boston Children's Hospital.

Sometimes my wife will be asked oh, your husband works at Children's Hospital, is he a doctor. And she'll say yes, but he's not the kind that does you any good.

So it's a little bit daunting for me to be here representing not only nuclear medicine but other aspects that are touched by the NRC including medical physicists, radiology, radiation oncology, and the radiopharmacy industry.

And so I'm very pleased that I've been able to get some help from folks from the APM and ACR-ASTRO in putting this presentation together. Next slide, please?

And thank you to Ms. Flaherty for giving a little bit of an introduction into the radioactive material side of things a little bit. Now for something completely different in a way, bringing in us folks on the medical side.

We intentionally irradiate people and for their well-being. And if you look

up, you see that there are 18 million molecular imaging nuclear medicine procedures performed in the US each year.

And they cover imaging people who have cancer, cardiovascular disease, neurologic disease and other things that I've listed up here. And you can also see that we treat something in more than 200,000 patients a year using radioactive materials, some with nuclear medicine -- radionuclide therapy. This is the 75th anniversary of the first patient being treated with radioiodine this year, 2016.

But also we have some new, hopefully new radionuclide therapies coming down the pipe for neuroendocrine tumors and prostate cancer as well, hopefully in the next couple of years.

And in addition, in radiation oncology, treating patients with brachytherapy and stereotactic radiosurgery. So you can see that we touch a large number of people in the country positively with our radionuclide program, and with the use of radioactive materials.

And in fact on the therapy side, you know, we often talk about ALARA when we talk about radiation safety, “as low as reasonably achievable.” And in our therapy side we use AHARA very often. We want to be “as high as reasonably achievable.” We try to give the tumor as much dose as we can without undue side effects. Next slide, please.

So you can see that the NRC has a big impact on patients in practically all aspects of what we do in nuclear medicine or radiation oncology from the production of radiopharmaceuticals to the management and handling of the radionuclides in the clinic to the training requirements for physicians and other health professionals, and the

radiation protection of both ourselves, our patients, and their families.

And this is true as Ms. Flaherty just pointed on not just for people in NRC states but in Agreement States as well. When the NRC changes rules, it affects all of us. And in addition, it has been pointed out to me by my radiology colleagues, it affects them as well.

So if there's changes, for example, to Part 20 with respect to the maximum permissible dose, occupational maximum permissible dose, that will also be adopted by the states for people, for example, cardiologists or interventional radiologists who are practicing fluoroscopy as well and could have an impact on their fields as well. Next slide.

With respect to inspections, we want to make sure that we have good communication between the inspectors and the licensees. We want to make sure that the inspectors are well trained in the aspect that they are in fact inspecting, whether it's a large hospital like mine that has a broad radioactive material license or a small nuclear cardiology clinic, or a radiopharmacy distribution facility, and make sure that they understand that it is that we're trying to accomplish and we understand what the inspector is looking for.

So if we can improve consistency and minimize variability, I've heard this on other aspects that we've heard this morning and I think this follows over into medicine as well. We want to try to minimize any surprises. We want to know what to expect. We want some consistency with respect to the inspection, with respect to inspection.

We expect, we hope as you may know, in nuclear medicine, 90 percent plus of the procedures, the diagnostic procedures we do involve technetium-99m which

comes from a generator system with its parent molybdenum-99.

In October of this year the Chalk River reactor in Canada will no longer provide molybdenum-99 and so we will be getting molybdenum-99 from Europe and from Africa. We hope that in the next few years we do have a domestic source of molybdenum-99. But that is, as Commissioner Svinicki referred to earlier, projects like the Shine Project.

And so we hope that, you know, my radiopharmacy colleagues will be able to have good communication with the NRC so that the licensing of those facilities can be handled quickly and appropriately. If the current rules are not applicable, then trying to figure out what the best solutions around that would be. Next slide.

With respect to the resolution of stakeholder comment and regulation, again I just point out that what we do in the medical side of things is very distinct from what we've been mostly hearing about today.

We're in a very exciting time in nuclear medicine and radiation oncology. We've had two new imaging agents approved just this past May. We hope that within the next few years that we have some new theranostic approaches.

So the delays in rulemaking can have a very negative affect on us in some instances when we're trying to bring innovative new therapies to the clinic. Part 35 has been in revision for about 10 years now, but we do have these new therapies coming down and we want to make sure that we can get them to our patients as soon as possible.

Bottom line is we want to provide our patients with the best technological advances possible that allows us to treat their diseases effectively, efficiently, and as safely as possible. Next slide.

So we look at successes. We feel like we've been very happy with communication with the NRC. They've been very, the staff has been very willing to come to our meetings and talk to our membership.

We've been very happy with our input and our engagement with the Advisory Committee with Medical Uses of Isotopes, and we want to continue that. But there's always room for improvement, better communication really is going to be the key. We want to make sure that we are not limited by, the innovations are not limiting.

So we hope that that in fact continues to be the case. So with that, I think my next slide is just my, you know, I'm happy to answer any questions when we get to the discussion period.

CHAIRMAN BURNS: Thank you, Dr. Fahey. Ms. Jerry?

MS. JERRY: Thank you, Chairman. We appreciate the opportunity to and the invitation to be here today to speak to you as a stakeholder and to the industry.

We, the IBEW who we represent is 83 percent of all the organized utilities in the United States and Canada with over 750,000 members. And for us, the reason that we want to talk today is we have two issues.

I want to start with kind of a thought provoking question and say what good is nuclear power anyway? Our generation has seen the term nuclear mean so many things. In the '60s it could have meant war but we rose to the challenge and we neutralized that threat.

And in the '70s it might have meant, or it did mean a renaissance in the power industry and hundreds of thousands of good jobs and operating what has become an awesome fleet of carbon neutral electrical power providers.

What nuclear now means though is it is a year round energy source at 92 percent of capacity and it is carbon neutral. And we feel like that is an important distinction to make as we talk about the markets.

The markets and grid stability, you know, and one reason I bring this to the forefront here with the NRC, we understand the Nuclear Regulatory Commission is responsible mainly for safety. And why would this be meaningful to you?

But I give the analogy of a ship, and when the ship is sinking, everyone on board gets in and starts bailing. So we need the Nuclear Regulatory Commission's help in any way possible and also talking with legislators and making sure that our nuclear fleet is here not only to take us into the next century but also to help with reducing our carbon footprint here in America and worldwide overall.

So through the years, the NRC agency has been an agency that has taken on anyone in the industry to task that might have put profits ahead of safety, even conducting an internal look at their own efficiencies and addressing challenges.

The industry likewise has taken a long, hard look at itself and is finding areas where efficiencies can be highlighted, and that is with Delivering the Nuclear Promise which we have been very heavily active with NEI and addressing those inefficiencies throughout the industry.

We feel like the 15,000 nuclear workers that we have are heavily invested in understanding where those inefficiencies are and making sure that they're addressed for the solvency of our industry going forward.

We do have a suggestion though for NRC in regards to where the NRC can help with cost within the industry and within its own halls, and that's in regards to the

nuclear plant access issue.

We believe that this issue should not be given resources or allocated resources to address the access rulemaking that was recently pushed forward. I would just say that there has never been an individual who has returned to work who has been a threat to the health and safety or the public which is the goal of the IBEW as we address this issue in the industry.

Our goal is to provide the highest quality workers to provide the highest quality work safely and in the safest manner possible. You know, you talk about taking a risk informed approach, and I would just like to tell you that if you think back to 1991 when the NRC mandated that we had a more robust way to protect the plants in regards to our people that work in these plants, if you think back prior to 1991, and I'll just take some of us with graying hair in the room right now back to thinking of this was a time prior to the internet.

This was a time when if you're in the room and you dialed a rotary phone I'm probably bringing a smile to your face. And if you had to cross the shag carpet to change your TV channel while you were listening to your eight track in the background, I'm probably bringing a smile to your face.

But what brings a smile to my face is knowing that in that time, in all of those years, we've never had someone return to work that was a threat or ever became a threat to the nuclear facility they worked at.

So we believe that this issue, if anything, if the Commission must address resources to this issue, then we would say that a notice of advanced rulemaking to fully explore all the issues surrounding that would be, you know, something that we would like

to see in regards to this issue.

Thank you for allowing us to address the NRC Commission today, and we thank you very much for you allowing our involvement. Thank you.

CHAIRMAN BURNS: Thank you, Ms. Jerry. Mr. Heacock?

MR. HEACOCK: Thank you very much. I appreciate the opportunity to be here so much. I thank you for the invitation.

I've been in the utility business for about 37 years, but I had a unique opportunity for six of those years to leave nuclear and go do something different.

And my opening comment is more of a observation. While I was outside of nuclear sphere for six years, I had power plants in a third of the United States and I got a chance to interact with other federal and state agencies quite a lot.

So the first comment is a complement to the NRC. What I find here is meetings like this, the opportunity to provide input. And if it's rational and fact based, it makes a difference. And that's not true in many other states and federal organizations.

You can make all the arguments you want, but if the decision's political or emotional, it falls on deaf ears. So I will compliment the NRC to start with here. I do have some other feedback that may not be quite so positive. But I'll go through that next here.

The next area is CDBI and tri-annual fire protection audits, inspections. Every three years, all plants in the US get one of each of these. And I have some specific experience for Dominion and I also have the industry data here as well to talk about.

But for CDBIs, the last several we've had, we've had one at North Anna and one at Surry. And they're roughly $400,000 in NRC fees alone for one of those

inspections. They now last three weeks on site, five week inspection. And it's about the same amount of utility cost associated with it.

So it's three fourths to a million dollars per inspection that's been our experience for CDBIs. Now I know recently there's been a pilot done and we've had a pilot done in one of our plants. And my view is as a pilot, it was unsuccessful.

The intrusiveness actually went up for the pilot, it didn't achieve the results. We recently had a Bagman Trip at Millstone, seven people came. So we didn't have that many bags. But that's a lot of people coming for picking up data before the trip.

And a Bagman Trip in the new process feels a lot like a team visit for the first week. So just some general feedback, and we would be happy to provide more detail to the staff if you would like in this area.

Tri-annual fire protection audits show similar results. You know, $300,000 to $400,000 each, large teams, long inspections, a lot of effort required to do that.

But the comment I want to make is we sort of average about one and a half green findings per inspection visit. At Dominion these are either green findings or URIs. And in one case we had a URI that's already took a year to resolve it. Kind of a long time for an inspection result.

But the industry results are the same. It's about 1.5 either green findings or URIs per CDBI inspection for example. That number, when the inspections were three weeks long a decade ago, was two and a half. So the inspections have expanded to five weeks, have more people, a few more contractors, the number of findings has declined.

So my point being that this is a lot of expense being spent for very little

safety benefit. So if we're going to risk inform our inspection hours, maybe this is an area we can look at. Go to a longer frequency, maybe smaller teams.

I'll also make one other point that the one and a half green findings or URIs are generally the same one at all plants by the same contractor. So one contractor will identify an obscure issue with a calculation on a DC bus and just carry it from site to site, and everyone gets the same green finding that has virtually no safety significance.

So what I propose there is we use a bulletin or some other mechanism that's much more efficient to put that information out and make sure people are complying and have resident inspectors verify that. There's other tools in our tool bag we could use here.

I think I covered that. One more point I'll make. Since each unit has, each site has one of these inspections every three years, each site gets two out of three, you know, two inspections every three years. It's about $30 to $40 million expense to the industry for these inspections. So I think we just need to put that in perspective for the benefit we're getting from those inspections.

I'll just touch on decommissioning. I know several people have mentioned it. When you go at the end, everything's already been said but not by everyone. So since it's my turn, I get to say something about the same topic.

And in this case, you know, we went through Kewaunee decommissioning, we were sort of one of the first units in the last batch of plants. And the NRC staff worked quite well with us.

But we ended up with sort of the 12 exemption things we've talked about, so we went through the same process. So I encourage the expedited confined rulemaking

to eliminate some of these things.

I'll just mention a couple of things real quickly. We had the same security staff on site for almost 18 months even though all the fuel had been moved into spent fuel pool and no target sets were left. All your fuel's in one spot.

So it doesn't really make a lot of sense. Same is true for emergency planning purposes. The evacuation zone, the emergency planning zones don't get affected until you change the rules that require that. So as we all know, the rules don't apply for, were not designed to apply to plants that have been permanently shut down.

The next area I'll mention is license renewal, license extension. We've extended all our units and even Kewaunee which unfortunately never operated past its original license lifetime for economic reasons.

But what we expected to see was that as we went through subsequent renewals at different plants they would get easier, and we saw just the opposite. They got harder, more questions got asked, it got more difficult.

But once you develop an aging management plan, it shouldn't matter. You can manage your processes going forward. We're seeing some of that in the new goal SLR. We've seen more requirements added on that don't seem to be necessary.

So some comments on that we could do to improve the process, make the process even better is looking for an 18 month turn-around time on the approval. And rather than fully validating the scoping and the screening results, focus on areas of increased importance.

I think NEI has an SLR task force that's identified those areas already. Site presence of NRR audit teams, we can use some of the e-portal activities like we use

for beyond design basis quite successfully.

And then requests for additional information which is a broader topic. Sometimes they get out of hand and you get too many of those and we need to manage that process very carefully.

I want to give you one example. We had a Millstone-2 spent fuel pool criticality submittal ALARA and it got outsourced to a national lab. And there was 42 RAIs. It cost us $525,000 to answer questions, most of which were unnecessary, had already been answered previously.

But the people that were asking the questions weren't familiar with the NRC processes like the staff was. So it seemed quite redundant to do that.

The last thing I'll mention is I encourage the Project Aim. I think you're on the right track there. But one thing we see that's been mentioned by several speakers today that a number of plants have announced the intent to shut down.

And the annual fee is about $5 million per reactor for an operating power plant. So as each plant shuts down, the other 100 or so plants, their fees will increase by about $50,000.

So I operate six reactors, so $300,000 each time a plant shuts down my increased fees which would offset any AIM savings. Just a precaution needs to be continual. Thank you.

CHAIRMAN BURNS: Okay, thanks. Mr. Riccio?

MR. RICCIO: Good afternoon. I'm still Jim Riccio and I work with Greenpeace. I would like to thank the Commission for inviting me here today. I'm reminded that this is like the first time I presented to the Commission since Ms. Merrifield

came across the table at me back in the days of Davis-Besse.

As the Commission well knows, the last five years in the life of this Agency have been taken up and consumed by Fukushima. You know, in the few minutes that I have before you today I'm not going to try to revisit the regulatory battles of the last five years or the frustrations.

But I did want to agree with Mr. Gunter that we in the public did feel that we had the rug pulled out from underneath us with the removal of the rulemaking when it came to hardened vents. Next slide, please.

But five years after Fukushima, I'm sort of left wondering whether we've learned lessons that we were supposed to have learned, or whether we've created a false sense of security.

After the triple meltdown at Fukushima, the commercial nuclear industry's track record was one meltdown per decade. This historical record clearly contradicts the industry's claim that nuclear power is safe. Next slide, please.

And again, I don't want to revisit what we've struggled with for the last five years, but suffice it to say that my time has been spent with dealing with the spent fuel pool issues, the hardened vents, and also dealing with a ten year struggle in this Agency to get Duke to address flooding issues at Oconee.

So I've seen how these battles play out over long periods of time and I do not suggest that Duke's example at Oconee be taken for anyone moving forward on Fukushima issues. Ten years to address a flooding threat is inappropriate.

But rather than looking backward, let's look forward. We now have Fukushima regulations in place. And now that we've finally gotten them in place, the NRC

is beginning to waive them for those reactors that are under financial pressure.

The venting regulation in specific has been waived for Oyster Creek. We know that Pilgrim is applying for that. And I believe this sets a bad precedent. I'm glad that you've raised, you know, the specter of Shirley Jackson in this room nearly 20 years ago because it was Shirley Jackson who said that the NRC should not regulate via exemption.

And that was referring back to the days when we were using notices of enforcement discretion to do end-runs around tech specs. But I'm left with a concern that now that we have the regulations in place and you have, say, Pilgrim and Oyster Creek and, you know, Diablo Canyon is now going to operate for ten more years, at what point and how long is the Agency willing to acquiesce to the fact that you don't have adequate protection for these reactors?

Now I read repeatedly Chairman, or Commissioner Ostendorff's article on adequate protection, and even though the industry has made arguments that we have Flex in place in order to deal with any threats, I don't see how the Agency can get to the point of saying no, Pilgrim you can operate for three years without addressing the insights from Fukushima.

And I think it sets you up for a very bad precedent for reactors like Diablo Canyon that now maybe offering, or actually asking for exemptions because they're now only going to be shutting down after a ten year period.

So while I appreciate the effort that's gone in by a lot of very good people in this Agency to try to shore up the regulatory basis for nuclear power plants, I'm left with an unsettled notion that we may not have done enough.

I thank you for your time and consideration of my comments, and I might answer any questions you might have.

CHAIRMAN BURNS: Thanks. Mr. Norton.

MR. NORTON: Thank you, Mr. Chairman and Commissioners. I appreciate the opportunity to participate in the forum. I do appreciate that I=m also batting cleanup here, as Commissioner Svinicki reminded me at break. Fortunately, must of what I had to say has been covered to some extent from the overall context of regulatory programs, so I should be able to be timely.

My principal focus, as spokesman of the Decommissioning Plant Coalition, is in two areas: decommissioning and, most notably, the recent ANPR on decommissioning and long-term extended fuel and high-level waste storage at our sites.

Next slide, please. A chance to showcase my three sites, Maine Yankee, Connecticut Yankee, and Yankee Rowe, all three of which were shut down in the early and late 90s, fully decommissioned and now ISFSI-only facilities awaiting DOE performance. Unfortunately, because of the status of our existing licenses at these sites, we=ll be re-licensing our canisters to support that extended storage. So that=s another initiative we=re facing.

The map you see in front of you is multiple sites that have shut down or announced intention to shut down. Many of those sites are represented by the Decommissioning Plant Coalition. It=s a membership that=s growing, unfortunately. Principal objective is to hasten the day that the fuel leaves, which I know you have little effect on, but the alternative or the continued objective to also engage with the NRC on regulatory matters that affect us until such time as the DOE performance.

Next slide, please. Just intended to identify multiple stages of the decommissioning process, all of which have been safely performed in the past and continue to be safely performed today. Those you see highlighted in red are actually activities that we undertake now as a result of the DOE=s failure to perform that have complicated, at least on the front end, some of the decommissioning activities and obviously have put many of us in a position where we have to continue to operate our facilities until such time as they perform.

Next slide, please. On the topic of licensing efficiency and effectiveness, you=ve heard that the current process for transitioning from operations to decommissioning requires multiple exemptions and licensing amendments. I know there=s an ANPR that is in process. More on that in a minute.

The dry storage regulatory process is presently highly inefficient and requires rulemaking for modifications to tech specs associated with the CFCs which are expansive in comparison to what you would expect for a system such as the transportable storage containers that we have today. And the rulemaking activities, one of the concerns, and I know the Commission has heard me say this many times before, is for those of us that are in an ISFSI-only configuration, many times the rulemaking efforts do not specifically identify the applicability or lack thereof at our facilities, and we end up cycling through that exemption process unnecessarily in some cases.

Next slide, please. On the topic of risk-informed regulatory approaches, as I mentioned, the decommissioning regulatory rulemaking approach for decommissioning in ISFSI-only sites needs to continue to recognize significant risk reduction for ISFSI-only facilities and should be fully informed by past exemptions,

approvals, and licensing actions for sites in decommissioning.

One of my earlier comments was on the rulemaking applicability to shut down sites and ISFSI-only sites. By way of example, the 7355 rule changes that took effect in 2012 was one example where, at least initially, under the statements of consideration, didn=t apply to shutdown plants, ultimately ended up applying to shutdown plants, and we cycled ourselves through the exemption process again.

And then, again, risk-informed regulatory approach could certainly be applied to industry proposals for limited scope rulemaking as it relates to decommissioning and in the area of the reduction of the Part 50 license as we go through decommissioning. And, again, I know I=ve mentioned this to the Commission before, as is the case with my sites, the ISFSI-only, we find ourselves in a parallel to a Part 72 license and there is no way to process through to a Part 72 license without going through the license application, rather than some conversion that could take place once we=ve basically obtained a parallel license condition.

On the topic of prioritization of regulatory activities, we, like I=ve heard from others, appreciate the NRC=s effort under Project Aim specifically for our shutdown sites, the deferral of ISFSI security changes, canister retrievability requirements under ISG-2 Rev. 2. The NRC continued resources should be applied on several specific activities going forward that affect our shutdown sites. I mentioned earlier the canister re-licensing efforts, aging management program requirements, rulemaking, NEI petition for Part 72 rulemaking should be considered, and then changes to tech specs as we go through the re-licensing process all should be appropriate focus for the NRC resources going forward. There are, as I mentioned earlier, additional opportunities under Part 50

and Part 72 to prioritize for D&D and for tech spec changes.

Next slide, please. On the topic of effectiveness of public engagement, I again want to acknowledge the efforts of the NRC, specifically NMSS/SFM divisions and public outreach interaction with the utilities, with NEI and the industry at large in all matters of dry fuel storage efforts associated with canister re-licensing and aging management program development. And future outreach efforts should continue to communicate, I believe, the inherent safety of dry cask storage systems and effectiveness of the licensee=s corrective action programs as we move forward through the process.

And with that, Mr. Chairman, thank you for the opportunity.

CHAIRMAN BURNS: Okay. Thanks, Mr. Norton. And thank you all for the presentations on this panel. We=ll open it up for questioning. Mr. Gunter, do you want to start off?

MR. GUNTER: Just quickly, I have a question for Mr. Heacock with regard to the extension of the inspection, fire triennial inspections, from two and a half to five years. Is that an outcome of transitioning from the Appendix R inspections to NFP-805?

MR. HEACOCK: Currently, the triennials are every three years, as the name implies, and I suggest they go to five years, but they=re currently still at three years. We=d have to rename them, but they=d be every five years. It=s not nothing to do with 805.

MR. GUNTER: Are the plants that are going through these, are they Appendix R and NFP-805 or are they just NFP-805?

MR. HEACOCK: All of our plants are just Appendix R. They=re not 805.

MR. GUNTER: Okay. Thank you.

COMMISSIONER SVINICKI: Sherrie, thank you so much for a view from the states and some perspectives on behalf of OAS. Speaking broadly, I know with the economic downturn in 2008 a number of state budgets and consequently state agencies faced resource restrictions. Would you give a generalized assessment that there=s been some recovery in that, or is it deeply dependent on the state that we=re talking about?

MS. FLAHERTY: From what I=ve witnessed in working with the OAS for the last two years, it really seems to be state dependent. Some states seem to have come back, and then other states still seem to be struggling a bit.

COMMISSIONER SVINICKI: So I appreciated, in light of that, your comment about maybe better prioritization because what we do then has a follow through that agreement states have to carry out. Do you feel that any of the -- I know we have a number of working groups with state participation and NRC staff. Is there not enough crosstalk between the various issues? I hate to create yet another working group, but does there need to be some sort of umbrella under which both NRC and agreement states or OAS could be looking at the full menu of activities and prioritizing? Is that what=s missing?

MS. FLAHERTY: I think a lot of that is going on right now, and I think that it seems to be, there seems to be a shift in looking at things more cooperatively and less the NRC is doing something and then waiting for the NRC to give the states direction as to, okay, now you need to follow suit or you need to be compatible. It seems to be right now that there is a lot more of that. So I don=t think creating an additional working group is necessary. I think it just needs to, we just need to keep the dialogue open and

keep the conversations going.

COMMISSIONER SVINICKI: And just one other point. I appreciated your commentary about the legislative cycles and considerations for the states and also our strict metric of the three-year time line for states to be able to accommodate rulemaking or make adjustments for NRC changes. I=ve been sympathetic to that in that where I look at states listed as non-compatible I always look and see if -- I just want to give you this assurance -- I look if it=s attributable solely to that. I think that that=s a very different matter than non-compatible for other aspects of the larger program performance in the state. But I do appreciate you raising it today.

CHAIRMAN BURNS: I might ask sort of a follow-on that maybe to Dr. Fahey in terms of one of the points that you noted is that we can have some unintended consequences and maybe we=re not totally unconscious of them. But in terms of changes that we may make in our regulation which may then also be matters of compatibility that can impact the delivery of either therapeutic or diagnostic care.

The one area you mentioned is, for example, Part 20 radiation exposure. Are there particular other areas that can potentially have that kind of impact that we should be conscious of?

DR. FAHEY: Well, there are some instances. I=m trying to think of another good example, but, you know, in that instance, in some cases we have highly-skilled people working in radiopharmacies, for example, who may be on the edge of, you know, on the levels of what they get in a year closer to a maximum permissible dose. If that gets reduced from 50 millisieverts down to 20, then what do we do? We train more people to do a job that someone else does or, you know, in my case, at Boston Children=s

Hospital, we have some very skilled cardiologists who treat kids who are very sick and they may be a little bit higher dose. Do we tell them they can=t do it anymore? So I think -- you know, because they=re getting up closer to their limit. So I think in some instances, you know -- and that is not a radioactive materials issue, that=s a fluoroscopy issue -- that we have to keep that in mind.

We want to, you know, also another example, but, you know, this is a place where I think there has been some success is that when we just got approval for our gallium-68 labeled PET radiopharmaceutical, but then there became the issues about how do you decommission the generator that=s associated with that which has a 270-day half life? And in this instance, the NRC was willing to work to figure out a way to handle that situation.

So I think that there are some instances. This is where clear communication between us, on the medical side, trying to implement a new radiopharmaceutical that will benefit a bunch of our patients and the NRC who wants to make sure this is handled safely can be effective, but we have to be sure that we keep those communications going.

COMMISSIONER SVINICKI: I would just like to follow up with Dr. Fahey. Again, I appreciate your remarks about the uniqueness of our regulation of medical applications of these technologies. I think, as a Commission, we really attempt to be focused on that. On some days, we probably do better than others, but it is fundamentally unique. As you=ve said, it=s the purposeful exposure of people to radiation, which is quite the opposite of what we do in other aspects of our regulation.

I know that the notion of NRC complex and long processes depriving

patients of opportunities for new treatments and technologies is something that we take very seriously. The FDA looks at that, as well. You know, patients, during the pendency of approval of something, it does matter to that one patient if it gets approved after the need for it would have been beneficial for them. But the FDA has, this isn=t really my area, but they have kind off-label treatment. I don=t know if that=s the right term but where the medical practitioners are able to prescribe something maybe not exactly for what it=s approved for. Are there instances -- this is kind of a big-picture question. Are there instances where the equivalent kind of exemption or special treatment process would be helpful in getting promising new diagnostic or therapeutic technologies to patients, but it is NRC=s review process taking a long time that=s holding up? I=m kind of looking for that off-label prescribing equivalent for the NRC framework that it is available for the FDA framework; but, admittedly, I have a very imperfect knowledge of FDA processes.

DR. FAHEY: A couple of years ago, we had radium-223, you know, which was the first alpha emitter which got FDA approval for treating patients with bone metastases from prostate cancer, and it was an alpha emitter. So in that instance, the NRC looked at that and was able to decide that this could be handled with respect to the training of the physicians who were ordering this and performing this under what was called Part 35 Section 300, as opposed to Section 1000. Some of our patients who are treated for liver cancer still go under 1000, which means it has to have additional training.

We would hope that eventually that could be transitioned back to something that=s a little more standard, like 300. And it hasn=t. It=s been ten years now, and it still in that realm, which makes it more difficult for physicians to get up to speed

with respect to that therapy. So I think that that Section 1000 was to provide a little bit of what you=re saying: allow a new technology to come in, the physicians will need extra training in order to do it because it=s new, but now it=s not new anymore. And so we need to then be able to roll it back so that we can make that therapy more accessible.

COMMISSIONER SVINICKI: I appreciate that as a kind of analogous treatment. And I think, to the extent that the medical community has other circumstances like that and we could either write or implement our regulations in a way to provide flexibility for better patient outcomes, I know I shouldn=t speak for the NRC staff, but my sense is that we=d always be interested in engaging that discussion about what those alternatives are.

DR. FAHEY: Thank you very much.

CHAIRMAN BURNS: Thank you. Mr. Lochbaum.

MR. LOCHBAUM: I have a question for Dave Heacock about the CDBI issue. You said that the NRC CDBI will find something and then go out to the other plants and find the same thing. Are the sixth, seventh, and eighth owners just figuring I=ll just let them catch that rather than have them clear it before they get here and have them find something else? It=s easier to fix that or is it --

MR. HEACOCK: Great question. There are some that=s expanded, and they fix it before the team shows up. That does happen to some degree. With CDBI, you really can=t do a self assessment because the team looks at things so uniquely each time when they come, so it=s a little more difficult. In some of their areas, like fire protection, you might do a self assessment and the team will mind your self assessment, and things that are in your corrective action program could ultimately end up as URIs or green

findings for example.

I don=t see as much of a learning curve on those one issues. We have seen a few of them where the DC calculations for breakers or AC calculations for breakers will find their way across industry and correct those problems before they=re identified, but that=s pretty rare.

MR. LOCHBAUM: Would another value added to the CDBI make them more universal so that the lessons learned from an early inspection would be more transferrable to the rest of the industry?

MR. HEACOCK: If they=re more template driven or perhaps have fewer contractors, it may be a better result when you do that. You have the people come and do the same thing at all the plants, and that may be an opportunity. I just think we think about component design base inspection, just the name of it. After plants have been operating for 40-plus years, do you really need to do a design base inspection of the same equipment over and over and over? What you=ll find is more and more obscure findings and violations. It=s not really a design basis issue. It=s something that way, way down the line relative to safety, in my view.

MR. LOCHBAUM: Thank you.

CHAIRMAN BURNS: Mr. Gunter?

MR. GUNTER: Yes. Actually, this is a question for Dr. Fahey and Chairman Burns, if you could. With regard to the issue of purposeful exposures for medical purposes, and I think that=s certainly needed, but it does result in the consequential increase in exposures to public. And I=m wondering if there=s a, if you could comment on how, for example, hotels around the Mayo Clinic where there are, you

know, increasing numbers of radiological treatments resulting in potential exposures to hotel workers, people cleaning up hotel rooms? You know, if you don=t want to be radioactive around your family, you go to a hotel, but that=s going to increase these exposures to hotel workers, and I=m wondering if that=s been looked at.

DR. FAHEY: So it has been looked at, and it is being looked at. And there have been a number of people that have looked at those issues with respect to, you know, people outside of the family of the patient who has been treated. And the exposures to those people is really, the potential exposure to those people working in hotels is, in general, quite low and lower than the limits that are required for members of the general public.

Maybe there=s some scenario that could come up, that you could come up with where it would be unique. But what would be reasonable assumptions is it=s significantly lower than what the Part 20 limits for members of the general public.

So from our point of view, you know, from the Society of Nuclear Medicine and Molecular Imaging, we think that when we appropriately train, you know, instruct our patients and they leave the facility after being treated, let=s say for radioiodine treatment, that the risk to the public is really quite low.

CHAIRMAN BURNS: I know that our Advisory Committee on Medical Uses of Isotopes has discussed this issue. I don=t have more specifics for you on that at this point, but know that is an issue that has come up and there=s been some debate over over the years.

MR. GUNTER: Is it currently in your regulatory venue to take this up as an issue? I know it=s been put forward by Peter Crane as a significant issue and that,

you know, obviously, there are reasons why patients don=t go home because there is a risk. And I have to question, you know, when hotels are getting more and more of these patients, I think there needs to be more serious consideration for people who are cleaning up the toilets in these hotel rooms or, you know, dealing with, you know -- I just don=t know how you avoid these increased exposures, and I think it should be pursued and expedited.

CHAIRMAN BURNS: Okay. There may be some information on our website that I might ask Scott Moore from NMSS maybe get with you or could probably try to do a better job than I can in terms of explaining --

DR. MACFARLANE: Chairman, maybe I can help a little because Commissioner Magwood and I put together a request to the staff to do some looking into this issue. And it=s an important issue, but it goes beyond just hotel worker exposures, which I remain unconvinced that that=s the most significant part of the issue. I think there are more significant concerns about exposures to family members from people who have received treatments, especially children and pregnant women. And there are instances where families, because of their circumstances, you know, the adult would have to expose the children to doses of radiation, and I think that=s what merits more attention and what Commissioner Magwood and I tried to have the staff look at. And this goes beyond the Nuclear Regulatory Commission. A lot of this falls in the lap of the insurance companies, and really it=s what the insurance companies will pay for. In other countries, you know, in a number of European countries, when people receive these treatments, there are dedicated facilities to house them until the radioactive levels have reduced. But in this country, because of the way our health system is structured, you know, you=re sort of on

your own.

CHAIRMAN BURNS: Okay. Oh, Dr. Fahey --

DR. FAHEY: Just one thing I=d like to comment. I think that, you know, the models that we use to allow patients to go home after they=ve been treated take into account, you know, that we cannot expose a member of the general public to above a certain level. And I think that if the patients are appropriately instructed and the therapy is appropriately administered, then I think we=re considerably less than that.

And so I think that I may say that, you know, we have to be more consistent about our instruction to our patients and make sure that they feel like they understand what we told them and they can follow through on that. But I think once that is, in fact, the case, then I think that this is a safe therapy.

CHAIRMAN BURNS: Commissioner Svinicki?

COMMISSIONER SVINICKI: I wanted to make some observations Ms. Jerry. Ann, thank you for being here today and for your broad discussion on the Brotherhood=s membership and the circumstances that a number of the nuclear plants are facing.

But, specifically, I want to say that I really appreciate your laying forth the views of the IBW, which have been communicated, I think, very, very effectively to the Commission on the access authorization rulemaking. And when you and I had an opportunity to talk this spring about my vote on that matter, I know that there was a consideration of all views.

But I think what I want to communicate is that my statement to you at that time that it would be a much better outcome if you and your members participate strongly

in any exploration of rulemaking that we have going forward, I guess I just want to say that that isn=t a toss-aside on my part. I think that your membership brings a lot to the table on that issue, and, as NRC moves forward, I appreciate so much you being here today raising the issue. I think it=s a demonstration of the fact that you intend to engage strongly on anything we explore in the future, and I just want to commend you for that. So it isn=t so much a question, it=s just a thank you for continuing to participate in a process that maybe you didn=t think was needed anyway but you=re going to make your views known, and I=m counting on it. Thank you.

MS. JERRY: Thank you, Commissioner Svinicki, and thank you for bringing the mic back to me because I did forget to make one statement earlier. I did want to say we applaud Commissioner Baran=s comments in his letter of response to SECY-15-0149 in that he stated that it was never the Commission=s intent to exclude arbitration of access issues and that arbitration is permitted as long as it is consistent with NRC regulations.

You know, I would just say that in any of our legal, judicial, or educational parameters, we must, as a country, trust the training and the requirements that are there. And we just ask that you trust the processes that have been established over the years that they will work as designed. Thank you.

CHAIRMAN BURNS: Thank you. One question I have, listening to a number of the comments this afternoon, there=s been some reference here and there to the staff taking steps to looking at its processes on risk-informed licensing and oversight processes. And it sounds like there are, and I know that there are a number of efforts underway to address these issues. I guess I would be interested in the feedback from

the participants here about how would you say that the Commission, what we, as commissioners, ought to be doing to keep an eye on that, to keep informed on those issues? What advice would you have for us in that regard? Janet?

MS. SCHLUETER: I think that it=s possibly as simple as when the staff comes up and makes a proposal to you that they reveal everything that=s on the plate for that particular category of licensee and they give you an opportunity to make an informed decision and to sort of rank it in its priority, if you will, with regard to everything else that=s ongoing because many times the Commission is making these decisions in isolation. You might get direction back from the staff, but you really don=t know what all, you know, is on the plate of the staff which is impacting that category of licensee. You=re saying go forward and do this, staff; but then the staff goes back and has to prioritize or they should be prioritizing that in some manner. But, you know, maybe you would direct in a certain way or tell the staff, you know, this is a higher priority than something else that=s going on, but you don=t have the benefit of knowing that. You don=t see the whole picture when you=re providing direction back.

CHAIRMAN BURNS: I think Jeff was next and then Ashley and then Katie.

MR. MERRIFIELD: Yes, Chairman, we have, and I think you pointed out quite correctly, there=s been a lot of discussion about risk-informed performance-based regulation and where the agency is going to go with that. And there has been I think a longstanding tension between those tools, and, dating back through the time I remember, the agency made it fairly clear that it was not going to a risk-based program.

Having said that, one of the things that one recognizes is, in looking at a

regulatory framework and using risk as a tool, and I wish George Apostolakis was here, one of the things you can do is use your PRA tools as a screening methodology to identify. There may be issues of such low significance that you really don=t have to, you won=t have to worry about it.

Now, I think that sometimes is in tension for some members of the staff because they want to look at that pairing of the deterministic rule to go with it. And so that, in some instances, may drive, because of this feeling you=ve got to have risk-informed and performance-based, you=ve got to drive toward a deterministic tool and you may end up with outcomes that may be more conservative in regulation than are necessary.

So it is a careful balance I think the Commission has to judge. It=s not just, you know, it=s not just driven by risk, but risk alone can be used as a screening tool to sort out things that don=t really rise to the level where it=s a concern. And I think in signaling to the staff how to deal with that, that is something the Commission is certainly going to have to keep an eye on.

CHAIRMAN BURNS: Okay. Dr. Finan?

DR. FINAN: Thank you. I thought that Ms. Schlueter=s comment was really helpful, that if you can understand all the issues on the table, then you can also provide vision and leadership, and that would be valuable and provide support to the staff and encourage them to follow through on these initiatives because some of these risk-informed performance-based initiatives have taken place in the past, and they just haven=t been fully implemented. But there=s been a lot of work done and there=s an opportunity to use that and move forward and really carry it through to completion. And

leadership and vision are really important for that.

CHAIRMAN BURNS: Ms. Sweeney?

MS. SWEENEY: I agree with all the things that everybody before me has said on this, but I do think follow-up is very important, too. You know, the staff might outline some ideas on ways to improve processes, but then when=s the next time the Commission hears about them and whether they=ve been effective, what are the lessons learned? Obviously, you know, you can=t do that for every single initiative, but I think ones that would have a major impact on how the licensees are being regulated and especially ones that are more focusing on risk-informed performance-based decisions.

COMMISSIONER BARAN: It=s nice that I actually had to raise it. So there have been a sprinkling of comments throughout the day about the decommissioning rulemaking. I think it=s primarily been raised by licensees. And I think it=s fine we haven=t spent a lot of time on it today because we had a great Commission meeting on the decommissioning rulemaking earlier this year, but I just wanted to kind of solicit a little bit of comments on this from some other perspectives.

The concern I=ve heard I think a few times today was we want to see this rulemaking move quickly, which I absolutely agree with, and that the best way to achieve that is to have a narrow rulemaking that focuses just on the exemption piece, which is different than what the Commission directed at the end of 2014 where we directed a full-scope rulemaking that would look at issues like the appropriate role of state and local governments and non-profit organizations, take a fresh look at the three options for decommissioning, the 60-year time frame for decommissioning, whether NRC should approve a post-shutdown decommissioning activity, a variety of issues. And the ANPRM

on this, questions were asked about all those things and, as I made my way through the comments on that, and there were a lot of comments, a lot of really good ideas in there, I saw a lot of comments from states, non-government organizations, and others who cared a lot about those issues other than the exemption piece.

So I was wondering whether, I don=t know that any of the public interest groups here today were at the Commission meeting on this issue, and I just wondered whether you have thoughts about, if we want to keep this rulemaking moving in a timely way, do you think the best way is to narrow it to just look at the exemption question? I don=t know, Paul, if you have thoughts, or Dave or Jim or others.

MR. LOCHBAUM: We=d be a little bit concerned about narrowing the focus to exclude the public and the state comments and just fast track the industry comments to save money. We=re supposedly not second-class citizens, but actions like that reinforce the belief that there=s a certain game that=s played with industry and there=s another game that=s played with everybody else. So if you fast track that which the industry wants and slow track that which the public, that just reinforces that belief. Not belief. Fact.

MR. GUNTER: I concur with Dave and add that, you know, we=re looking at a set of options for decommissioning which the public views as, in some cases, controversial. For example, to extend, you know, delayed decommissioning for decades. And the public in that arena, the public has no participation in that arena for how these options go down, and it=s most appropriate, for example, that the public be provided with an opportunity to put these options through the National Environmental Policy Act, for example, where the harmful effects and balanced with operations and costs, these get a

fair hearing, realizing that it needs to be moving along. But if the industry is willing to wait five decades, it would seem appropriate to give the public at least a couple of years to go through a due process.

MR. LOCHBAUM: Thank you.

DR. MACFARLANE: Can I make a comment, seeing how I was involved in getting this whole ball rolling? It=s not clear to me -- I think you=re being offered false choice. It=s not clear to me that by being a bit broader in the look, as originally conceived, for a decommissioning rulemaking that it saves you any time or not. So just be careful it=s not a false choice.

CHAIRMAN BURNS: All right. One observation I=ll make on the choice, and this is not necessarily something with decommissioning itself. I don=t have any particular view on the approach, but one of the difficulties I think we=re experiencing and our staff is experiencing on some of these issues is continuing on with licensing work, oversight work, inspection work that we have to do, at the same time implementing the innovations or ideas that we hear in looking for areas of greater effectiveness, greater efficiency. And I=m not arguing against doing that, but I think the appreciation and the words of support, I=ll say to our staff, is that is something that we=ve got to keep focused on, you know, safety oversight, licensing responsibility, at the same I think be very open to areas where we can improve.

You know, quite frankly, I hate to say it, almost four decades I=ve been involved with this organization with a brief sojourn abroad. I think that=s what the agency generally has done.

Yes, Mr. Norton?

MR. NORTON: Yes, Mr. Chairman. On that point, though, and some of my comments touched on this, as did others, I=m not necessarily advocating that everything gets pushed to the back or dismissed that=s not being considered by the industry and communicated to you folks through our comments on the ANPR. It just seems like there=s an opportunity to deal with what we=ve been dealing with as a practical matter now, and the other things that are in front of us can take its natural course. And, again, it=s not intended to demonstrate preference or deference to anybody. It=s intended to demonstrate that we already have a clear regulatory basis for the exemptions that we=re taking across the board at these sites. Why wouldn=t we codify that and continue to focus on the other areas within the rulemaking that make sense to do so?

So, you know, again, to the point, it=s not intended to show deference to us or dismiss the other comments. But we have a regulatory basis in front of us already that=s been demonstrated for over ten years and demonstrated safely, so I think that=s really the point and that=s the one I was intending to make.

CHAIRMAN BURNS: Okay. Thank you. And the Commission obviously, we=re not deciding decommissioning today. That=s something we=ll be focused on as the staff comes up with its recommendations to the Commission as we go forward in the rulemaking process that we started last year.

That really brings us to a close of our discussion period. Unless somebody has got something that=s really on their mind and that=s burning, I think we=ll bring this to the close.

The one last thing I did want to -- I=m not sure we got Jim Riccio=s slide up there with Who=s Next album. I think I actually found my copy at home the other night.

COMMISSIONER SVINICKI: What album was it? I didn=t recognize --

CHAIRMAN BURNS: Who=s Next. I=ll show you later. It=s Who=s Next. Great album.

COMMISSIONER SVINICKI: Oh, of The Who?

CHAIRMAN BURNS: Of The Who, yes. Yes, I have it in vinyl. That was the only way to go. But I do want to thank all the participants today for thoughtful discussions, some good engagement, polite interactions, but I think well engaged interactions.

Today=s meeting is being transcribed, and it will be posted on our website within a couple of days. Before we close, any final comments from my colleagues?

COMMISSIONER SVINICKI: Yes, Mr. Chairman. I=d, once again, like to express my appreciation. I know all of you have other things competing for your attention, and for you to come and spend the day here is very valuable, maybe not so much for the Commission but I think for others here. You may have the issues that you came to talk about today, but you were forced to sit here and ponder the fact that other people have other manifestations maybe of the same challenges, maybe of different challenges.

When we began Project Aim, and I know that Dr. MacFarlane would agree with this, it was an attempt maybe to get in front of change. For large organizations, and most of the folks here are part of or represent large organizations, it=s very, very difficult to keep pace with change, much less get in front of change. So I think that, as an agency, we=re doing our best to lean into that, but I think that agility, in addition to

efficiency, was one of our key objectives when we started. Agility is hard, agility is how you keep on top of change or maybe try to stay ahead of change, and I do worry about NRC becoming so entrenched in its processes that we don=t look up and see that the pace of change -- this is my observation -- is increasing in the world, in the larger world.

And I don=t mean to pick on Allison, but she=s here today and she said, and I wrote it down, the industry is changing and, therefore, NRC has to change, as well. We do regulate an industry, and we=ve got to be cognizant of what=s happening in the larger world. Otherwise, we forego innovation, and I think NRC loses out when we forego innovation and I think the country loses out when innovation is something that finds such an impenetrable fortress in the NRC that we can=t have innovation. So I think that we will diminish some of the future potential options for the country if we do that, whether they be medical or energy production or otherwise.

So I know that the NRC=s efforts are sincere. I appreciate the sincerity and candor of all the participants here today, and we=ll see where we go. Thank you, Mr. Chairman.

COMMISSIONER BARAN: Well, I just would echo my colleagues and thank everyone for participating. I know you spent a whole day here with us, and we really appreciate it. I found it valuable because I was interested to see, left to your own devices, what would you all raise? And every possible issue was pretty much raised I think, and I think it=s really helpful to get a sense, though of what people=s priorities are and where they think we should be paying attention.

And I thought it was really valuable to have the kind of cross-engagement among all of you that we don=t normally have at our Commission meetings. I thought

that was really illuminating.

So thanks again for being here. We appreciate it.

CHAIRMAN BURNS: And, again, I expressed my appreciation on the opportunity to hear from you all today. There are a number of ongoing initiatives, some of which we talked to or touched on today, including Project Aim but others that are engaged in some of these issues that we discussed. And I=ll just highlight two. We expect in the upcoming months we=ll have, as Ms. Flaherty noted, we=ll have our periodic meeting with the Organization of Agreement States and CRPCD, which is an opportunity for us to continue to engage on those issues with our Agreement State partners. We=re having a meeting on the fee structure and fee issues, which I know is a concern of a number of you.

And also, for those who are interested in the potential new technology, we=re having a meeting in terms of the tribal relations. We had one recently, as Commissioner Baran said on the decommissioning, sort of a kickoff, if you will, for that area and digital I&C.

So a number of these issues I expect will also come up at a more specifically focused meeting, but, again, I also echo my colleagues in terms of this has been a good opportunity to hear a variety of things, sort of the grab bag, if you will, to cover a number of things that the agency has before it, which, after all, on a daily basis, we have to deal with them all everyday. So I thank you again for your attendance and for your interest in participating.

The final thing I want to do is thank the Office of the Secretary who had to do a lot of work rustling us all together, and they did a great job. Thank you, Annette,

and thank you, Denise, Glenn, and the rest of the SECY staff because they=re the ones who outreached to you to see if you=d be available, made sure you knew where to go, and things like that. And it=s a lot of work, and I appreciate that.

With that then, we are adjourned. Thanks.

(Whereupon, the above-referenced matter went off the record at 4:06 p.m.)