



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001

E-mail: opa@nrc.gov

Site: <http://www.nrc.gov>

No. S-08-030

**Prepared Remarks of NRC Chairman Dale E. Klein
Global Nuclear Renaissance Summit**

Alexandria, VA

July 24, 2008

Thank you for inviting me to kick off the second day of this major conference—which brings together so many different stakeholders from every part of the government and industry, every stage of the fuel cycle, and nearly every part of the world.

Now, speaking at 8:00 a.m. doesn't bother me; I am an early riser. But I realize that some people might need more than one cup of coffee before listening to a very lengthy speech on "Navigating a New Regulatory Framework to Streamline New Plant Licensing"—which is my assigned topic. So I will keep my remarks relatively brief, to allow enough time for discussion.

When I spoke at the first Summit about a year and half ago the NRC was just preparing to issue its new procedures for reviewing Combined Operating License, or COL, applications for new nuclear power plants. And we were just beginning to anticipate how many such applications we might be receiving from industry.

Well, obviously a lot has happened since then. So the first half of my remarks will provide you with an update on the applications we are receiving and how the agency is responding. For the second half, I want to look a bit further ahead. Because a Renaissance—if that is in fact what we are witnessing in the nuclear power sector—is not something that takes place over the course of a few years. A Renaissance takes decades to unfold; so I think it's appropriate to look a little further down the road.

Let me begin, therefore, with the current picture. So far, the NRC has received 9 license applications for 15 new nuclear plants. Based on what we are being told by industry, we are expecting to receive 11 more applications for 16 more units by the end of 2009. Clearly, this will present our agency with very significant challenges as we seek to review these license applications in a timely manner.

But while there are challenges, the NRC need not be a stumbling block. Our agency has in place the staff, the expertise, and the policies to oversee a safe expansion in domestic nuclear power—assuming that our high standards for safety and security are fully met. From a technical standpoint, our licensing and oversight processes have benefitted from advances in methodologies such as probabilistic risk assessment, improved engineering practices and analyses, and of course the immense advantages conferred by modern computers. In addition, we have become more efficient in our regulatory procedures. In 1989, our agency began establishing the new combined construction permit and operating license—or COL—application process; which was further refined and updated with a rule-making last year.

Yet, I have also said many times that our ability to review applications quickly depends directly on the quality and completeness of those applications. The new licensing process that the NRC has implemented, called Part 52, potentially involves three steps: certifying a plant design, obtaining an early site permit, and an application for a combined operating license. We have been strongly encouraging applicants to use designs that have already been certified, as well as Early Site Permits, which authorize the general appropriateness of a location for a potential reactor. The combined construction and license application is intended to review how a certified design works at a particular site, with its specific features of terrain, water access, and other factors. The NRC created this process to provide both applicants and the public with the opportunity to resolve site and design issues before construction.

Using a certified design and obtaining an early site permit would maximize the benefits of the new licensing process and contribute to an effective and predictable licensing process. However, so far, only one of the five designs currently being referenced in the COL applications -- the Advanced Boiling Water Reactor at the South Texas Project -- is a certified design and it is only referenced in one COL application. In addition, the design certification applications and some COL applications received to date initially lacked information that the staff needs to complete its review.

Our reviews have been further complicated because some applicants are revising submission dates and submitting modifications to their applications, often with late notice to the staff, which is disruptive to the work planning process. The result of these problems is that the early COL applications are unlikely to achieve the full benefits of the Part 52 process. The staff is working with stakeholders to overcome these challenges; and we hope that the streamlining envisioned in Part 52 can be realized as we complete the reviews of the initial COL's and finalize the Design Certification reviews. But while there are challenges, I want to emphasize that the NRC is strategically positioned to deal with this new reactor licensing workload in a timely and responsive way.

And that brings me to the second theme I want to address. Large light-water reactors remain our current focus. But several designers of small advanced reactors have contacted the NRC about reviewing their designs. These designers see markets today for small reactors for providing process heat here in the U.S., replacing oil and natural gas as

the heat source, and as multi-module reactor facilities for producing electricity. They also see markets today overseas in countries with smaller electrical needs. Let me take a few minutes, then, to talk about my personal views as well the Commission's policies regarding these small, advanced concept reactors.

Speaking for myself, I believe these reactors may offer some safety enhancements over current large light-water reactor technologies, enable the efficient use of nuclear power where larger reactors may not be appropriate or affordable, and also provide a source of process heat in industrial applications or the production of hydrogen. These smaller reactors, which can be modularized, may be especially valuable in the developing world—where access to reliable electricity can literally change people's lives. In fact, an economist named Robert Solow won the Nobel Prize for demonstrating that access to reliable energy is the single most important factor for economic growth. And while I recognize that there is not currently an active interest in some of these designs for domestic generation of electricity, I do feel that the NRC as a safety regulator should not be picking winners and losers with respect to advanced reactor designs because of limitations on resources to review those designs. The marketplace should make those decisions.

Let me note that I am not at all bothered by the fact there is no current interest in licensing and operating these reactors here in the U.S. by domestic customers. We have our hands full with the COL applications that we are already receiving, and the last thing I want to do is encourage submittal of additional new designs! But I will say that if and when American utilities become interested in building these reactors, I would encourage a coordinated approach to helping the NRC develop the basis for making safety decisions for these designs. I mentioned this in a speech a few weeks ago, in connection with possible fuel recycling facilities—and encouraged industry to form technical working groups among those who might be interested in building such facilities.

For now, NRC activities in this area are confined to the Next Generation Nuclear Plant, which I will address in a moment, and some requests for pre-application discussions from vendors of four small reactor designs. While these are certainly extremely interesting from a technical point of view, none of these designs is currently aligned with a license application for domestic use. Simply in terms of prioritizing resources, therefore, the review of these designs by NRC staff is considered a low priority at the present time. That does not mean we are ignoring the issue of small reactors. But our priority for non-light water reactors is the licensing activities associated with the Next Generation Nuclear Plant, or NGNP. This is a very high-temperature, gas-cooled reactor that Congress has mandated for development under the Energy Policy Act of 2005. One pebble bed reactor design and two prismatic core reactor designs are currently under consideration.

We expect to deliver to Congress in August, jointly with DOE, our licensing strategy for the NGNP. This advanced technology presents several technical issues that we will need to address, including:

- Fuel performance,
- Containment functional performance,
- Safety and security issues,
- Material performance under very high temperatures, and
- The use of probabilistic risk assessment in the licensing process.

Clearly, a lot of work needs to be done to understand the technical basis of the non-LWR advanced reactors. But my own view is that these small, advanced designs offer enormous possibilities for providing both electricity and process heat, and for improving the standard of living for people in the developing world in the near future, and perhaps even for people here in the U.S. in the long term.

To summarize: the NRC is facing some challenges with the current influx of COL applications, but we believe we are well-prepared to perform reviews in a timely way. Over the long term, the NRC is very interested in keeping up to date with technological developments in small, advanced concept reactors—which hold great promise for smaller markets. But for now, our main licensing focus for non-light-water reactors is the Next Generation Nuclear Plant. Overall, there are some challenges, but also significant opportunities. So I would say that the state of nuclear power in the United States could be described as a glass that is half-full rather than half-empty.

Thank you again for inviting me to participate in this conference and share some thoughts with you.