Nuclear after Fukushima

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On behalf of ASME and WNA, I would like to extend our congratulations to JSME for their accomplishment in reorganizing this important conference so quickly after the tragic events of last March, indeed in the face of great adversity. In their courage and collective civility in responding to national calamity, Japan has demonstrated traits of national character worthy of wider attention and admiration. We may wonder how many other nations could offer such a model.

Nonetheless, we in the global nuclear industry must now face a hard reality. After years of steady advance in gaining public confidence, the cause of nuclear power as the world's pre-eminent clean-energy technology has suffered a serious blow. We may rightly decry the imbalance, inaccuracy and unfairness in much of the reporting of Fukushima, but we cannot deny that it has inflicted a real scar on the public perception of nuclear power. In regaining ground that was hard-won over years and quickly lost in days, we have a difficult task.

In order to regain public confidence, our essential tools will remain, as they have been in the past, a combination of reliable performance and public education. Our industry must continue, as before Fukushima, to engage with the public and with policymakers on multiple levels: locally through individual companies, nationally through national associations, and internationally through WNA and other organizations. As before, we must be assiduous in explaining the nature of nuclear power and building awareness of the

impressive edifice of self-regulation, national regulation and international standards that governs industry operations.

Certainly we have already learned from Fukushima. But, on reflection, it seems that Fukushima has been educational mainly in reinforcing truths we already knew – about nuclear operations and about public perception and public policy.

In nuclear operations, Fukushima has reminded us of the most fundamental of truths, which is the universal necessity of reliable backup cooling. This principle is elemental, and industry and regulators in every nation with nuclear power are now engaged in extensive measures to ensure the availability of reliable cooling in even the most extreme circumstances

Looking beyond operational conditions, Fukushima has also reinforced truths we already knew about the foundations of public perception and public policy on which nuclear operations depend.

1) Firstly, nuclear accidents happen. In the 25 years after Chernobyl, our industry came to hope that an extended period of safe performance would build a foundation of public acceptance. But the worldwide confusion arising from Fukushima tells us that we should confront more directly the challenge of public education about our technology. Fukushima warns us that most people continue to view any nuclear event with the expectation that it holds the potential for human and environmental catastrophe on a massive scale. What can we do so that policymakers, journalists and

ordinary citizens everywhere are better able to interpret such events whenever they may occur?

2) Secondly, Fukushima underscores the essential safety of nuclear power. This was truly a worst-case nuclear event. Yet, amidst a natural disaster that claimed over 20,000 Japanese lives, Fukushima has produced neither a radiation fatality nor a case of radiation sickness. Nor, according to leading experts, is there any reason to believe that a single human life will be shortened. This is a powerful truth, and it is also true that only a tiny fraction of the public comprehends it.

3) A third truth is that present-day media coverage is more inclined to frenzy than to balance in any event involving nuclear energy. In a world of competitive, round-the-clock, televised news, there is clearly a compulsion to cover any nuclear story as the industrial equivalent of a political corruption scandal. We must expect this tendency to persist so long as we have failed to demythologize nuclear energy. Achieving that would mean creating much wider public understanding of radiation as a ubiquitous natural phenomenon and of the limited consequences of any radioactive release likely to result even from worst-case events.

4) A fourth reality is the bizarre weakness of support for nuclear power in a few technologically advanced European countries. As Europe's leading economic power, Germany is especially remarkable. Acting in the name of environmentalism, Germans will now begin to burn more lignite, coal, and gas, while reverting when necessary to importing their nuclear power.

5) A fifth truth is the solidity of public policy support for nuclear power in most countries now using it. This is especially true in nations planning major programs of nuclear new-build, led by China, India, Russia, Britain, South Africa, and South Korea. In other major nations too, including Brazil, France, Poland, Ukraine, Canada, and the USA, we see little evidence of lost momentum.

6) A sixth and countervailing reality is that public understanding of nuclear power in many countries remains thin and readily susceptible to misimpression. Where we see constancy in policy support for nuclear power, it relies mainly on consensus among policymakers and on nuclear power not becoming, in the country's politics, an ideological litmus-test and political football as it has in Germany.

7) A closely related truth is that the myth of Chernobyl retains a powerful hold on the public mind. Few people understand that the Chernobyl reactor of 1986 bears little relevance to any reactor now operating, and even fewer know that the scientifically analyzed consequences of Chernobyl differ drastically from the common impression that Chernobyl claimed or shortened hundreds of thousands of lives.

8) A final and fundamental truth that reemerges as the frenzy fades is that the economics of nuclear power remain crucial to its future. As the nuclear industry struggles to lower capital costs, it is crucially important that regulatory actions in response to Fukushima are limited to those having real demonstrable benefit arising from any increased costs.

We must now gird ourselves for a post-Fukushima world in which our industry raises the level of its game, both in demonstrating reliable performance and in the work of effective public education. But we can begin this climb with considerable confidence in the assets we bring to the quest. Those assets are two-fold and they are powerful:

• First is the inherent merit of nuclear energy as a uniquely capable clean-energy technology.

• Second is the stern global reality – a combination of vast human need and stark environmental necessity – that compels our world forward toward an ever wider use of this technology.

In the years preceding Fukushima, most major nations in the world reviewed their energy and environment policies and, with few exceptions, came inexorably to the same conclusion: that, for reasons of energy independence and environmental responsibility, nuclear power must play a central role in their energy strategies for the 21st Century. Fukushima has done nothing to alter the facts that led so many different nations to a common nuclear path:

World population will continue its explosive growth – from 3 billion in 1960 to 7 billion today and onwards toward 9 billion by the middle of this century.

World energy demand will, in the lifetimes of our children, increase by a factor of three.

Our world's best climate scientists will continue to warn, with ever greater urgency, that we must, even as global energy consumption triples, cut worldwide carbon emissions by 80% – or risk changes in Earth's climate so radical as to threaten much of civilization.

And, even after Fukushima, it will remain true that the world's nations can achieve this global clean-energy revolution only with a vastly expanded use of nuclear power. It must be reiterated that the world energy situation remains fundamentally unchanged. The world needs huge quantities of clean energy and without nuclear power, the task of achieving clean air and a moderate climate becomes almost impossible.

Our conference over the next few days is a reflection of our solidity in standing together in favour of the application of nuclear technology. I greatly look forward to our discussions and debate.