NRC NEWS

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"State of the Nuclear Renaissance – A Regulatory Perspective"
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Thank you, and good morning, everyone. I am pleased to be able to join this distinguished group of speakers and panel members and to have the opportunity to participate in this year's Capitol Hill Symposium on the state of the nuclear renaissance.

As the recent national news headlines make clear every day, finding and developing new sources of energy has been and will continue to be a national priority and will encompass both traditional and new energy sources for the foreseeable future. Regrettably, as the headlines from the Gulf of Mexico also make clear, energy development activities are not free either from risk or environmental consequence, particularly if they are pursued without adequate attention to safety. As a regulator, whose job it is to enable commercial energy activities to proceed, provided that safety, environmental, security or other applicable requirements are met, I can assure you that this regulatory role is neither easy nor at times popular, but it is a necessary and vital role that contributes to the ultimate success of energy development activities and, if performed well, diminishes the likelihood of adverse consequences.

In my remarks today, I will be commenting on the current status of the "nuclear renaissance" from the position of the regulator. Before I begin, however, I need to set the appropriate context for my remarks. First, my perspective is different from that of other participants in this conference. As a nuclear regulator, it is not my role to advocate for the commercial uses of nuclear energy. My agency, the U.S. Nuclear Regulatory Commission, is an independent nuclear regulatory body that is responsible for regulating the safe and secure use of

nuclear technology and materials, and is separate from the Department of Energy, which is the U.S. Government agency responsible for developing and promoting nuclear technologies, as well as other sources of energy. Secondly, the views I am about to express are my own and may not represent the collective view of the Commission.

I think the best place to begin to explain the regulatory perspective and how it differs from the perspective of the industry and others is to focus briefly on the term "nuclear renaissance" itself. In my view, we have certainly experienced a renaissance in terms of renewed interest in nuclear power. The NRC, as many of you know, has received 18 applications for combined operating licenses for 28 new nuclear power plants; of these, 13 applications for 22 units have been docketed and are under active NRC review, while five applications have been suspended or deferred by the applicants for reasons that are unrelated to the NRC's regulatory processes. These are the first applications for new reactors that the agency has received in roughly three decades. In addition, the Tennessee Valley Authority has decided to complete construction of its Watts Bar Unit 2, a current generation nuclear plant whose construction was deferred in 1985. TVA is also evaluating whether it may pursue the same approach with respect to completion of either of its Bellefonte units in Alabama. At the same time, interest in the development of more advanced reactors, including small modular reactor designs, is continuing. Accompanying these developments is increased interest in, and additional applications for, the licensing of uranium recovery sites in the western United States.

Without question these are developments that were not necessarily foreseen just a decade or so ago and they represent a change in focus for the nuclear industry and the NRC. At this point, both the NRC and the industry are fully engaged. Arguably, this is the stage when the regulator has – in some sense – the primary role and the greatest impact on overall project scheduling. But reviewing new reactor applications is not our only role – and this is a key point in understanding the regulatory perspective. As I and some of my former and current Commission colleagues have stated on other occasions, the resurgence in interest in new nuclear power plants has only been made possible by the sustained safe and reliable performance of currently operating plants. Neither the NRC nor the industry can afford to lose sight of that fact.

The NRC considers the oversight of the 104 currently licensed and operating reactors to be a primary mission, and the great majority of our resources remain focused on these facilities. Just as the NRC's credibility and reputation depend on our effective oversight of these operating plants, so, too, does the reputation and credibility of the nuclear industry depend on the continued safe operation of every one of these plants. Public confidence, that elusive quality that the NRC has worked so hard to restore in the decades subsequent to the Three Mile Island accident and that in recent years has been enhanced by the promise of new reactor designs and

by the perceived need to be less dependent on fossil fuels, is now and will always be one accident away from dissipation. As a result, both the regulator and the regulated industry must remain vigilant and focused on safety.

That being said, the NRC is fully capable of addressing both oversight of operating reactors and new reactor licensing tasks, and we are doing so. Given that we are at a critical stage in the new reactor review process and that the NRC must also remain focused on operating reactors, however, I think there are at least three questions that could be asked about expectations for regulatory performance during this period:

- First, is the NRC regulatory structure prepared to handle the increased new reactor activity?
- Second, will the regulatory process be efficient and produce regulatory predictability?
- Third, will issues related not to the applications, but to the regulatory process itself, have a negative impact on the future development of nuclear power?

I want to explore these issues briefly with you, once again from the regulatory perspective and from my own observations.

As to the first question, the NRC has taken many steps in advance of the wave of new reactor applications in order to ensure that the agency will be in a position to handle the increased activity associated with new reactors. The Commission, starting in 1989, substantially modified its licensing process, which had not changed since the early days of the NRC's existence. The new process, contained in the Commission's regulations as 10 CFR Part 52, envisioned a modified reactor licensing process with three potential steps: certifying a plant design, obtaining an early site permit, and submitting an application for a combined license or COL.

The purpose of the new process was to provide both applicants and the public with the opportunity to resolve siting and design issues before construction would begin and to provide a more predictable and stable licensing environment than had been available under the 10 CFR Part 50 process. The use of standardized designs would eventually ensure a more streamlined NRC review process since design features would be similar for license applications utilizing the same reference design. In addition, the NRC created the Office of New Reactors to ensure that we had dedicated staff to focus solely on new reactor applications while the existing licensing organization for reactors – the Office of Nuclear Reactor Regulation – would remain devoted to the task of ensuring the safe and secure operation of the existing 104 operating reactors. We also substantially increased the number of agency staff involved in reviewing designs and new reactor license applications through an extensive recruitment effort over a three-year period.

In my opinion, the NRC has put in place the right structure and given that structure adequate resources to handle new reactor-related work. I also want to note, however, that at the same time that we have been hiring new staff, we have also lost many of our most experienced personnel to retirements, a phenomenon that the nuclear industry has also experienced. Moreover, we have been able to support a strong recruitment program through substantial growth in our annual budget in recent years. We cannot expect that growth to continue in the future, however, with the result that we may experience constraints on our flexibility in the future to continue to adjust in response to changes in our licensing workload. Nevertheless, I am convinced that the NRC is ready and is demonstrating today its ability to handle the 13 applications that are under active review, as well as the design certifications that are currently active.

Further, I believe that the framework for review of combined license applications – that of reference and subsequent COLAs – is logical and sound and can provide a greater degree of predictability in licensing reviews. While some have criticized the number and diversity of new reactor designs as an impediment to the envisioned drive towards standardization, the diversity does not, in my view, indicate a fickleness or failure to commit on the part of designers or industry but is simply a reality given the nature of markets and the structure of the energy industry in the United States. The ability to choose among designs and sizes of reactors allows applicants to tailor their technology selection to their needs. Moreover, I believe this greater technological diversity in any future fleet will be a potential strength, not a weakness. At bottom, the Part 52 process is well-established but will have to complete the journey of proving itself through the successful demonstration of its final stages.

On the human capital and workforce front, half of the agency's staff has now been at NRC for six years or less. When viewed through the prism of the demands of the agency's workload and the substantial number of licensing milestones that pepper the NRC's new reactor licensing schedules in fiscal years 2011 and 2012, this poses a human capital and knowledge management challenge unprecedented in the NRC's history.

Simply put, the challenge of having a newer staff is that we must gain greater confidence in defining and communicating what it is we will need in order to come to closure on open issues and in adjudicating and communicating our technical determinations in a timely and predictable manner. But there are well-founded reasons for confidence. The NRC's workforce is technically and professionally strong, is well-motivated, and performance indicators of its work and safety culture rank among the best in class.

The title of "Best Place to Work in the Federal Government" – earned by the NRC for the second time in a row – in my view, correlates strongly with the results of the NRC's safety culture and work climate surveys. Results of the latest survey of the NRC's employees by the Office of the Inspector General, compared to a similar survey in 2005, found substantial

improvements in 16 of 17 categories surveyed. These scores were generally in line with or better than those of U.S. high-performance companies.

I will linger for a moment, briefly, on these survey results because, again, at the end of the day – for a regulatory agency in particular – the determining factor in whether or not we can accomplish the mission and get the job done is going to boil down to one thing – our people. The NRC's safety culture and work climate survey results indicated the following:

- NRC employees show strong support of and alignment with NRC mission, goals, objectives and values;
- Employees believe that multiple levels of NRC are well-managed;
- Management style and valuing differences are close to best-in-class levels;
- Management supports innovative solutions and highly values individual input;
- Strong respect and cooperation exist among all employees;
- There are excellent opportunities for personal and professional growth;
- Employees are comfortable in expressing differing views with management; and
- Employees are fulfilled and consider their jobs important to the agency.

It is appropriate, in my view, that the NRC – as the regulator – has returned such strong results in assessing its own, internal safety culture. Surely, we could have no stronger foundation to build upon as we rise to the challenges ahead. These results are also a noteworthy complement to the industry-wide focus on the importance of safety culture. In other words, the NRC needs to exhibit the same cultural values that we expect of the industry. And just like industry, we are going to keep striving to improve upon these results.

While structure and resources are quantifiable, efficiency and stability are more subjective. With respect to the second question I posed – that of whether the regulatory process will be efficient and produce regulatory predictability – I would like to examine this question through the prism of the NRC's Principles of Good Regulation. Many of you in this room likely are very familiar with these principles, but I ask you to indulge me for a moment while I discuss them briefly.

Originally issued by the Commission in 1991, the Principles of Good Regulation are intended as a guide to both agency decision-making and the individual conduct of NRC employees. They are described as fundamental guideposts in ensuring "the quality, correctness, and consistency of our regulatory activities." I believe these principles articulate the standards by which the regulated community and the broader public should judge the NRC as a regulator – charged with ensuring the public trust.

The first principle – that of independence – calls for the "highest possible standards of ethical performance and professionalism" but notes that independence "does not imply isolation." All available facts and opinions must be sought openly. Conflicting public interests must be considered and final decisions must be based on objective, unbiased assessments of all information, and documented with reasons explicitly stated.

The second principle – openness – describes nuclear regulation as the public's business. The public must have the opportunity to participate in the regulatory process and open channels of communication must be maintained.

The third principle – that of efficiency – notes that the American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities, which should also be consistent with the degree of risk reduction they achieve. Regulatory decisions should be made without undue delay.

The fourth principle – clarity – calls for regulations that are coherent, logical, and practical. Agency positions should be readily understood and easily applied.

The fifth and final principle – reliability – states that regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes. Most importantly, this principle supports the objective that – once established – regulation should be perceived to be reliable and not unjustifiably in a state of transition.

In issuing the Principles of Good Regulation, the NRC has offered to be judged against them. Where we fall short, we should be challenged to do better. Where we can further improve an already good process, we should seek to do that, too.

But in the context of the topic of today's symposium, which is the nuclear renaissance, I will concentrate on the principles of efficiency and reliability. With respect to efficiency, there have been calls for the NRC to shorten the timelines of its Part 52 licensing process. Both the industry and the NRC are engaged in licensing activities that have not been pursued in the United States for three decades. We are dealing with the initial wave of license applications and my general sense is that most applicants would like to be able to rely on completing the review process under the expectation that the process will be stable. Although regulatory efficiency improves with time, developing and instituting fundamental changes to the Part 52 process "mid-stream" may introduce elements of uncertainty in the process that will diminish overall stability and reliability. If past is prologue, there is reason to expect future efficiency gains in the Part 52 process. I point specifically to NRC reviews of license renewal applications, which demonstrated

a substantial improvement in the efficiency of the reviews for succeeding applications after the first few. Personally, I am confident that the NRC will be able to achieve similar improvements eventually in the COL process.

A core element of stability in the regulatory process will be the ability to convey some measure of confidence and surety in the schedules for rulemaking for design certifications and for the issuance of combined licenses for new reactors. During the NRC oversight hearing before a subcommittee of the Senate Committee on Environment and Public Works on May 5, 2010, the Commission was asked by members of the subcommittee if we thought NRC could provide greater transparency regarding the schedules for the final steps in the Part 52 process. In its policy statement on the conduct of new reactor licensing, the Commission decided to conduct the mandatory hearings for COL applications itself. In my view, and as I testified before the Senate subcommittee, I believe the Commission now needs to explore whether it is possible to develop and publish tentative schedules for the conduct of the mandatory hearings for the first few new reactor combined license applications – the earliest of which may need to be conducted as soon as 2011 – and whether such schedules would have enough foundation to be meaningful at this point. I indicated to the subcommittee my willingness to engage with my Commission colleagues on this question in the months ahead and exploring their views on the matter.

As an industry representative noted at that same Senate oversight hearing, the NRC, in establishing milestones for new reactor projects, had not provided a target date for a licensing decision for any project. In his view, the "goal should be to create a predictable process that results in a reasonable certainty for the start of safety-related construction for project applicants." While I agree on the need for predictability, I would make one significant distinction. The Commission cannot commit to any date for issuance of a license. The Atomic Energy Act authorizes the Commission to issue licenses, but does not compel it to do so. I can assure you that the Commission will not issue any license until it is fully satisfied that the public health and safety will be adequately protected.

That leads me to the issue of public confidence. As I noted earlier, public confidence is fragile, is difficult to earn and easy to lose, and can never be taken for granted. Support for the nuclear power option will vanish if the public loses faith in the integrity of the COL licensing process or in the safe operation of the 104 currently operating plants. I am certain that all of us in this room recognize that it is incumbent on the NRC and our licensees to ensure that these plants operate safely. Constant vigilance, development of a strong safety culture, attention to detail, and the recognition that safety always comes first are our mutual obligation to the American people.

And in reference to this shared obligation, I would be remiss if I didn't mention the role of the Institute of Nuclear Power Operations or INPO. The work of INPO embodies the nuclear power industry's willingness to strive for excellence. In my view, the industry's

sustained commitment to striving for excellence in operations, complemented by the existence of a strong and independent regulator, provides a foundation for public confidence in the safety of nuclear power.

As for the last question I posed earlier, (will regulatory issues have a negative impact on the future development of nuclear power?), at this stage, I do not foresee any issues arising from the Part 52 process itself that would have an adverse impact on the future development of nuclear power; nor have any regulatory issues emerged in the reviews conducted to date that would warrant unusual concern. That does not mean that there are no regulatory issues at all. The NRC review process is designed to ensure that any safety concerns are indentified and resolved as early in the process as possible.

In closing, I want to share with you one conclusion that I have returned to again and again – in so many different contexts – in my two years of service as an NRC Commissioner: The nuclear profession is uniquely dependent on its people. People are the key enabler of success and are complicit when we fail to do what is expected.

From all I have observed, the enthusiasm and spirit of the incoming generation of nuclear professionals is high. They foresee the prospect of a front row seat for the next chapters to be written in the nuclear history of America and they intend to shape that history. Not content merely to accept what has been bequeathed to them, they intend to build upon it, advance it, and make it better – and in that way, to give something back. And that is really the challenge for all of us, however we find ourselves participating in these events.

In 1966, Robert F. Kennedy said, "Few will have the greatness to bend history itself. But each of us can work to change a small portion of events, and in the total of all these acts will be written the history of this generation."

Thank you.