NRC NEWS

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NRC Chairman Dale E. Klein
Remarks at the North American Energy Summit

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Thank you.

Let me begin by congratulating you for putting together such a significant conference, with so many eminent participants. As Dr. Romo indicated, this event is intended to serve as a launching point for the creation of a new research and policy center here on campus: the Institute for Conventional, Alternative and Renewable Energy. I think it's amazing how the acronym just happened to be I-CARE. Isn't it great when that happens?

What is also noteworthy is that, in certain respects, nuclear energy could be considered a conventional, alternative, and renewable energy source. The 104 operating plants that supply 20 percent of the nation's electricity have been part of the nation's energy portfolio for quite a while—so they are conventional. But with recent concerns about greenhouse gas emissions and climate change, nuclear power plants also represent a carbon-free "alternative" to fossil fuels. In addition, the option of nuclear fuel recycling and fast reactors, which is already being pursued in France, Japan, Russia, China, and even India—although not yet in the United States—means that the nuclear power plants of the future would employ an energy source that is, essentially, renewable.

I mention all that simply to put things in perspective with regard to the future of nuclear power in the United States. Let me stipulate, however, that I am not an advocate for or against commercial nuclear power. I do not get involved in the politics or economics of nuclear plants—just their safety and security. With that understanding in mind, there are two themes I want to emphasize today. The first is that enthusiasm for expanding nuclear power must be kept within reasonable bounds. The second is that expectations for nuclear power should not be excessively negative or cynical.

On the first point, it is not surprising that electricity utilities want to build new plants to address greenhouse gas emissions and meet rising energy needs. The Energy Department's statistical office estimates that electricity demand all over the world will rise sharply in the coming decades. In the U.S., demand is expected to increase by 50 percent in the next thirty years. If nuclear power were to maintain its current share of the electricity supply in this country, the industry would need to increase the size of the fleet from the current 104 operating plants to about 150 nuclear power plants, with an average output of 1,000 megawatts each.

But not even the most enthusiastic pro-nuclear people think that there will be 50 new nuclear plants generating electricity any time soon. In fact, in my capacity as a regulator, let me take this occasion to assure you that there will not be 50 new plants generating electricity in the next five years! Nuclear power plants are extraordinarily complex; they are engineered to a very high level of precision; and they are built to last for forty to sixty years—or more. You can't just decide you want one and start construction the next day.

So to repeat one of my favorite warnings—against an "excessive exuberance" for new nuclear power plants—I would reinforce a point that Sam Bodman, the Secretary of Energy, often makes. The potential expansion of nuclear power is better seen as part of a larger goal of enhancing the nation's energy security and energy diversity, which depend on a variety of different energy sources.

On the one hand, therefore, people should not expect too much from nuclear energy. The energy sector—and this includes the nuclear power industry—cannot provide instant gratification to consumers every time energy prices rise. On the other hand, people should appreciate that a substantial infrastructure of commercial nuclear energy already exists, which is capable of expanding to meet the nation's long-term need for more baseload electricity.

From a regulatory point of view, the United States is actually in a stronger position today to license new nuclear plants than ever before. While there are challenges to the so-called Nuclear Renaissance—which I will address in a moment—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.

The NRC has learned many valuable lessons over the last thirty years. 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, along with design certifications and early site permits. These changes provided a more effective and efficient approach to licensing,

with no compromises on safety or security. I also believe that this approach has encouraged standardization of plant designs and increased attention to developing passive safety systems.

On the question of standardization, many people are not aware that the current operating plants in the U.S. were licensed one by one—which means that almost every plant is different. Other countries, like France, learned from this, and implemented greater uniformity. That is why the U.S. has one kind of cheese and 104 kinds of nuclear plants, but France has one kind of nuclear plant and 104 kinds of cheese.

This is not to suggest that the current operating plants in the U.S. were licensed in any way that was deficient; it was a solid and reliable process, and the strong safety record of nuclear plants over the last several decades is evidence of that. It should be recalled that the most significant nuclear event in the U.S.—the Three Mile Island incident in 1979—was a result of operator error resulting from inadequate training, and not a faulty design. Today, of course, training has been considerably improved, in part thanks to the decades of accumulated experience I mentioned a moment ago. And the next generation of nuclear power plants should be even simpler to operate, with:

- Additional measures to prevent events that might damage the core;
- An extremely robust, leak tight containment; and
- Reduced exposure of operating and maintenance personnel.

These are important factors to keep in mind when critics—of both the nuclear industry and the NRC—claim that nuclear power is too risky and too complicated to meet the nation's energy and environmental challenges. They often add that nuclear plants are too expensive, but it seems to me this point can only be addressed by asking, "Compared to what?" I imagine that you will spend some time at this conference discussing the issue of cap and trade—which would certainly change the economics of energy production in this country very significantly.

Now, I don't mean to suggest that there are no challenges to the worldwide interest in building new nuclear power plants. There are, in fact, several.

I mentioned earlier that the NRC has become a much more efficient agency, and this includes our new streamlined approach to licensing potential new plants. Licensing a nuclear power plant involves two potential steps in advance of an actual application: certifying a plant design and approving a site. 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. Right now, however, we are not seeing full benefits of the improved licensing process. Because of the interest in getting nuclear power plants built and operating soon, some utilities have skipped the opportunity to apply for an Early Site Permit. Others seek to amend the certified designs in their applications.

We will, of course, work to overcome these challenges. The NRC is committed to being an effective and timely regulator, and that has not changed. But we do need to account for the fact that the streamlining we envisioned from our new licensing process is not being fully utilized.

There are also challenges in global supply chain of equipment and components. I have mentioned many times in my speeches that both industry and the regulatory community need to be extremely vigilant in exercising quality assurance to guard against counterfeit or inadequate parts. I don't think I need to go into the details for this audience, but I will share with you one very revealing fact, which you may or may not have heard already. There is a currently a three-year backlog at Japan Steel Works, which is the only facility in the world producing the heavy steel forgings needed for reactor vessels. I would think that, in time, other manufacturers will revive the capabilities they once had to produce these components; but for now, the line for these forgings is long, and getting longer.

Yet the most significant point may be that there is a line. And the people standing in it have done extremely careful calculations to determine if the wait is worthwhile. Evidently, they have decided that it is. Money for new nuclear reactors is being invested, contracts are being signed, and license applications are being submitted. Of course, we will not approve any license application until we are confident that it meets our high standards for safety. We have received nine applications for 15 reactors so far, and expect as many as three or four more applications by the end of the year.

Let me mention at this point that there were concerns expressed by some people that our agency would not be able to handle the extra workload of reviewing a wave of license applications; not to mention reviewing applications for new uranium mining and processing facilities, as well as license renewals and power uprates for existing plants. And the truth is, it has not been easy. But we are doing it. We are staffing up—which means our offices are getting a little cramped; and we have had to locate some temporary office space—but we are meeting our goals. The NRC used to hire 30-50 new people per year. Now we are hiring a net of 200 people per year over a three year period. Most significantly, we created an Office of New Reactors that now has a staff of over 400 people.

So I think that those who claim that nuclear plants are too risky need to consider the strong thirty-year track record in the U.S. Those who say that new nuclear plants are too complicated need to consider the astonishing technological progress that has occurred in the industry, with new plant designs that are expected to be safer and simpler. And those who have said that the NRC was an inefficient regulatory, and would not be up to the job, need to look at the job we are already doing.

In summary, let me conclude by repeating an old saying that I think is appropriate to this topic: "Those who say, 'It can't be done' are usually overtaken by those who are doing it."

Thank you.