Japanese Nuclear Energy Policy in 2007[1]

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Thank you, Mr. Martin, for your kind introduction. Good afternoon, distinguished guests, and ladies and gentlemen. It is a great pleasure for me to be invited to give a talk on the Japanese nuclear energy policy at this 2007 Santa Fe Seminar, of which theme is Japan and US: working together for the future.

As you may know, in May this year, the former Japanese Prime Minister Abe presented to the world an initiative to address global warming entitled "Invitation to Cool Earth 50," of which target was to cut global emission of greenhouse gases by 50% from the current level by the year 2050. To realize this target would obviously require an expanded use of nuclear energy, as well as renewable energies, hydrogen, carbon-sequestration technologies and high efficiency energy technologies much beyond any realistic scenarios proposed in the past in both developed and developing countries.

In my view, however, the global nuclear community should live up to the expectation and energetically confront various challenges to obtain and maintain public confidence in nuclear energy by pursuing high quality operation of nuclear power plants, developing sound nuclear infrastructure in countries that want to start nuclear energy use, and promoting high quality research and development to enhance the sustainability of nuclear energy in the future.

In the case of Japan, currently 55 LWRs are operated by ten electric power companies, supplying about 30% of electricity in Japan and contributing to the increase in Japan's energy self-supply ratio from 4 % to 16 %.

The Japan Atomic Energy Commission decided in 2005 the Framework for Nuclear Energy Policy as the basic policy strategy for the Government and industries to follow for ten years or so thereafter, with a view to making the share of nuclear power in electricity generation after the year 2030 similar to or greater than the current level of 30 to 40 % for energy security and environmental protection.

This Framework provides it as a prerequisite for the planning and execution of any actions taken by the Government and industry to incessantly pay attention to

a) Strict limitation of nuclear activities to peaceful purposes;
b) Assurances of safety and security;
c) Assurance of openness and transparency of plant operation and administrative activities and the public participation in policy making;

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d) Promotion of effective and efficient safety regulation;
e) Promotion of a policy to reduce, reuse and recycle wastes;
f) Promotion of international cooperation and contribution; and
g) Promotion of integrated management of operation and administration with incessant assessment of environmental and business risks accompanied;

and then set a portfolio of actions across three different time frames; near-term, medium-term and long-term.

The near-term actions, which are actions for utilizing existing assets as efficiently as possible, are among others to;

a) Make incessant effort to acquire public confidence in operators and regulators;
b) Improve the operation and the technology of existing plants, aiming at longer life and higher availability;
c) Promote the MOX fuel utilization in LWRs, utilizing plutonium recovered and stored in Europe and that to be recovered at Rokkasho Reprocessing Plant that is currently in the final stage of commissioning test.

The medium-term actions, which are actions to add new facilities for replacing existing facilities or expanding the business basis, are among others to;

a) Continue to promote the construction of nuclear power plants, developing new sites;
b) Promote the process to determine the site for a high-level radioactive waste disposal facility;
c) Promote research and development of innovative technologies for the next generation LWRs such as high burn-up fuel, seismic isolation technology and advanced construction technology for standardization, advanced information technology for reducing human error and enhancing on-line inspection and maintenance capability etc., taking into account revolutionary changes in science and technology on the horizon.

The long-term actions, which are actions to develop new products and processes that may open new markets or restructure old ones in the future, are to;

a) Promote the Fast Reactor Cycle Technology Development Project of which objective is to prepare by 2015 conceptual design of a fast reactor and its fuel cycle system that can satisfies performance goals of enhanced safety, reliability and economy, sustainable utilization of fuel, reduced environmental burden and increased proliferation resistance, aiming at their commercial introduction in around 2050.
b) Promote research and development that explore the technologies for utilizing nuclear energy for hydrogen production, fusion energy utilization and so on.

Most of these actions specified have been promoted positively by the Government and industries. At this occasion, therefore, I would like to talk about only those actions that have called the Commissions' intensified attention in recent days.

The first is those related with the occurrence of 16 July 2007 earthquake at Kashiwazaki-Kariwa NPP of Tokyo Electric Power Company, TEPCO. As far as the safety of the plant is concerned, although the earthquake significantly exceeded the level of the seismic input taken into account in the design of the plant, the operating units were automatically shutdown and all plants behaved in a safe manner during and after the earthquake. Furthermore, though the inspection of the plant is still to be done in detail, so far there has been no report of significant damage of safety-related structures, systems and components of the plant.

We are required, however, to demonstrate to the public a) the adequacy of the seismic safety of all nuclear power plants in Japan in view of this earthquake and recent findings and theories in seismology, b) the adequacy of preparedness for emergency situation due to earthquake at nuclear facilities, and c) the adequacy of regulatory decisions to authorize the restart of the plant hit by a big earthquake.

As for the first issue, the Government asked all operators of nuclear power plants to expedite the submission of a report to re-evaluate the seismic safety of their plant in light of the Nuclear Safety Commission's new Regulatory Guide for Reviewing Seismic Design of Nuclear Power Plants decided last year, deliberation of which had been started after January 1995 Kobe Earthquake with a view to introducing into the guide new findings in seismology including the theory that the minimum size of un-identified faults should be larger than that assumed in the guide. The Government also asked operators to review their preparedness to emergencies in the site triggered by an earthquake and other external hazards.

As for the restart of Kashiwazaki-Kariwa Plant, however, TEPCO will need the consent of local communities, in addition to the acceptance by the regulatory authority of the seismic safety evaluation report that takes into account both the result of the complete review of the consequences of the earthquake in the plant and the NSC's new guide.

As a guardian of nuclear energy policy, the AEC asked operators to strengthen communication with people and municipalities in the neighborhood of their plants about what they have done and are doing to review the adequacy of seismic safety and improve the emergency preparedness. At the same time, the Commission repeated the precaution delineated in the Framework for Nuclear Energy Policy that they should establish and sustain effective leadership for risk management, considering the risk arising from earthquakes and other natural phenomena in their business risk management seriously and periodically reviewing their preparedness to emergencies, including public information activities and plans for recovery and/or business continuity in such situation as appropriate, based on the risk assessment updated.

The AEC reminded nuclear safety regulators also the importance of effective leadership and management for safety, and expressed the expectation to review their system of a) identifying safety issues incessantly in the operating experiences and developments in science and technology and seismology, in particular, and timely taking relevant actions, and b) initiating precautionary actions including public information activities without

delay when they sense people's concern that something wrong might happen in nuclear facilities due to the occurrence of natural phenomena or the emission of smoke or noise in the site.

The next topic I would like to touch upon is the delay in the process of a site selection for a high-level radioactive waste disposal facility. In 2004, the nuclear waste management organization (NUMO), an authorized organization to promote the disposal activity, started to invite municipalities to apply for the review of suitability of their places for the siting. However, so far no mayor has successfully applied, since the announcement of a mayor to study the advantages and disadvantages of the application has paralyzed the administrative affairs of the municipal office due to the intense media attention and rallies and demonstrations to protest the announcement.

The Advisory committee on the radioactive waste management for the Ministry of Economy, Trade and Industry (METI) is currently deliberating various proposals for the Government to improve the situation, including to; 1) shoulder the role of communicator to the public and reduce the burden on mayors and governors to an intermediate role at least at the first stage; 2) strengthen public information activities as to the importance of the disposal facility at both national and municipal levels; 3) promote citizen's working sessions to develop prototype plans for the sustainable development of the municipalities that host the facility, based on the fund supplied by the Government from the viewpoint of equity of benefit among the public; 4) promote not only relevant R&D activities but also the utilization of the facilities for such activities and results of R&D for more effective public information activities; and 5) strengthen the review and advisory functions of the Council to the NUMO.

The Commission hopes that these will be decided and implemented without delay.

Finally I would like to touch upon the international cooperation. I think there are three competing national interests in the discussion of international nuclear energy cooperation in Japan. The first interest is to value commitment to international norms of nuclear safety, security and nonproliferation through cooperative activities as the only nation suffered from atomic bombs and a nation of good conduct to global community and Asia in particular. The second is to value relations with the United States of America (USA) based on the recognition that the cooperation with the USA as a good and reliable partner has played a vital role in the promotion of Japan's nuclear energy utilization. The third is to value the strategic self-determination for the improvement of Japan's energy security.

Although various policy options for international cooperation can be identified in various intersections of these three interests described in the diagram in Figure 1, I would like to limit my talk just on the major policies in each intersection in the following.

Needles to say, it is mainly from the first interest that Japan has been making effort to strengthen international nuclear nonproliferation regime, by exerting its utmost diplomatic effort for the promotion of CTBT and FMCT, and universalization of the

additional protocol to the IAEA safeguards agreement, and contributing to the discussion about the establishment of multilateral frameworks for the assurance of nuclear fuel supply.

As for major international cooperation for research and development such as Generation Four International Forum (GIF) and International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) of the IAEA, it can be said that Japan are participating from the first and the third interests, for Japan believes it quite reasonable for the global nuclear community to coordinate research and development activities that pursue the innovation beyond national prestige, and reduce the duplication of efforts at the world level, because innovation of nuclear technology can occur only slowly and at considerable cost. Japan will continue to participate positively in various bilateral and multilateral cooperative activities in the future as far as they are justified from this belief.

Japan is also actively participating in the US led initiatives to deal with challenges of energy, waste, and proliferation that the world faces, such as PSI and Global Initiative to combat nuclear terrorism, as Japan believes that enduring solutions to these challenges will require common approaches, shared aims, cooperation, and consistent effort. These can be categorized as actions in the intersection of the first and the second interests.

On the other hand, in the case of GNEP, which the US originated and is now growing up to a 16 nations partnership, Japan is participating in it positively from the start, as Japan believed that it satisfies all three interest of Japan at the same time.

Finally I would like to stress that Japan has obtained significant gains from mutual communication and cooperation with the US on various issues and projects under the Japan-US nuclear cooperation agreement over years. Examples are cooperation among regulators, operators and R&D teams in both countries for safe, secure and reliable operation of nuclear power plants and related facilities. I am sure that this type of cooperation between relevant parties of Japan and the US will continue to be beneficial to both countries.

A major addition to such existing cooperative activities is Japan and the United States Joint Nuclear Energy Action Plan signed in April this year. It comprises of activities for four main areas: 1) nuclear energy cooperative research and development under GNEP, 2) collaboration on policies and programs that support the construction of new nuclear power plants, 3) establishing nuclear fuel supply assurance mechanisms, and 4) joint collaboration to support the safe and secure expansion of nuclear energy in interested countries while promoting nonproliferation. I understand that several working groups have already been started in accordance with the agreement.

Obviously this is a very important agreement of which activities require consultation and collaboration of a long term nature. The Japan Atomic Energy Commission sincerely hopes that joint activities based on this agreement will grow up to be a firm foundation for the future of our bilateral relationship in this field.

In closing, with a vision that the global community enjoys the benefit of nuclear energy in confronting climate change, Japan and the US, working together with other countries and the IAEA, can and should contribute to the safe, secure and proliferation-resistant expansion of nuclear energy in the 21st century.

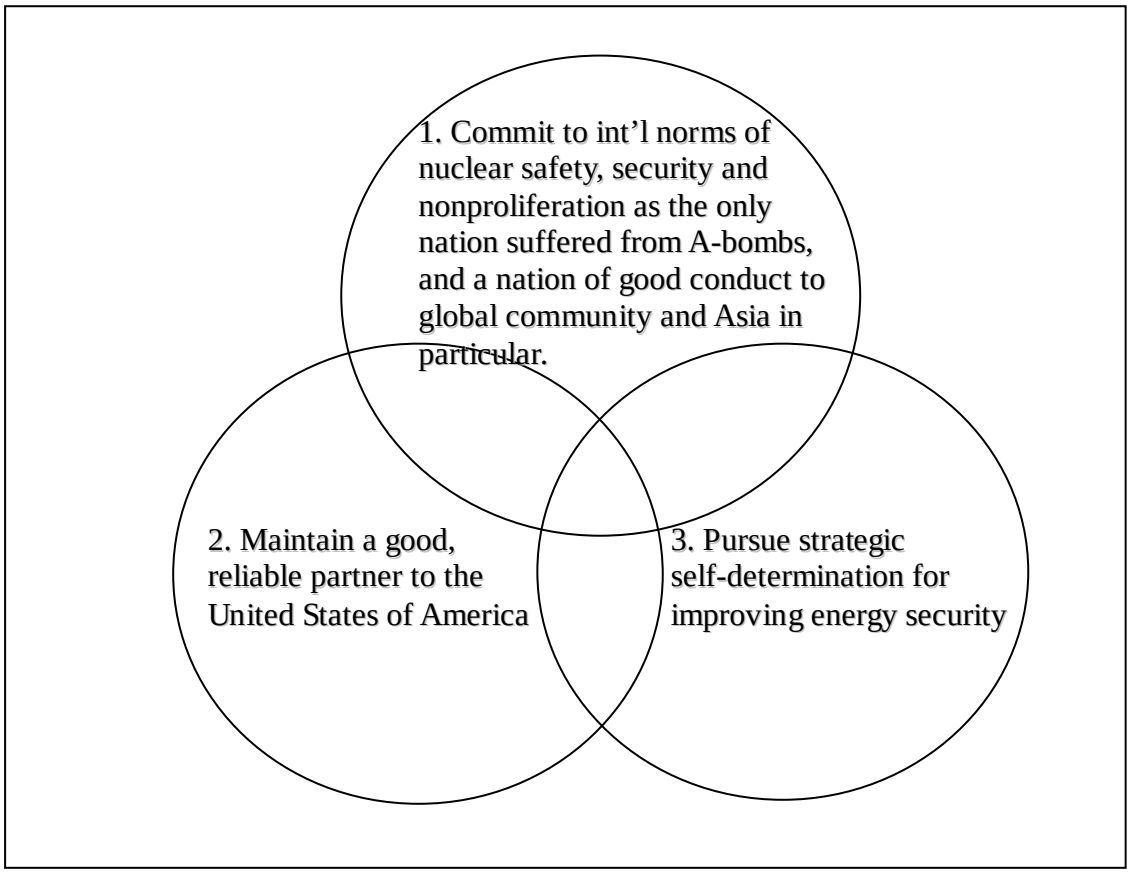

Figure 1 Japan's policy option space for international nuclear cooperation