

Commissioner Christopher T. Hanson
Remarks to NEI Legal Advisory Committee
November 9, 2020

Thank you to Ellen and Jerry for inviting me this morning.

I'm going to talk this morning a little about my background, share some thoughts about regulatory philosophy in general and risk-informed regulation specifically, and then give a brief observation on my time at the NRC so far.

I come to the nuclear world largely through the waste and materials side. I started my career as a consultant to state agencies in their collective interactions with the Department of Energy on cleanup of the Cold War environmental legacy. I learned that so much in the nuclear world is not just technical, it's also about perceptions of risk and fairness.

I later served as a consultant for a number of government and private clients, focusing mainly on strategy, governance, and finance. For government clients, I oversaw the life-cycle cost estimate and the Nuclear Waste Fund for the Yucca Mountain Project and developed financial and governance models for the Global Nuclear Energy Partnership, which you may recall dealt with closed fuel cycles. I also advised the UK government on the divestiture of UKAEA's cleanup "business."

For private clients, key projects included a risk assessment of new nuclear build, a market strategy for a legacy electrical and mechanical parts business, and a strategy review for a fuel cycle company. Even 10 or 15 years ago, during what many of us thought would be a "nuclear renaissance," I gained an appreciation for how close to the financial margins nuclear operates, even amongst very different businesses in the sector. I also gained a real appreciation for John Rowe's adage: "Nuclear is a business, not a religion."

In 2009, I joined the Department of Energy's Office of the Chief Financial Officer. I migrated to working for Secretary Steven Chu, handling the Department's relationship with the Appropriations Committees on Capitol Hill.

I later had the privilege and pleasure of working for Assistant Secretary for Nuclear Energy (and former NRC Commissioner) Pete Lyons as a senior advisor on waste and fuel cycle issues.

In 2014, I moved to Capitol Hill, where I handled all things nuclear on the Senate Appropriations Committee—cleanup and waste, nuclear energy and fuel cycle, and national security programs—working closely with Senators Feinstein, Alexander, and others.

Through that experience, I internalized something I'd long felt. There's a saying on Capitol Hill—there are Republicans, there are Democrats, and then there are Appropriators. Maybe easier said than actually acted upon, what that means to me is that whenever possible, good policy and good government come first, then politics.

Among things I'm most proud of from my time on the Hill is building up the Department of Energy's Accident Tolerant Fuel program, which was started by Senator Feinstein after the Fukushima Dai-ichi incident. This is an effort to develop and deploy new cladding materials to improve the performance of fuel under accident conditions. While the impetus for the program was safety, ATF potentially has the added benefit of improving the economics of operating reactors.

I can also take some credit or blame with my colleagues for DOE's Advanced Reactor Demonstration Program. In creating that program, we took seriously as a starting point the idea that the next 10 years would be crucially important for the long-term viability of the nuclear industry. One of key elements of the program in my view is that the selected projects be licensed by NRC—it provides an opportunity for both industry and the agency to learn how to evaluate and regulate these new technologies.

Regulatory Philosophy

I was asked to speak a little about my regulatory philosophy. As I reflect on my career to date, I realize I'm an institutionalist by nature. Institutions—some government, but many not—provide the culture and structure necessary for human flourishing. That doesn't mean I'm rigid or I don't think institutions need to be in a constant process of reform. We are humans after all, and our institutions often reflect back on us our frailties, prejudices, and short-sightedness. Therefore, we must be dedicated to ensuring our institutions live up to our ideals.

I come to my new role after a career working for regulated entities and then for the Senate in a policy-setting role. Now as a regulator, I see the NRC and myself as independent of policy goals held by Congress, the Administration, or industry. The NRC has the expertise to ensure the safety of any use of nuclear driven by industry or the government; and the NRC must be as objective as possible in its decision making. The NRC–industry relationship must be arm's length, but it is built on trust and data sharing, so there is necessarily a level of cooperation. As a general matter, I believe we are all striving toward the same goal—safety.

In performance-based regulation, I expect the industry to be positioned to identify the best ways to achieve safety, followed by independent NRC review and approval. At the same time, I expect the NRC to be open to new approaches while maintaining transparent, enforceable requirements.

Initial thoughts on Risk-Informed Regulation.

The NRC for its part is really leaning into its efforts to risk-inform and transform its approach to the challenges presented by a rapidly changing and innovating nuclear industry. It has been reevaluating the way it does business to optimize its processes and procedures. And to leverage innovations developed within individual offices, the agency is encouraging a culture open to sharing ideas and creating tools to easily do that.

Risk-informed regulation is something that NRC must pursue. For me it is a matter of efficiency—one of NRC’s principles of good regulation—and it’s tied directly to effectiveness. We have to focus on the right things with regard to safety. To do otherwise is to potentially waste resources—resources that could be used to make investments in the future.

For me risk-informed regulation largely is an epistemological question:

- What do we know (and by extension what are the uncertainties around what we know)?
- How do we know it (what’s the basis of knowledge, data, data, data)
- What difference does it make? Are we focusing on things that are actually important to safety?

I know it’s more complicated than this. There are layers of safety and protection. But at its core, risk-informed decision-making requires us to adequately characterize uncertainty, including the uncertainty around existing, deterministic approaches. And to the maximum extent possible, such characterizations have to be grounded in the material world.

One of the most important aspects of risk-informed regulation is culture and diversity. I mentioned that risk-informed regulation is really about characterizing uncertainty. There is necessarily a lot of professional and personal judgment implied in that. Data is critical, but we all know data can be interpreted in a wide variety of ways. So risk-informed regulatory approaches not only benefit from diverse viewpoints and backgrounds, they rely on them.

Therefore, the NRC needs to continue its focus on reform, transformation and innovation, absolutely. But equally important are transparency, predictability, and a commitment to reasonable assurance of adequate protection, so that the benefits we have all enjoyed can be passed on.

Perceptions of the NRC

Ellen asked me to share some observations on the NRC from outside and now inside the agency. Let me give you one brief example.

I talked earlier about the need for NRC to be at arm's length from Congress, the Administration, and industry. I saw that firsthand on Capitol Hill and found it to be vexing. I remember trying to get plain English answers in response to a GAO report and thinking that the staff must be hiding something.

Now that I am inside the NRC, I realize I ascribed too much motive to NRC staff. Knowing what I know now, I'm sure it took the NRC years to come up with the requirements at issue. They must have considered every alternative, had their proposals reviewed by every possible layer of the organization, commented on by the public, and revised by the Commission before they became final. They weren't hiding anything; their official position was that they fundamentally disagreed with the GAO report.

Culturally, NRC staff are thorough and meticulous. They are boy scouts and girl scouts. They can be a little insular, yes, but with the goal of preserving their independence and objectivity.

The challenge going forward is to take the positive aspects of that mindset and combine it with a genuine desire on the part of staff across the agency to do their jobs better, more efficiently, more effectively. That's what is so impressive about the Transformation initiatives—they're grass roots. It is slowly flattening the organization. I think our external stakeholders will continue to see positive results from these efforts.

Conclusion

I want to weave together a couple of threads for how I am approaching my tenure at the NRC.

I'm focused on good policy and good government first. What does that mean? Good policy means reasonable assurance of adequate protection (obviously), transparency in process and outcomes, and durable decisions that stand up over time. Good government means building up NRC's greatest asset—its staff—and ensuring adequate resources to protect people and environment.

I'm focused on laying the groundwork for the long-term future of the institution—risk-informed regulation, a diverse workforce, among other priorities. I want to make sure that NRC has the analytical tools and culture to efficiently and effectively regulate a changing industry:

- To engage with industry at the cutting edge of technology and operations.
- To ensure that our risk-informed regulatory approaches are underpinned with as much empirical data as possible.
- To apply data mining and machine learning techniques to the vast trove of inspection and observation data that NRC and industry have collected.
- To ensure that NRC hires a diverse workforce so that we understand specific risks from as many angles as possible.

Thanks again for your time. I'm happy to take any questions you might have.