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The George Washington University Elliott School of International Affairs
Chairman Stephen G. Burns
Panel Session: Taking Stock of Global Nuclear Energy Expansion: Risks and Gaps
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Thank you for inviting me to give a few remarks as part of this panel this morning. My warmest regards to Professor and former NRC Chairman Allison Macfarlane. I am enjoying the view from your former office.

The focus of this panel is "taking stock of global nuclear energy expansion: risk and gaps." It's an interesting topic and I look forward to the remarks from my fellow panelists and the discussion to follow. But let me clarify a few things before I continue. The U.S. Nuclear Regulatory Commission is the regulator. We don't promote nuclear power. We leave that to the Department of Energy, the industry and others. We also do not regulate internationally either, although, as you know, we have an important role to play in helping nuclear regulatory organizations around the world have strong, independent, effective oversight. And we engage in cooperative agreements on a bilateral basis, and through organizations like the IAEA and OECD's Nuclear Energy Agency to share experience, develop standards and undertake research.

That said, let me address the real question inherent in the panel's topic – what are the trends in terms of nuclear power globally? What might be coming down the road? How will the promise of non-light water reactor technologies play out? Is the future of nuclear energy rising or is interest declining? This is where it can get interesting, and very tricky. Talking with certainty about the future is usually a great opportunity, with the benefit of hindsight, to put one's foot in one's mouth. Let me give you a few examples of how murky the crystal ball can be when anyone is trying to make predictions related to energy.

"When the Paris Exhibition [of 1878] closes, electric light will close with it and no more will be heard of it." So said Oxford professor Erasmus Wilson. "Our children will enjoy in their homes electrical energy too cheap to meter" is the famous prediction about nuclear power said by Lewis Strauss, the first head of the AEC, in the early 1950s to an audience of science writers.

For a more recent example, let me cite then-President Jimmy Carter who said: "Because we are now running out of gas and oil, we must prepare quickly for a third change, to strict conservation and to the use of coal and permanent renewable energy sources, like solar power." Today, solar energy provides but a fraction of the world's electricity. Coal is falling out of favor. The price of oil has dropped. And abundant natural gas, at least in the U.S., is so cheap, it's posing an economic challenge

to those same nuclear reactors once expected to provide electricity "too cheap to meter." I believe the NRC, to some extent, fell victim to the murky crystal ball a few years ago when it began hiring staff and gearing up to meet the expected wave of new reactor applications – part of the anticipated nuclear renaissance over the last decade. For a variety of reasons, I believe, the flow of new applications turned out to be more of a trickle in some respects. Of the 18 applications we received to license 28 new reactors, we've issued licenses for seven reactors, and only four reactors are under construction. The NRC does continue to review applications to license six additional reactors, but the remaining applications have either been suspended or withdrawn.

I can't imagine any Chairman a decade ago would have foreseen this swing. So if our ability to foresee the future in the energy sector is less than perfect, what vision ahead should a regulator focus on? Some of you may have attended the NRC's Regulatory Information Conference in March. There, I spoke about what I call "Regulatory Craftsmanship." To me, that term signifies the ongoing journey to achieve the goal of effective regulation in the present AND the future.

I described "effective regulation" as the need for regulators "to constantly pursue the 'sweet spot' between under regulation and over regulation, to pursue effective regulation without imposing undue burden and stifling innovation." How do we apply craftsmanship in what the agency does, how we make decisions, how we collect information, how we set up a regulatory framework within which the industry can innovate and improve – with safety and security remaining the paramount concern? And how do we do this no matter what the future brings for the industry we regulate? One way, I believe, is that the regulator of today and tomorrow must stay focused on the basics of the regulatory craft. In my view, these basics are to a large extent embodied in the NRC's five principles of good regulation.

Those principles remain as important and relevant today as they were when first unveiled in 1991.

They are:

- Independence – It is vitally important that the regulator remain separated from the promotional organs of government, and be independent of the industry it regulates and other non- governmental organizations, and of any undue political influence.

- Openness – In a field as complicated and controversial as ours, it's important that regulators execute their craft in an open and transparent manner.

- Efficiency – In our case, the American taxpayer, the rate-paying consumer and the licensees are all entitled to the best possible management and administration of regulatory activities.

- Clarity – The regulatory regime should be coherent, logical and practical.

- And Reliability – Stakeholders must be confident in the prompt and fair administration of appropriate regulations.

I believe these principles are the starting point of an approach that serves the NRC well today and will serve us equally well whether tomorrow brings expansion or contraction of the industry.

However, the NRC must be mindful that we can be reliable and efficient without being static and entrenched with a "this is how it's always been done" mentality. I spoke to the NRC senior leaders last month and said to them: It's time to ask ourselves as we go about our day: Do we really need that rulemaking? Do we really need another request for additional information? Are you trying to regulate to zero risk – a standard that is not, as a reminder, our legal mandate?

Not for a moment am I suggesting the regulator not do its job. The regulator must continue to be assertive, focused above all else on safety and security. However, I believe the truly effective regulator can still question what it does in a thoughtful and productive way. I believe that attitude will hold the NRC in good stead as the beat of the advanced and non-light water reactor band gets playing. Advanced reactors may be the way of the future – or may not.

Taking note of those I quoted earlier, I'm not making a prediction. But either way, the NRC needs to be, to continue the metaphor, at the dance.

Within available resources, the NRC staff is pursuing a multi-part strategy to prepare for efficient and timely reviews of non-light-water reactor technologies. The staff is expected to complete the first draft of that strategy soon and will present it at public meeting with the Commission in June. The President's FY 2017 budget request includes $5 million in non-fee-recoverable activities to execute this strategy. If Congress appropriates this funding, it will facilitate the NRC's preparation to undertake effective and efficient safety reviews of advanced reactor technologies.

In any event, the agency is ready to receive and review any such applications under our existing framework. To be clear, the NRC has the necessary licensing and oversight authority over commercial advanced reactors, and is ready to work with potential applicants to prepare for and review applications for these reactors. The NRC recently published draft design criteria for advanced reactors, and we are seeking public comments on the draft document. The NRC has also recently expanded an existing interagency agreement with DOE for exploring regulatory issues and research needs for novel fuel designs. And we'll be holding the second joint DOE/NRC workshop on advanced non-light-water reactors next month.

Whether these designs prove to be the "next big thing" remains to be seen. The NRC can and I believe must adapt its regulatory regime for what lies ahead and do it with the kind of competence and adroitness that spurs confidence in us as a regulator. That is the future I'm willing to predict.

Thank you for giving me this opportunity this morning. I look forward to your questions.