

“THERE IS NO BETTER TIME THAN THE PRESENT...”

USNRC Regulatory Information Conference

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Thank you for that introduction.

Good morning and welcome to Day 2 of the RIC!

I would like to take a moment to recognize and thank the countless NRC employees who made this event possible and are working very hard to make it a success. I am always amazed at how well attended this event is: NRC staff, international colleagues, academia, federal and local governments, non-governmental organizations, members of the public, both in-person and on-line.

Most notably, we are honored to be joined for the first time by

Rafael Mariano Grossi, Director General of the IAEA, and

Ambassador Laura S.H. Holgate from our Vienna Office of the United Nations and the IAEA.

We are also joined by

NEA Director General Bill Magwood, and

former NRC Chairmen Richard Meserve and Stephen Burns,

As well as former Commissioners:

Jeff Merrifield,

George Apostolakis,

Bill Ostendorff.

Thank you all for being here.

Like my fellow commissioners, I am blessed with a staff of talented, high performers without whom I would be lost. A very special thanks to Nicole, Heather, Eric, Marilyn, Bob, and Julie. You rock!

The theme of this year's RIC is Navigating the Nuclear Future. Who better to talk about the future than the author and energy expert, Daniel Yergin. In his recent book "The New Map: Energy, Climate and the Clash of Nations", Yergin lays out the case for how climate change policy is changing our future through the reshaping of geopolitics, global economics, and the global energy supply. He describes how different kinds of power are in play. "One is the power of nations that is shaped by economics, military capabilities, and geography; by grand strategy and calculated ambition; by suspicion and fear; and by the contingent and unexpected." This statement is particularly prescient given the book was published shortly before Russia's malicious invasion of the Ukraine. I want to associate myself with the remarks made by Director General Grossi and Chairman Hanson on this situation yesterday. To our Ukrainian colleagues, you have my heartfelt admiration for your continued dedication given the challenge of ensuring nuclear safety in a war zone.

Yergin also refers to other kinds of power, more specifically: "the power that comes from oil, and gas, and coal, from wind and solar, and from splitting atoms, and the power that comes from policies that seek to reorder the world's energy system and move toward net zero carbon in the name of climate."

Here in the U.S., we are seeing the challenges of a net zero transition. The PJM Interconnection, one of the nation's largest grid operators, is growing concerned about resource adequacy. PJM estimates the retirement of 40,000 MW of electricity generation -- 21% of its total generation -- by 2030. Over half of the projected retirements are considered "policy-driven". In contrast, PJM estimates 15,000-30,000 MW of renewables and battery storage may be added to the grid by 2030.

All this comes at a time when policies are driving the increased electrification of buildings, transportation, and industry. Calvin Butler, the new CEO of Exelon recently indicated that the electrification of building in Baltimore would double the electrical load. Consider for a moment the impact of these dynamics across the country.

Economic growth and growth in electricity demand have historically been correlated. This correlation will become more intense with increased electrification. This means economic well-being and efforts to eliminate energy poverty around the world will be ever more reliant on adequate supplies of clean, affordable, and reliable electricity. Hence there is a growing expectation that any success in mitigating climate change and meeting future electricity needs, here and around the world, must include robust deployment of safe and clean nuclear energy. While the completion of Vogtle Units 3 and 4 will be a significant accomplishment, those units represent one small step toward a net zero objective.

Here in the U.S., we at the NRC, are the gatekeepers to that future. The primacy of our mission to protect public safety and security, and the environment is indisputable. But if the global vision of success includes robust nuclear deployment, what does success look like for us as a regulator?

The posture with which we approach our mission will have a distinct impact on whether nuclear energy will make a growing contribution to our energy needs. *That bears repeating:* The posture with which we approach our mission will have a distinct impact on whether nuclear energy will make a growing contribution to our energy needs.

Years ago, when we at NRC embarked on our Transformation effort, the Executive Director set our objective to become a Modern, Risk-informed Regulator. Similarly, our Office of Nuclear Reactor Regulation embraced the motto “We make the safe use of nuclear technology possible.” What this Transformation effort and NRR’s motto rightly suggest is that, as a regulator, our posture should be finding solutions rather than raising obstacles.

For us to become successful as an agency, I believe we *need to become* that modern, risk-informed regulator who makes the safe use of nuclear technology possible. I’m going to share with you today, what I think our success would look like. And – reflecting on Daniel Yergin’s comments-- *there is no better time than the present...* to make it happen. And...

There is no Better Time Than the Present...to Innovate.

Once upon a time, space was the sole domain of governments. Now, NASA astronauts ride to the space station on commercial vehicles. Advances in Artificial Intelligence now raise the question: Did I write this speech? Or did ChatGPT?

Innovation in nuclear technology is well underway in both fission and fusion. And we at the NRC consistently say ‘we will be ready to review the applications we’ll receive.’ And we are, using our established regulations, procedures, practices, and precedents.

But by its very nature, innovation must depart from precedent. So the question is: can we innovate how we regulate? Congress has directed us to develop a technology-neutral, risk-informed, performance-based framework for advanced reactors. Can we innovate where and when it counts?

The new regulatory framework for advanced reactors, Part 53, is now before the Commission. Significant work remains to develop the framework Congress envisioned. A framework that is truly risk-informed, reflecting the inherent safety found in advanced designs and one that is efficient, enabling timely reviews to allow safe nuclear energy deployment on a scale warranted by our national and global clean energy needs.

I am rolling up my sleeves to work with my colleagues and shape a simpler, risk-informed, innovative rule that will be the foundation for predictable and timely safety reviews merited by these advanced designs. This will require considerable work on the part of the Commission, and our staff, but it is imperative that we focus our collective efforts to meet Congress's intent with a sense of urgency. The challenge is how efficiently we can enable these advancements while preserving safety.

There is No Better Time Than the Present...for data-driven, risk informed decision-making.

Our Clarity Principle of Good Regulation states that “Regulations should be coherent, logical, and practical.” And that “Agency positions should be readily understood and applied.” To me, data-driven decision-making is foundational to this principle. Processes and outcomes should be objective, reliable, and reproducible. They should also be transparent. External stakeholders should be able to review our work and understand how we reached our conclusion.

But what do we mean by “risk informed?” Fundamentally, it means “Regulatory activities should be consistent with the degree of risk reduction they achieve” as stated in our Principles of Good Regulation.

Many of today's operating reactors were licensed in the 60's and 70's at a time when the technology was young and operating experience was limited. Tolerance of risk and uncertainty was unavoidable during the early development of nuclear energy.

Now -- just in the U.S. -- we have nearly 4 thousand reactor years of operating experience. A couple years ago, the Nuclear Energy Institute produced a report demonstrating how the industry had dramatically improved its safety performance over the last 20 years, according to every NRC and INPO performance indicator. With that experience and safety improvement comes a highly refined understanding of the technology and a wealth of risk information. Have we put this wealth of information and experience to good use to refine our understanding of what is necessary for adequate protection, *OR*

As a regulator, do we instead continue to seek further precision? The desire for further precision can lend itself to an insatiable appetite for information and an ever-shrinking tolerance of risk and uncertainty. With the combination of state-of-the-art Probabilistic Risk Assessment and the computer modeling and simulation tools available today, we can debate the likelihood of an event happening once in 10 billion years. Yes, Billion with a b.

How do we balance the constant desire to know more with the threshold of knowing enough? Is our ability to model risks that small driving the pursuit of *absolute* safety rather than *adequate* safety? Is it hindering our ability to accept some level of risk and reach decisions?

In the case of digital instrumentation and control, the answer is clearly yes. 30 years ago, nuclear submarines went to sea and commercial aircraft took off with digital I&C. Yet, we still wrestle with this issue.

Our Backfit Rule is a decision-making process that begins with risk information. Before imposing a backfit and revising our requirements for existing licensees, the agency must first determine through a systematic analysis that the change will provide a substantial increase in public health and safety or security AND that the change is cost-justified. In this way, risk information forms the basis for determining whether the safety or security increase is substantial.

Similarly, the regulatory analysis that underpins rulemaking proposals must also use risk information to determine that each element of the proposal is safety beneficial on its own. Regulatory analysis shouldn't be an afterthought, but a tool that helps us discern between proposals that merely sound good and those that are, in fact, safety beneficial and cost-effective.

Our ability to effectively use risk information in these processes rests on our commitment to data-driven decision-making. We need to gather and utilize the right data to make sound, risk-informed decisions. But it's not enough to simply gather the data, we need to use it –objectively. As our Principles of Good Regulation state: “Final decisions must be based on objective, unbiased assessments of all information...”

If we become successful in making data-driven, risk informed decisions, what would that look like? If our regulatory activities are truly consistent with the risk reduction they achieve, what outcomes would we expect to see?

For *operating* reactors, it would mean we are:

- Focusing inspections and licensing reviews on matters that are safety-significant;

- Using risk-informed decision tools like the Risk Informed Process for Evaluation and the Very Low Safety Significance Resolution process to resolve things that aren't;
- Consistently adhering to the Backfit Rule;
- Producing complete, high quality regulatory analyses;
- Enabling wide-spread implementation of digital I&C; and
- Executing predictable, efficient 50.69 reviews to risk inform the categorization and treatment of structures, systems, and components.

Regarding *advanced reactors*, we mustn't let the pursuit of absolute safety paralyze our ability to reach decisions. Rather, we should continue to pursue our statutory mandate of adequate protection. It is difficult to justify regulating safety to a level below that of an asteroid destroying global civilization, a risk of 1 in 2.3 million years. We must innovate how we regulate safety, find ways to risk inform our approaches, recognize inherent safety features, and exhibit results-driven leadership.

No Better Time Than the Present...to improve our financial stewardship.

Our Principles of Good Regulation state that "The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of our regulatory activities."

My longstanding view is that the agency needs to improve financial management and stewardship of its resources. The budget is the largest policy instrument for the Commission since it sets forth priorities and allocates resources. It should align with our strategic plan, be performance-based, and accurately depict our mission needs.

I'm not telling you anything that isn't publicly available. At the end of fiscal year 2022, the agency had a carryover balance of \$92 Million dollars. This means the agency collected roughly \$58 million dollars from licensees and \$34 million from taxpayers that it did not need to fulfill its mission last year. This and a \$ 906 million dollar budget resulted in excess of nearly 10% due to inaccurate budget projections. Yet, instead of adjusting the budget request down to account for it, the 2024 budget requests an increase, putting us over a billion dollars. The difference between what the agency actually needed in 2022 and the 2024 budget request is \$192 million dollars.

This is difficult to square with the drop in our workload. All the inspections and licensing reviews are billed –by the hour—to licensees and applicants. This work is down 46 percent from 2016. In 2023, this work will require roughly 419 FTE out of our 2,777 employees. That accounts for roughly 15 percent of our people and only 21 percent of the budget. You could nearly double this year's workload and still fit under the 2024 budget request.

The agency will spend 46 percent more on corporate support activities than on inspection and licensing work. Compared to the 419 FTE doing licensing and inspection work, 579 are doing corporate support functions.

We need to get back to the basics with a focus on using actual expenditures to inform budget development with a measure of detail commensurate enough to truly make informed decisions. But in my time on the Commission, we have yet to effect these changes. We need to take a hard look at necessary activities and services that support the core mission of the agency, and use data driven decision making to reach effective outcomes. So far, the agency's transformation efforts seem to have achieved the opposite of what was expected: spending more to do less work.

In short: our workload has shrunk, we are collecting significantly more revenue than we need, and our budget is growing. That is not good stewardship.

There is no better time than the present... to get our fiscal house in order.

The last subject I'd like to address today are the challenges facing women in the workplace.

There is No Better Time Than the Present...to empower women.

As you are all aware, March is Women's History Month. This year – for me, personally, it's different. I'd like to share some personal experiences as a woman in the nuclear field to illustrate why that is. These experiences have caused me to reflect on inclusion in the workplace. Particularly since some of my observations may feel strikingly similar for them also. Some of what I will say today I have shared with NRC staff in a couple venues. I particularly want to recognize Region 2 since they shared my first step in this journey.

When I graduated and started working in the nuclear field, I often felt like I was treated as that “young girl fresh out of college who doesn't know anything”. I shrugged it off because they had a point, I was fresh out of school and I had a lot to learn. But I figured it wouldn't always be the case as I gained experience and knowledge. So, I plowed forward with my career goals, choosing to ignore that treatment and not let it stand in my way. Besides, the work environment was getting better for women so this dynamic would wane over time, right?

Shortly after I was confirmed for my second term, and I found myself getting “nukesplained”. Someone with significantly less technical and policy experience talked to me as if I was clueless about an issue I had monitored for years. It was frustrating and demeaning...but I let it go and redirected the conversation to a different topic.

Later that night as I reflected on the experience, I was frustrated and thought, if this is still happening to me at this stage in my career, how many other women must also be struggling?

Not long after this experience, I ran into Rumina Velshi, who, as many of you know, is an amazing leader and so inspirational on this issue. I couldn't wait to share my story. She listened and then asked, "So what did you do about it?"

Wow. What a wake-up call. I couldn't have been more stunned if I'd been hit with a bucket of ice water. What had I done about it? Nothing. The same approach I'd taken for my entire career. Ignore it and plow forward. Tolerate it.

What I now recognize is it's incumbent upon me, at this point in my career, to wrestle with these issues and do what I can to impart change for the better. Women have faced challenges as long as they've been in the workplace, and certainly things are a lot better now than they were years ago, certainly better than what our mothers faced. But there is a saying, "It's not enough to climb the mountain. You should reach behind and give someone else a hand up."

Director General Grossi and Secretary Granholm have both focused on the need to recruit and retain women in nuclear which is important. I think the recent report from the Nuclear Energy Agency "*Gender Balance in the Nuclear Sector*" is an important effort to gather data on the challenges women face. But I think it goes beyond that.

This is where I'm also going to insert a strong caveat. I think my struggles have been a fraction of what some women have faced. So what I'm going to say today is in no way intended to trivialize women out there who have faced much tougher situations than I have.

However, twice in my career, these dynamics have influenced my decision to actually leave a position, once as my sole reason and the other as strong contributing factor. The fact that women are struggling in the work environment, and they choose to leave as a result, should be a reason for all of us to focus on making our workplace more inclusive. Among the strongest drivers of job satisfaction is for people to feel appreciated, and I believe the extent to which people feel appreciated is strongly influenced by how inclusive we are.

I'm going to share two stories that illustrate this: a recent one where I played a role and one that happened to me many years ago.

A few months ago, I was in a meeting with about 15 people, three of them women. We'd had a PowerPoint presentation and were engaged in discussion. A woman across the table from me started to speak up. She was interrupted. I noticed it, I looked at her, she looked at me, no expression. She waited a few moments for another opportunity to jump into the conversation. She tried to jump in, and was cut off again. She gave me a little knowing smile, I gave her a little knowing smile back. I thought to myself, ok, fine, I'll barge into this conversation. I was going to interject and give her an opening. She deserved to be heard, and I wanted to hear what she has to say. So, I tried to speak up, and I was cut off. I gave her a surprised look. She looked equally surprised back at me. So, I waited a minute and jumped in a little more forcefully and asked for her input. She had a wonderful, insightful contribution to the discussion.

What stuck with me was the level of effort it took to elicit that contribution. Women face these situations every day, and every situation is fraught with a judgment call: Should I speak up? If a woman asserts herself, she risks being labeled as bossy or aggressive. Or does she choose to play it safe, withdraw and sit quietly?

It's so easy to focus on the substance of a meeting or get lost in our own thoughts and miss a moment like that one. In many cases, it isn't intentional and the others in the room would be mortified if they realized the impact of that situation. Those moments can be subtle and fleeting. But when we miss them, there is an equally subtle message that her voice isn't worth hearing. This is a very subtle and crucial aspect of inclusion. How hard is it for anyone, not just women, to contribute and be heard?

Now I'm going to dive way back in my past to a brief time when I was a volunteer firefighter and emergency medical technician. Obviously, this is a work environment where physical strength matters. As a young woman, I was fairly self-conscious about my physical strength it and I wasn't alone. One of the other women on the department and I committed that we would lift weights together at the station and build our strength. One evening when we were working out, one of our fellow firefighters came over to us with an air of contempt. It was palpable, instantly. He stated in no uncertain terms that he would never go into a burning building with either of us because, if something went wrong, neither of us could carry him out. In his opinion, we shouldn't even be on the department. It was like a shot to the solar plexus. I couldn't breathe. I felt devastated.

Not 10 seconds later, our lieutenant in charge of fire training, Scott, came around the corner, having heard everything. He looked us each in the eye and told us to forget everything we had just heard. He told us that he would go into a burning building with either one of us because he trusted our judgment and our dedication. He knew that, most importantly, we would maintain situational awareness and keep our partners and ourselves out of dangerous situations. And, if the worst should happen and our partner went down, he knew that we'd stop at nothing to get them out.

It wouldn't be a glamorous "fireman's carry" like in the movies, but dragging a person out accomplishes the objective of getting them to safety and that is what matters.

He said he was glad to see us in the weight room and encouraged us to stick with it. He stressed that everyone on the department has important contributions to make. The strongest men aren't necessarily the best in the back of an ambulance with an injured child and terrified parent. What made us an important part of team was that we were intent on finding ways to serve and help those that need us. That mindset, together with our judgment and dedication, were why he wouldn't hesitate to go inside a fire with either of us.

I felt valued. Empowered. Inspired. And, most of all, motivated: There was no challenge too big for me to tackle. I was ready to face my fear and follow him into a burning building because I felt that as a team, we were unstoppable.

Stephen Covey has written about a concept he calls "The Shadow of a Leader." It means that as a leader, whether you realize it or not, you are casting a shadow so be mindful of the influence you exert even when you are unaware.

This conversation took only a few minutes of Scott's time over 30 years ago, which he has probably long since forgotten, but it had an impact that inspires me to this day.

Think about the contrast between these two examples: one where women hesitate to speak up in meetings and one where a woman would run into a burning building. The difference is leadership.

Imagine for a moment if everyone felt as motivated as I felt under Scott's leadership. Think about the untapped potential that could be unleashed in a work environment where women feel comfortable speaking up and contributing.

True Leaders inspire us to grow beyond who we are and become something greater. Scott inspired me to grow beyond who I was and be braver than I thought I could be.

While I've shared my perspective as a woman, I have no intention to ignore or dismiss the experiences of minorities or gender-diverse individuals. Particularly since some of my observations may feel strikingly similar for them also.

This is an issue where we can all lean in. Our workplace reflects how we, as individuals, interact and we treat each other. Our careers become a sum of our experiences and interactions with those we work with. Our coworkers help shape our work environment and we shape theirs. So the question for you is, "How do you want to shape it?"

Megan Rapinoe, the professional soccer player, said: "Real change lies within all of us. It is in the choices we make every day."

I thought the passage of time and leaving my footprints would make the path easier for others that follow. But it isn't enough. I will find ways to step up my game, find my voice, and give a hand to help others up the mountain. I recently had the pleasure of inviting Mary Casto, a brilliant environmental scientist new to the NRC team, to spend a day me in my office, and my intent is for her to be the first in what I hope to be a long line of proteges.

Encouraging women's engagement and helping them find their voice is a choice we can all make every day. It's crucial to the future of the NRC and to the nuclear industry at large. This is where inclusion goes beyond a principle and into practice.

And there's no better time than the present.