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Three Presentations from JAIF Annual Conference

Under the keynote theme, “Realizing a Low-carbon Future: Nuclear Power Can Meet Expectations,” the Japan Industrial Forum, Inc. (JAIF), held its 42nd JAIF Annual Conference from April 13 to 15 at the Pacifico Yokohama complex, located in the Minato Mirai area of Yokohama.

With about 1,020 participants – 900 from Japan, plus another 120 persons representing 30 countries and regions – the conference was the venue of many presentations by technologically advanced nuclear countries, as well as by countries hoping to introduce nuclear power.

FOCUS has selected three of the presentations here: the keynote address by JAIF Chairman Takashi Imai, the special address by Japanese Minister of the Environment Tetsuo Saito, and the presentation by Chairman Kazuo Tsukuda of Mitsubishi Heavy Industries, Ltd. (MHI).

Keynote Address by Chairman Takashi Imai, JAIF

As you all know, the world is in the midst of a recession unprecedented in our lifetimes – something that happens perhaps once in a century – triggered by the collapse of Lehman Brothers last September. There are calls for extensive investment in environmentally friendly energies, and one effort – a series of measures known as the “Green New Deal” – is to be commenced extensively. This will be a “low-carbon” revolution aimed at moving beyond our petroleum civilization.

Nuclear generation emits no CO₂ in the power generation process itself. The best and most realistic choice, then – if we are ever to realize a low-carbon revolution – is to actively introduce nuclear generation, itself an integration of various technologies.

This year is an important one because the “post-Kyoto” framework for controlling greenhouse gas emissions is to be decided at COP15 in Copenhagen in December.

To free ourselves from carbon sources, nuclear generation is essential. During the past several

years, the role of nuclear generation has been globally reevaluated, and there is clear movement toward the construction of new plants.

To maintain the nuclear share of total generation, however, in the face of the increasing global demand for energy, several hundred more nuclear power plants (NPPs) will have to be built by around 2030.

Countries advanced in nuclear technology should actively assist those desiring to introduce it – helping them create the necessary legal and regulatory frameworks, as well as physical infrastructure.

Through coordinated action among countries, utilization of nuclear energy must be expanded, taking every opportunity. There must be efforts to include nuclear energy in the clean development mechanism (CDM), and steady promotion of research and development in the area of the fuel cycle.

Even during the period of global stagnation in nuclear development, the drive to build new nuclear plants continued in Japan. As plants were built, the Japanese nuclear industry continued to accumulate ever-higher levels of technological experience. Japan wants to make

use of all of this, and is in an excellent position to serve – to contribute – as a pillar of the global nuclear renaissance.

In the circumstances of a global recession, and as a result of repeated oil-price hikes, we are confronted with the need for immediate action to deal with global warming and to provide stable supplies of energy. There is no energy other than nuclear that can serve as a simultaneous solution to both major problems. It must be part of the foundation for sustainable development.

I am confident that even more of the world will soon come to a common recognition of the importance of nuclear energy, and that today's nuclear renaissance will provide the momentum to expand its use.

Excerpts from Special Presentation "Realizing a Low-carbon Future: Expectations towards Nuclear Power," by Japan's Minister of the Environment Tetsuo Saito

During the past 50 years, temperatures have risen almost twice as fast as in the previous 100. The average temperature in the Northern Hemisphere in the later half of the 20th century is probably higher than it's been anytime in the past 1,300 years. Glaciers have retreated; countries around the world are experiencing abnormal meteorological phenomena – heavy rains, draughts, and heat waves. As the Intergovernmental Panel on Climate Change (IPCC) reported, "It cannot be disputed that the Earth is getting warmer."

Given the environmental consequences, the G8 agreed that while total emissions of greenhouse gases would peak over the next decade or two, they should be reduced to half by 2050.

In order to reduce total global emissions by half, a technologically advanced nation such as Japan must face the challenge of even higher targets than those of countries whose economies are still emerging.

Under the Action Plan for Achieving a Low-carbon Society, decided by the Japanese Cabinet on July 29, 2008, Japan aims at reductions of 60-80% by 2050, and will

announce the quantitative national targets (mid-term targets) sometime during this year. The statement will also clearly call for steady improvement of availability factors at nuclear power plants (NPPs) and the construction of new ones – both urgent issues.

Nuclear generation is expected to contribute significantly to combating global warming, inasmuch as no CO₂ is generated in the power generation process itself. In comparison, for example, with a typical thermal power plant, a 1,350-MW nuclear plant could reduce CO₂ emissions by about 6 million tons annually. That would be equivalent to about 0.5% of all of Japan's CO₂ emissions in 1990.

I visited the Kashiwazaki-Kariwa Nuclear Power Station recently – the first incumbent minister of the environment to do so – to inspect the progress of the recovery work. I am also personally quite proud to have been recently recognized by the Atomic Energy Society of Japan for my more than 30 years of membership.

It may be true that the Ministry of the Environment was seen as reluctant on the question of nuclear energy, but that will not be the case, at least while I am in the position.

If we are in fact going to realize a low-carbon society, it is essential that we promote nuclear generation, premised, as always, on ensured safety and the understanding of local communities.

Excerpts from presentation "Expectations for Nuclear Power to Help Realize Low-carbon Societies in Major Nuclear Countries and Economic Power-The Role of Japan's Industry," by Chairman Kazuo Tsukuda of Mitsubishi Heavy Industries, Ltd. (MHI), concurrently Vice Chairman of JAIF

A nuclear renaissance has been talked about since 2005, founded on nuclear energy's ability to offer a stable supply of energy, its role as a trump card in realizing a low-carbon society (due to there being no CO₂ emissions in the process of power generation), and its relative economic efficiency.

As seen in the statement by the leaders of major powers at the Hokkaido Toyako Summit last year, the need to reduce greenhouse gases is broadly recognized. The International Energy Agency (IEA) has noted that in order to reduce CO₂ by 50% during the period from 2005 to 2050, an average of 32 1,000-MW-class reactors should be built every year. Japan plans to build an additional 15 reactors by around 2020, agreeing that increasing supply capacity is essential. Japan is also promoting FBR development, aiming at commercial operation by around 2050. We are the industry to accomplish such national efforts, and it is our responsibility to play a role.

Manufacturers possess technological capabilities in various areas: (1) engineering, (2) manufacturing, (3) support and (4) procurement. It is by integrating those capabilities that the requirements demanded by society – of securing safety at nuclear plants and improving their economic efficiency – will be met. In other words, individual companies must work within a system that provides consistent responsibility, from conception to maintenance.

So far, the nuclear industry in Japan has exported items of equipment that were ordered individually. From now on, it wants, working hand in hand with the government and utility companies, to provide complete power generation plants to the global market: from manufacturing, construction, and operation to after-service. Domestically, it is our responsibility as manufacturers to operate existing plants smoothly, to steadily promote plans to build new plants, and to develop FBRs expeditiously, even as we put our accumulation of technological resources and experience to work on total plant construction in markets around the world.

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