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## **Chairman Christopher T. Hanson Remarks at the United States Nuclear Industry Council Advanced Reactor Summit (Remarks as prepared) March 23, 2021**

### **Introduction**

Good morning. It's great to connect with all of you today. As you can see, we're still virtual but I look forward to meeting with many of you in person very soon.

I want to thank the USNIC for organizing this event, and especially Jeff Merrifield for inviting me to speak. As advanced reactor licensing activities increase, it is crucial that the agency maintain an ongoing, open dialogue with the advanced reactor stakeholder community. So, I appreciate the opportunity to speak with you today.

By way of a disclaimer, I want to point out that I'm speaking for myself today and not on behalf of the Commission.

### **Environment and NRC Activities**

As I'm sure you will hear about extensively this week, the environment for the deployment of advanced nuclear technologies has never been stronger. Federal, state, and international initiatives are spurring greater interest in leveraging these technologies to combat challenges such as a lack of reliable power in remote areas, climate change, and finding alternative sources of energy.

Over the last few years, Congress and the Administration demonstrated bipartisan support for advanced nuclear technologies through enactment of policies and laws, such as the Nuclear Energy Innovation and Modernization Act and the Nuclear Energy Innovations and Capabilities Act. Last year, the Department of Energy awarded the first round of funding for the development and deployment of advanced power reactors through the Advanced Reactor Demonstration Program.

When Congress created the ARDP, first in the Energy & Water spending bill, and later in the defense authorization bill, it took seriously the idea that deployment of advanced nuclear technologies to help combat climate change faced a complex series of chicken and egg problems. The program attempts to resolve at least one of those: government support and investment.

But it also touches on another. By creating a "demonstration" program instead of a "pilot" or "engineering" program, Congress indicated that it wanted to support relatively mature technologies that

could be connected to the electrical grid. And by virtue of that connection, those projects would have to be licensed by the NRC. That nexus with the NRC attempts to resolve another chicken and egg problem, getting the regulatory framework right at the same time it is licensing new designs. Responding to this growing demand in a safe and secure way, consistent with NRC's principles of good regulation – particularly clarity, reliability, and openness – is a priority for me.

As part of this response, a key accomplishment for the NRC is its endorsement of the industry-led, DOE-supported Licensing Modernization Project to provide guidance for risk-informed and performance-based licensing approaches. This is a fundamental shift in thinking from the traditional deterministic approach the NRC used for large light water reactors. And it is an important step in modernizing our licensing approach and in accommodating a wide range of reactor designs within a consistent framework.

However, with much more reliance on risk assessment, it is critical that underlying assumptions and computer models are validated with real-world data whenever possible. Demonstrating, not just asserting, the performance of inherent safety features will be key to effective and efficient reviews. To this end, I believe the NRC's continuous engagement with designers, national labs, and the international community on research and testing activities is critical. This should also help support the NRC's efforts to ensure a workforce with the necessary knowledge, skills and capabilities, and to establish independent modeling, simulation, and analysis capabilities.

The NRC is also making strides in other areas of the advanced reactor regulatory infrastructure. We published a proposed rule on emergency preparedness, as well as preliminary proposed rule language for physical security requirements for advanced reactors. We're developing a Generic Environmental Impact Statement for advanced reactors, and the staff has been advancing approaches to address technical and policy issues on topics such as Micro Reactor Policy and Licensing, Advanced Reactor Siting, and fuel qualification.

Last, and certainly not least, the NRC is executing its independent mission to develop a technology-neutral, risk-informed and performance-based regulatory framework, also known as 10 CFR Part 53. This effort will continue to include frequent, extensive public stakeholder engagement. Part 53, together with our principles of good regulation, will provide efficiency, clarity, and reliability to our licensing process for new technologies.

## **Independence and Public Trust**

In my speech at the NRC's Regulatory Information Conference a couple of weeks ago, I shared my thoughts on how I might approach my tenure at the agency. Perhaps some of you were able to listen in. I attempted to paint a picture of three inter-related efforts in the form of a triangle, with risk-informed regulation, agency transformation, and diversity and inclusion at each vertex. Undergirding that triangle are three pillars: regulatory independence, data, and our people.

Today, I want to highlight regulatory independence. Independence is one of NRC's principles of good regulation and I see it as a critical element in ensuring public trust.

Congress, DOE, and industry have invested heavily in advanced nuclear, and there is considerable momentum and interest in getting the program off the ground.

The NRC is a necessary element of deployment, but not a proponent. Indeed, the agency is independent of the administration and its goals for nuclear energy. With that being said, the NRC must do its best not to be an impediment to innovation and deployment.

But as I've said before, independence does not mean isolation. Working with scientists, international counterparts, industry, public interest groups, and others is key to the safe use of nuclear energy in the future. It is important to build trust in science and increase reliance on operational experience and sound technical bases.

If the public can't trust the NRC, we as regulators will struggle to be effective, and I believe it will also challenge the industry to make progress with its advanced reactor initiatives. Nuclear is a public business. Trust can be lost easily but trust is very difficult to rebuild. So, I want to make sure the NRC continues to operate in a manner that instills public trust in responding to the advanced reactor community.

Furthermore, as we move forward, we need to recognize that the traditional deterministic approaches to safety are simpler to communicate than those that are risk-informed and performance-based. To that end, as we move toward more risk-informed approaches, in order to maintain public confidence, we must ensure transparency and clear and effective communications in our licensing reviews and other activities.

## **Cooperation with Canada**

I want to briefly highlight the NRC's collaboration with the Canadian Nuclear Safety Commission on advanced reactor technical review activities.

In 2019, former NRC Chairman Svinicki and CNSC President Velshi signed a memorandum to enhance bilateral cooperation on regulatory reviews of advanced reactor technologies. The memorandum expands the cooperation between the two agencies to share best practices and experiences, and cooperation on these activities may expand to facilitate a joint technical review of an advanced reactor design.

The NRC-CNSC team is making meaningful progress on several projects, including pre-application reviews of several vendor designs and sharing regulatory insights from technical reviews. The four vendors who are voluntarily participating are effectively supporting these projects through timely engagement and information sharing.

The team is also looking at technology-inclusive, risk-informed, and performance-based review approaches in Canada and in the United States and documenting areas of commonality and differences between the two countries.

The team is on track to successfully complete several initiatives and produce joint products in the coming months.

This is a uniquely important activity for the two independent agencies to support an effective and timely analysis of next-generation technologies by providing a framework to share technical information and to learn from each other's regulatory processes.

## Conclusion

I want to conclude by noting that in my view, safety comes first. Clearly, regulations and guidance are important for effective and efficient reviews. But what really matters is the defensibility of the technical bases that underly the safety claims, and the staff's ability to independently reach its reasonable assurance finding.

This will largely depend on the availability of an adequate knowledge base, and how well the staff and the applicant communicate with each other. And of course, we need to make certain that we operate in a transparent manner that instills public trust.

I firmly believe the NRC is charting the right path for advanced reactors. I acknowledge the challenges, but the agency is executing the right strategies to ensure its regulatory readiness.

And I'll leave it there. Thank you for having me today. I look forward to your questions.