

Commissioner Burns Remarks
Washington Internships for Students of Engineering (WISE) Program
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Welcome to the NRC. Glad to see you all here today and I look forward to your interesting questions. I last spoke to this group in July 2016.

My plan today was to first tell you a little bit about myself, then the NRC and the Commission. I'll finish by outlining my view on the three top issues the agency is facing today.

Personal Background

I am a lawyer by training and I'm one of the few career NRC staffers who found their way to the top of the NRC's organization chart. I spent more than 30 years here, starting in 1978 as a staff attorney and ending in 2012 as the General Counsel. I retired for the first time from the NRC in 2012.

After my first retirement, I spent nearly three years in the international community, as Head of Legal Affairs of the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development in Paris. I rejoined the NRC as a Commissioner in late 2014 and was designated by President Obama as Chairman in January 2015. I served as Chairman until January 2017, when President Trump designated then Commissioner Svinicki as Chairman. At that point I continued to serve as a Commissioner. I was appointed by President Obama, but I'm a registered Independent, not a Democrat.

My term ends in July 2019, and I have no plans to seek an additional term after that point.

What is the NRC and what it does?

I'm sure you've been given some information about the NRC, but let me quickly summarize who we are and what we do.

The NRC was established from the Atomic Energy Commission in 1974, and is an independent regulatory body that has exclusive jurisdiction over the safety and security of the commercial use of nuclear and radioactive material. This includes all commercial nuclear power plants in the United States and other medical and industrial uses of radioactive material. The agency has about 3200 employees with its headquarters here in Rockville, MD and 4 regional offices around the country. We have just under a billion dollar budget and most of that budget is recovered through fees paid by the nuclear industry.

The Commission

The NRC, as you may know, is headed not by a single administrator, but by a group of five appointed by the President and confirmed by the Senate. No more than three can come from a particular party, and all Commissioners may serve out their five year terms no matter which party is in office.

The Chairman has a few more responsibilities, such as supervisory authority over the NRC staff and serving as agency spokesperson to the public and Congress, but has the same single vote as Commission colleagues on policy matters. Coincidentally, the Commission recently returned to full strength after having only 3 Commissioners for almost 2 years.

Commissioners Caputo and Wright were confirmed by the Senate about 3 weeks ago and have now been sworn in. Commissioner Baran, who has been with the Commission since 2014, was also reconfirmed for an additional term.

Current Issues

If you were to ask me what the main issues are that the agency is currently grappling with, I would boil them down to three main areas. I would say the first is adjusting the agency's priorities in light of the premature closure of operating plants and the abandonment of large new reactor projects. Second, is the increasing interest in recent years in advanced and small modular reactors. Finally, on top of the inherent tension between these two realities, is the intense pressure over the last few years for the NRC to reduce its size and budget, and to become more flexible in its regulatory approaches and oversight.

Let's start with the state of the operating nuclear reactor fleet. You're probably aware there are 99 operating reactors in the US now that supply about 20% of the electricity in this country. The United States has the most operating reactors of any country in the world, but other countries rely on nuclear power for a greater percentage of their electricity. As a general matter, I believe nuclear plant safety performance has been strong and improved significantly since the 1970s and 1980s. All but three reactors have remained in the highest two NRC performance categories for the past 3 years. This reflects positively both on the NRC's oversight as well as licensee performance. In a recent trend, we have seen number of operating units that have either ceased operation, or indicated an intent to cease operation, before the end of their current licensed term. As of today, these include: Crystal River Unit 3, Kewaunee, San Onofre Units 2 and 3, Vermont Yankee, Ft. Calhoun, Indian Point Units 2 and 3, Oyster Creek, Three Mile Island, Pilgrim, and Palisades.

The primary driver of these premature shutdown is economics. With the low cost and abundance of natural gas, at least in the near term, producing electricity via nuclear power simply isn't profitable in some areas and with some companies. It is argued that the electricity market under-values nuclear capacity, and you've probably heard about some efforts the Trump Administration and the Department of Energy have undertaken in this regard.

As a result of the increase in decommissioning activities, the NRC is reallocating resources and reassessing priorities, including focusing on revising the NRC's decommissioning regulations to in part make the transition from operation to decommissioning simpler. Against the backdrop of this rapidly changing environment is the slew of ongoing and emergent safety and security issues that continue to demand attention: routine licensing and inspection activities, the effective close out of the efforts to address the 2011 accident at Fukushima Dai-ichi, cyber security, modernizing our framework for dealing with digital instrumentation and control, developing an effective path forward for licensing of accident tolerant fuel, assessing the NRC's force-on-force program, etc.

New and Advanced Reactors

On the flip side of this is the world of new and advanced reactors. Just a few years ago, the NRC was preparing for a tremendous upswing in interest in building and operating new nuclear power plants, and the NRC starting hiring up and getting ready. In the late 2000s, we had over two dozen applications for large, light water reactors.

However, for a variety of reasons, in my view, that wave was more of a trickle. And while we do have some new plants under construction and applications in various stages of the pipeline, it's not nearly what I believe had been anticipated. The bankruptcy of Westinghouse and the cessation of construction at VC Summer was a shock to many. With that, there is currently only one active construction site in the United States which is the Vogtle site in Georgia. Despite the Westinghouse bankruptcy, Southern Company has committed to completion of the Vogtle AP1000 units, and recently received conditional permission from the Georgia Public Utilities Commission to continue construction.

Notwithstanding these challenges, the NRC has continued to approve applications for new combined licenses. To date, 8 licensees (including Vogtle and Summer) have been issued Combined Licenses, in almost every instance, however, the applicant has indicated an intent to hold off on construction for the foreseeable future. Contrasting with the decline in new reactor work related to large light-water reactors, we've seen a significant increase in our workload related to small modular and advanced reactors. We received our first application for certification of a small modular reactor design at the beginning of 2017. The NuScale application was accepted for review in March 2017 and we are now engaged in the full technical review.

"Advanced reactors," stated simply, are reactor designs that do not rely on light water as their primary method of coolant. This includes concepts like using molten salt or high temperature gas. The NRC is working on establishing a licensing framework to meet the needs of the wide variety of advanced reactor designers. We have made improvements to our guidance and engagement process with potential applicants to ease the license application process. The NRC is also working closely with our federal partners at the Department of Energy on technical issues, such as developing general design criteria for advanced reactors. We expect the first few applications for new designs to be received in the next several years and have already begun pre-application engagements with several vendors.

The Regulatory Environment

The challenges associated with overseeing the current fleet and keeping pace with future developments are amplified in an environment such as we have found ourselves in the last few years with shrinking budgets and increased pressure on regulators. At the NRC, we have proactively taken a hard, honest look at ourselves to challenge what we're doing and how we're doing it. Throughout this period, the Commission has been pushing the staff to question itself on whether it is doing the right thing for the right reasons at the right time.

For instance, the NRC initiated its efforts to "right size" itself and its budget several years back and these efforts have resulted in significant reductions to the NRC's budget and staff. From 2014 to the NRC's FY 2018 budget, the NRC budget has been reduced by 10% from 1.055 billion to \$952 million, and the number of FTE has been reduced from around 3800 to 3284. Since 2011, the total FTEs number reduced by over 700. However, I think many of the adjustments the agency is trying to make come down to culture. By that I mean, the ability to identify and prioritize the most safety-significant work as well as the ability to risk inform its decision making in licensing and inspection.

There has been renewed industry interest in these and other risk-informed initiatives recently, and the industry has been pressing the NRC to use risk-informed thinking to a greater extent in its decision making. But while we all agree that this is a worthy goal, the path for getting there is challenging. Our safety regulations, to a great extent developed in

the 1960s and 70s, are largely deterministic.

Past attempts to make wholesale changes to the regulatory framework to better embrace risk-informed principals have not met with success. And again, a large reason for the lack of complete success can be argued to be cultural. Sometimes it's easier to deal with the devil you know than take on new approaches. There has to be incentive and value to moving from some would call "tried and true." The Commission is determined to take on this challenge and directed the staff give the Commission a plan for increasing staff capabilities to use risk information in decision-making activities, which the staff did this past November. The Commission has pushed the staff to utilize risk-informed thinking across a broad swath of areas, including areas such as digital instrumentation and control, accident tolerant fuel, advanced reactor licensing.

What it means to be a regulator

Let me end with one last thought about what it means to be a regulator. We live in a world of risk. It is probably impossible for any activity to involve zero risk. Supreme Court Justice Stephen Breyer wrote a fascinating book, published in 1991, on the subject of risk and regulation. The book is titled "Breaking the Vicious Circle: Toward Effective Risk Regulation." Breyer writes: "when we treat tiny, moderate and large risks too much alike we begin to resemble the boy who cried wolf."

I agree with Justice Breyer. So, to me, being an effective regulator means, in essence, knowing when and when not to cry wolf. It means striving for the "sweet spot" between under-regulation and over-regulation. It means constantly striving to pursue effective regulation without imposing undue burden and stifling innovation. I believe we need to set certain boundaries that allow the licensee to innovate within the framework we lay out. Stated another way, when the NRC does "cry wolf," no one should reasonably question that a wolf is, in fact, at the door.

Conclusion

From the time I first arrived at the NRC shortly before TMI through today, I've seen a recurring pattern where certain issues rise to the top, take precedence, and then recede as some new issue takes priority. This cycle occurs over and over and the NRC has always been successful at making the necessary adjustments to handle emergent issues and adapt to changing times.

Safety and security have always been the main focus of the NRC. When Congress created the NRC as an independent regulator, the legislation underscored the mandate of an unwavering focus on safety founded in the Atomic Energy Act of 1954. I believe the agency has time and again demonstrated its commitment to its safety mission while also being able to improve upon its way of doing business.

Thank you for inviting me to speak with you.

I'm happy to take questions.