



NRC NEWS

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Remarks Prepared for NRC Chairman Dale E. Klein

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Thank you. I am very pleased to be participating in this meeting of the International Atomic Energy Agency.

Before I begin, let me note that this is a somewhat somber time for us at the Nuclear Regulatory Commission. As you may know, Commissioner Ed McGaffigan died on September 2, after a long battle with cancer. He was a dedicated public servant and believed deeply in the mission of the NRC. His integrity, his forthrightness, and his experience as the longest-serving commissioner in our agency's history, will be greatly missed. But while it is appropriate to grieve the loss of our friend and colleague, Ed himself would have told us that we need to get back to work.

So let me turn now to the topic of this panel.

Today, the global community of nuclear regulators has an unprecedented opportunity to influence the safety and security of new and innovative reactors and other fuel cycle facilities. By working together, we can provide clear, concise, and internationally accepted guidance to the designers and architects of these new facilities on safety and security requirements. This will help ensure that safety and security are fully integrated into all aspects of a facility's design and operational characteristics. We know that the balance of safety and security will be important no matter what designs countries are selecting. So by thinking through these issues now, we have the opportunity to assess this issue in a methodical way.

To foster this type of international cooperation, we will need to re-examine our current regulatory structures and incorporate the lessons learned from our oversight of the current fleet of plants. We need to determine what to keep, what to discard, what to adopt, where to redouble our efforts, and where to intensify our focus. As part of this broad objective, we should seek specifically to:

- Ensure that regulatory activities are effective, efficient, realistic, and timely.
- Ensure that the regulatory process provides sufficient oversight over the entire plant lifecycle, including design, construction, operation, and the initial stages of decommissioning.
- Ensure that we develop appropriate safety, security and preparedness expectations that maintain a defense-in-depth strategy, and address risk-significant accidents and intentional events.

- Ensure that—while taking advantage of new technology elements such as Digital Instrumentation and Control—plants maintain the critical safety elements of diversity, redundancy, and independence.

One proposal for greater international cooperation, of course, is President Bush's Global Nuclear Energy Partnership, which proposes enhanced mechanisms for non-proliferation, while also expanding the use of nuclear power. GNEP is built on the recognition that advanced reactors will make spent fuel an energy resource, and seeks to build the structures to manage this commerce in a safe and secure way.

The architects of GNEP at the U.S. Department of Energy certainly recognize that many details still need to be worked out. Obviously, the regulatory structure that would guide the implementation of GNEP is one of the key areas that would require further consideration.

The GNEP proposal recognizes that there are significant challenges involved in building an advanced reactor—including capital outlay costs, security, ongoing personnel requirements, fuel acquisition and disposition; not to mention the elaborate regulatory structure required before construction can even be considered. Some nations may conclude that advanced reactors are not appropriate for their circumstances. For nations that are contemplating these plants, however, the regulatory infrastructure cannot be established too soon. In other words, we need to start now.

In this regard, I think the IAEA can provide a critical function in helping to encourage strong regulatory structures for nuclear power in nations where they do not already exist. In cooperation with the Nuclear Energy Agency, it can also continue to provide a forum for those nations with substantial experience with nuclear energy to work together. Indeed, collaboration on the next generation of nuclear technology will be greatly facilitated if we continue and even enhance cooperation on current technologies. For example, the IAEA could provide guidance to regulators to help them adapt already-completed safety reviews into their country's unique regulatory framework.

I have also suggested in previous conversations with my international colleagues that we establish more extensive channels of communication to share information about any nuclear components that are discovered to be substandard, counterfeit, inadequate or inappropriate to a nuclear power plant. Under a U.S. regulation called Part 21, my agency already shares this information with industry, and even makes it publicly available. It seems to me that nuclear safety could be enhanced world-wide if other nations adopted the same practice, and information of this type were shared across national borders.

An important ongoing effort focused on existing technology is the Multinational Design Evaluation Program, or MDEP. Over the last year, the U.S. and nine other nations have been working to leverage knowledge and experience on power plant design, and promote global convergence in associated codes, standards, and regulations. This is important not only because of the safety benefits that such standardization could bring, but also because the extra effort required to develop several designs to satisfy different national standards and requirements can substantially increase the cost of nuclear power plants, making them potentially unaffordable for many countries. We have learned, however, that it may be difficult to achieve complete convergence from these disparate, pre-existing codes and standards. We have also learned the importance of starting this work early in order to avoid divergent regulatory approaches.

With advanced nuclear reactors and facilities we have the opportunity to work collaboratively right from the beginning. We can avoid the need to "harmonize" disparate programs if we act in concert now. Although each of us will retain our own cultures and political systems, I believe that we can construct a set of mutually acceptable safety standards, based upon a common set of internationally endorsed safety goals, that would govern the design of Generation IV reactors.

Let me take this opportunity, then, to propose that we take MDEP to a new level, with a project for developing multinational regulatory standards that would delineate the regulatory design requirements for innovative reactors and other fuel cycle facilities. I believe that such an activity should be led by the regulators of countries that are involved in the design and selling of nuclear power plants, with active participation from other regulators interested in building advanced reactors, and in coordination with the IAEA and NEA.

Before I offer any details, let me emphasize that this is not a plan for imposing U.S. programs or standards on the world. We know that other nations have been leaders in developing new nuclear technology for at least the last two decades, and their experiences are important if we are to embark on a multinational regulatory framework. This is a suggestion for mutual collaboration—recognizing that each country is responsible for applying and enforcing those standards and requirements it determines to be necessary for safety and security. With that understanding, let me outline how the U.S. might contribute to the proposal I have just mentioned.

The U.S. Nuclear Regulatory Commission is now developing an approach to establish a comprehensive set of risk-informed and performance-based requirements applicable to all nuclear power reactor technologies as an alternative to our current requirements that are focused on light-water reactors. These new alternative requirements would integrate safety, security, and preparedness to ensure that reactor regulation, processes, and programs are built on unified safety principals.

We would offer this draft framework as a starting point for achieving multinational regulatory standards since it sets forth a comprehensive and rational set of principles that we can all use in licensing and regulating nuclear power plants. It is a hierarchical approach to safety, one that assures that safety, security, and preparedness are maintained in balance throughout design, construction, and operations.

As a parallel effort, we regulators already know that we need to plan now for the technical staff necessary to license and oversee innovative reactors and facilities. This will require a long-term effort to cultivate not one, but several, generations of scientists and engineers. While it takes many years of schooling to educate and train an individual scientist or engineer, it takes an even longer timeframe to build an adequate educational infrastructure to support oversight activities associated with a new set of advanced technologies. So, in a sense, the crisis of insufficient numbers of inspectors and technical staff for advanced reactors is already here. Clearly, we must begin addressing this need immediately.

What I am suggesting is that, given the increasingly international character of the nuclear fuel cycle, it seems sensible to plan for inspectors who can also operate in an international role. This might be similar to the standards for commercial airline pilots today, who may, for instance, live in Vienna, but are certified to fly anywhere—from Venezuela to Vietnam.

Let me close by mentioning one more consideration that will shape our ability to license and oversee advanced nuclear facilities. This is not a technical or scientific matter, yet it may ultimately be the most important step for ensuring safe nuclear power. I am referring to the role played by dedicated public servants in a strong, independent regulatory body.

Of course we must ensure that the men and women who regulate nuclear safety and security around the world are properly educated and trained, as I just mentioned. But it is equally important that these experts devote their technical and scientific talents to the common good. A regulatory agency that is built upon and promotes public confidence must be committed to sound science. But it must also display qualities that are not merely scientific: professional integrity and intellectual honesty; the ability to

withstand criticism from the outside, and even engage in constructive self-criticism; and the willingness to speak unpleasant but necessary truths and refute inflammatory rhetoric.

This statement is an example of the kind of blunt honesty I mean: “It is the job of nuclear regulators to provide reasonable assurance of adequate protection, not absolute assurance of perfect protection. When they change the law to require absolute assurance of perfect protection, there won’t be a lot of nuclear reactors in this country. Also, there won’t be a lot of cars or McDonald’s.”

My late colleague Ed McGaffigan said that. It is the kind of remark he made often, because he displayed in abundance the qualities I think must guide our common enterprise. They are the qualities that all regulatory bodies must have to build public confidence—which, in turn, provides the authority for strong and independent oversight.

Ladies and gentlemen, to meet the challenge of ensuring the safety and security of making advanced reactors an integral part of the world’s civilian nuclear power supply will demand comprehensive, energetic, and focused planning.

- We must begin now to prepare the science, math and engineering education and training for the inspectors and regulators of Generation IV reactors.
- We must ensure that national governments are actively engaged in building the legal and regulatory infrastructure to support safety and security
- And we must build more robust international partnerships to guide the design, construction, and operation of the next generation of nuclear power—beginning with existing commonalities, but with an eye to an international framework for all stages of the fuel cycle.

This work is too important to be left for a later day. I hope that this conference will mark a significant first step toward planning and implementing these important goals.

Thank you.

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