NRC NEWS

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The Role of the Nuclear Regulatory Commission
In
Future Nuclear Energy Utilization in the United States

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I've had the honor of addressing several previous meetings of the American Nuclear Society during my years on the staff of the U.S. Senate. I am now speaking to you as the newest Commissioner at the Nuclear Regulatory Commission (NRC).

I was sworn in as a Commissioner about 4 months ago, and I've been rapidly learning details of the Commission's operations since then. Based on my education during those months, I'd like to share with you today the role of NRC with respect to future nuclear energy utilization in the U.S.

There is no doubt in my mind that our nation will be challenged to meet its growing needs for electricity generation in future decades. I believe that we should encourage fuel diversity as we strive to meet these challenges, seek to minimize pressure on limited supplies of natural gas, and reduce our dependance on foreign energy sources.

For this new electricity generation, we need to tap renewables as much as possible. But the intermittent character of solar and wind systems means that they can never play a dominant role in supply of baseload electricity needs, unless we invent new, very low cost, energy storage systems. Our large coal reserve provides another opportunity for expanded electricity generation, but significant expansion of that resource will depend on development of cost effective, low emission plants.

The only other source of significant new electricity generation within the next few decades is nuclear energy. But answers to many questions will dictate whether nuclear energy will play a strong supporting role.

In any discussion of nuclear power and the potential for new plant construction, we must always remember that the entire industry has a vital job to attend to first-safe and secure operations for existing plants. The public needs to be confident of ongoing safe and secure performance of existing nuclear plants to support the potential for new nuclear plants.

The Nuclear Regulatory Commission has the responsibility to establish and enforce the safety and security standards for all civilian applications of nuclear technologies. Its Congressionally-mandated mission is to:

> License and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.

In my view, without the nuclear power industry's continued perseverance toward adequate safety and security, nuclear energy will not play a future role, and our nation will have an immense energy shortfall.

The theme of your conference focuses on a "half century" view. The requirement for safe and secure operation of our nuclear plants certainly will remain during that time period, or at least for as long as we operate nuclear plants. But my own view is that the time frame within which we will determine our nation's future capabilities in nuclear energy is far more compressed, perhaps a couple of decades at the most. Unless near-term progress is demonstrated in the United States within that shorter time window, which includes construction of a significant number of new plants, we may lose much of our technical capability to support nuclear energy using domestic resources.

The United States led the world's development of nuclear energy, but there hasn't been a new construction permit issued here after 1978 (Shearon Harris). That dearth of new plants was driven by several factors, but its impact has been enormous. Our nation's capacity for new plant construction has had limited exercise and has partially atrophied. We are no longer the world's only leader in these areas. Today we have enough of the infrastructure-both human capital and industrial capability-to recover, but we are in danger of losing these capabilities in the not too distant future.

You'll hear many talks at this conference about the potential rebirth of nuclear energy in the United States. There is no question that there is more enthusiasm for this rebirth than at any time in recent history. As I noted earlier, projections for new electricity supplies within the next 20 years show that new generation capacity is essential. A number of companies are now discussing possibilities for new nuclear plants.

You will probably also hear over the next few days that several areas of uncertainty must be addressed before new construction will occur. Regulatory uncertainty, a key concern of the NRC, is one of the factors that must be weighed as any utility considers new construction. I'd like to use the rest of my time today to discuss the roles of the Commission in ensuring safe and secure operations, as well as in providing regulatory certainty, into the future.

Of course, the performance of the NRC will not, of itself, create the climate for new construction. But failure of the NRC and the industry to ensure the safety and security of existing plants will immediately discourage talk of new plants. How will we accomplish these current goals and thereby provide the foundation for possible future growth?

First, the industry must maintain a clear focus on safe operations and assure no blemish on its stellar safety record - that no member of the public has ever been injured by any release from a civilian plant in the United States. With this focus, the industry under the watchful oversight of the NRC must constantly guard against another serious incident like that encountered at Davis-Besse. Many of you in this room will directly share in this responsibility to set an example of safety consciousness within your organizations and thereby earn public confidence in the safety of your plants.

Second, at the Commission, we need to observe and report on industry's continued safety performance, as we further risk-inform and performance-base our regulations and implement our oversight processes. In general, industry's safety trends have shown improvements over the last decade.

The NRC revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants in 1999-2000. The new oversight process uses more objective, timely, and safety-significant criteria in assessing performance, while seeking to more effectively and efficiently regulate the industry. It also takes into account improvements in the performance of the nuclear industry over the past 20 years.

The objective is to monitor performance in three broad areas – **reactor safety** (avoiding accidents and reducing the consequences of accidents if they occur); **radiation safety** for both plant workers and the public during routine operations; and protection of the plant against sabotage or other **security** threats. To measure plant performance, the oversight process focuses on seven specific "cornerstones", which support the safety of plant operations in the three broad performance areas. In addition to the cornerstones, the reactor oversight program features three "cross-cutting" areas, so named because they affect, and are therefore part of, each of the cornerstones.

The revised oversight process provides more information on plant performance than in the past, and the information is available on a more frequent basis. This information is placed on the NRC's Internet web site.

The public credibility of this assessment process rests both on each plant's full commitment to accurate and unbiased performance indicator data collection and reporting, and on the dedication and knowledge of NRC resident and regional inspectors. In this respect, both the industry and the NRC work toward maintaining public confidence in this process.

Third, security was a key focus of the NRC before 9/11 and has been substantially enhanced since those events. Some of the security enhancements are obvious as one approaches any plant perimeter such as this intrusion barrier. Many more changes are less obvious. They reflect improvements in internal operations, procedures, and physical arrangements. They also involve carefully negotiated and tested protocols between the NRC and local, state, and federal responders. Airborne threats are addressed through the operations of the Department of Homeland Security and the

North American Aerospace Defense Command (NORAD). With these many enhancements, our nuclear plants are even more secure today.

Fourth, in addition to public assurances on safety and security, nuclear power will not advance unless the industry and the public have confidence that the Commission's licensing procedures are well understood, incorporate significant public input, and operate on predictable time scales. The Commission's performance on license renewals, power uprates and new plant licenses will be measured in this process.

License renewals began with Calvert Cliffs in 2000, and now the Commission has renewed licenses at 32 plants. Renewal applications are currently pending for 16 plants. With few exceptions, the Commission has processed these renewals within about 22 months. However, where renewal applications are not of sufficient quality, the Commission has not hesitated to return or delay a licensee's application package – applications for 4 units have recently fallen into this category.

Power uprates have also been processed reliably by the Commission**.** Some of the larger uprate requests require very careful evaluation, especially in light of steam dryer damage in BWRs after significant uprates. This is currently an area of careful study at the Commission.

Licensing of the first new reactors will be a process watched carefully by all stakeholders, both public and industry. Here the Commission will use an untested new process described in our regulations. This framework was instituted in 1989 and provides for a combined construction and operating license or COL. The process also includes the Early Site Permit or ESP process and the Standard Design Certification. Both the ESP and the design certification may be referenced to simplify a utility's application for a COL. The overall goal of the COL process is to provide a more stable, efficient, and predictable regulatory framework for utilities that might wish to pursue a new reactor license. At the same time, the Commission has been careful to include appropriate opportunities for public input throughout the parts of the COL process.

The ESP process allows early resolution of site-related issues and effectively allows a utility to bank a site for future construction. Three applications have been received, for the North Anna, Clinton, and Grand Gulf sites, and the Commission is on track to issue final decisions in 2006 for these cases.

The first standard design certification was issued for the GE ABWR system in 1997. Today three advanced designs are certified, one certification review is in progress and out for public comment, and others are expected to be filed soon. The Commission has estimated times for completion of a certification to range from 42 to 60 months depending on the complexity of the design and its departure from previously certified designs.

The COL application process enables a utility to reference an ESP and a certified design to expedite the process. If both the ESP and certification are in hand, the review and hearing process for the combined license can be anticipated in less than 30 months. Nevertheless, the first utility that tests the COL procedure will be moving into uncharted waters, but into an area that the Commission has anticipated and is prepared to address.

In summary, the foundation for retaining the nuclear energy option in the future rests squarely on the continued safe nuclear plant performance of the current operating reactors and continued strong and independent NRC oversight. In addition, it depends on improved security, and stable NRC licensing processes with appropriate public input. Meeting these goals in as public a manner as possible, while balancing openness and information security, is absolutely necessary. Well-informed citizens are essential to better understanding operations, risks, and benefits involving the nuclear energy option.

While the industry has demonstrated a strong track record in recent years, it has not been without challenges and opportunities to learn. As an example, both the industry and the NRC staff must learn and institutionalize the important lessons from the Davis-Besse corrosion event - and not just the technical aspects, but more importantly avoiding the underlying complacency and failure to maintain a questioning attitude. Another challenge for both the industry and the NRC is the impending loss of many of our most experienced employees who are nearing retirement, and the attendant loss of the historical and collective lessons that they have learned. It isn't sufficient to just hope that these lessons will have been passed on to younger generations. We must all commit to actively mentoring our less experienced employees to pass on the important values that are essential to continued safe use of the nuclear energy option.

Overall, the industry's performance, as well as the Commission's regulatory oversight, will be carefully observed by the public. Only if both the industry and the Commission demonstrate strong performance can public confidence be maintained sufficient to permit an objective and reasoned public dialogue on the future of nuclear energy in this country.

As the newest Commissioner, I view it as my responsibility to help keep the Commission on the course navigated very well by Commissioners throughout the years, and most recently by the three senior Commissioners. In keeping with my admonitions for mentoring, I take it as a personal commitment to learn as much as I can from the more senior Commissioners. As I learn from them, my goal is to maintain and enhance the progress for which they have provided such valuable leadership in recent years.

Thank you once again, as I have thoroughly enjoyed the opportunity to speak with you today. I look forward to a dynamic and challenging tour as an NRC Commissioner, during which I hope that we can together make a positive contribution to our nation's future. Thank you.