

Important Nuclear Policy Issues in 2007

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Atomic Energy Commission

The Atomic Energy Commission wishes everyone a happy new year. At the beginning of the new year, the Commission would like to express its views on the important nuclear policy issues we face this year.

1. Present States of Nuclear Energy Utilization

Nuclear science and technology have been used as a means for energy supply and as enablers of innovation in various fields. As for energy supply, there were 442 nuclear power reactors in operation in 30 countries as of October, 2006; these reactors as a group have approximately 370 GWe of generating capacity, and they supply about 16 percent of the world's electricity. Although most of them are located in advanced countries, 16 of 29 reactors under construction are in developing countries. On the other hand, the application of radiation technology is flourishing in the fields of science, health, agriculture, industry, water management, and preservation of the environment, to say nothing of the IAEA's Programme of Action for Cancer Therapy (PACT), which integrates radiotherapy into a broader "cancer control" framework encompassing cancer prevention, diagnosis, and treatment.

Last year there were several notable activities worldwide to appreciate nuclear power generation as a means of assuring a stable supply of energy and as a measure against global warming, including the announcement to choose nuclear power as a prime power supply in some countries. However, it should be also noted that the international community has many concerns about the best ways to deal with the risk of nuclear proliferation raised by the continuation of uranium enrichment activity in Iran, against the Security Council's request of its suspension, and North Korea's nuclear test carried out in October. The international community will continue to face both positive and negative developments related to nuclear technology this year.

In Japan, various activities have been promoted to establish and maintain systems to apply nuclear science and technology to diverse fields, strictly limiting them to peaceful purposes in accordance with the Atomic Energy Act, and utilizing effectively the international trade of nuclear materials and technologies, which is only possible by sincerely observing the Treaty on the Non-Proliferation of Nuclear Weapons. Last year we witnessed several noticeable advances in the field of nuclear power generation and its fuel cycle, including an improvement in the availability of nuclear power stations, prior consent of local governments about MOX fuel loading to the Genkai and Ikata nuclear power plants, and the start of active test operation of the Rokkasho reprocessing plant.

In the research and development areas, a beam acceleration test was started in

J-PARC, which is still under construction, and the repair work of a prototype fast breeder reactor "Monju" advanced smoothly. The fast breeder reactor and its fuel cycle technology were selected to be a nationally prioritized key technology in the "Third Science and Technology Basic Plan" decided at the Cabinet meeting in March last year. Moreover, the Atomic Energy Commission decided a basic policy of promoting the research and development of the fast breeder reactor and its fuel cycle technology for about ten years from now, based on the results of MEXT's examination of the results of the feasibility study on the commercialization of the technology. Significant progress was also made in other research and development fields, including fusion research, for which the signature of the ITER Agreement and the initialing of the Agreement of the Broader Approach to fusion energy development took place.

On the other hand, many issues require strengthened measures to pursue the Commission's policy goals. These include: a) no local government has yet applied to NUMO's invitation to the preliminary investigation for the siting of a final disposal facility for high-level radioactive waste, though several movements toward application were reported: b) several electric utility companies have suspended their activities to introduce MOX fuel loading to their nuclear power plants: c) several electric utilities reported their identification of improper handling of data, which had remained uncorrected until being discovered in the process of an exhaustive check performed under the newly introduced management system for assuring the quality of safety management activity at nuclear power plants.

Furthermore, several more issues must be comprehensively tackled, such as the deliberation of strategy to publicly support the development of next-generation nuclear power plants based on the preliminary survey of the most suitable technology for them, in preparation for the demand to replace today's light-water nuclear power plants currently in operation in 20-30 years. Another issue is the preparation of knowledge management systems that make it possible to pass base technologies essential to the sound maintenance of nuclear industry to the next generation. These include training people who learn maintenance management skills from experts at nuclear facilities, who face the so-called 2007 problem caused by the mandatory retirement of baby boomers.

2. Important Policy Issues To Be Faced With

It is expected that all organizations involved in the administration and execution of research, development, and utilization of nuclear energy should pursue the implementation of the basic policy given in the Framework for Nuclear Energy Policy, decided in 2005, which recognizes both the enormity of public interest and the public hazard potential of nuclear energy. Considering the present status mentioned in Section 1, the Commission believes it important for these organizations to pay due attention to the following issues this year.

Taking Positive Measures To International Trends Involving Nuclear Energy

The international community should respond to the new international activities such as the nuclear test of North Korea and the conclusion of a nuclear cooperation

agreement between the United States and India. Japan, which promotes nuclear energy utilization, and which strictly limits it to peaceful purposes, should be involved and positively participate in the international activities in response. Japan must prepare for and improve nuclear nonproliferation and nuclear security regimes, which include nuclear fuel supply assurance functions and the regulation of nuclear commerce by the nuclear supply country group (NSG). The goal is to improve the environment in which the peaceful use of nuclear energy can be promoted further, without increasing a global nuclear-proliferation risk.

Moreover, while vigorously promoting international cooperation in the research and development of fourth-generation nuclear technologies—which will contribute to the improvement of nuclear safety and the reduction of environmental impact accompanied with the utilization of nuclear energy from a viewpoint of mutual benefit—Japan should maintain a high transparency of the systems for research, development and utilization of nuclear energy and, based on the nuclear technology and the knowledge of its management cultivated in this way, cooperate with the countries that are interested in making nuclear power part of their sustainable development strategies.

Selection Of Preliminary Study Areas For A High-Level Radioactive Waste Disposal Facility

In the selection of preliminary study areas for locating a high-level radioactive waste disposal facility, it is necessary to obtain the understanding of both 1) the head of the municipalities which apply for the study, and 2) the head of the prefecture to which the municipality belongs. Therefore, it is very important for the government and electric utility companies to make efforts toward deepening mutual understanding not only with the people in the municipality but also with the people in the prefecture about the safety and public interest the facility brings to the nation. Moreover, it brings them the possibility of attaining sustainable development through the acceptance of the facility. These efforts should be made by not only the Nuclear Waste Management Organization (NUMO)—which is inviting the application—but also by the government and electric utility companies based on the plan on the final disposal of high-level radioactive waste determined at the Cabinet meeting on September 29, 2000.

Strategic Promotion Of Nuclear Energy Research And Development Activities

To effectively and efficiently promote the research and development of nuclear energy technologies, government, industry, and academia should facilitate not only vertical cooperation among fundamental studies, applied and development studies, and studies for continuous improvement; they should also cooperate horizontally with diverse technology fields by developing and utilizing networks for mutual learning and joint cooperative activities, with a view toward increasing opportunities to create innovations and to make the most of innovations in other fields with one another. This principle should be pursued on an international scale in the case of promoting large-scale research and development projects such as fast breeder reactors and their fuel cycle system development programs, which should be promoted in line with “The Basic Principle of Research and Development for Fast Breeder Reactor Cycle Technology” decided by the Commission in December last year.

Knowledge Management Of Nuclear Field

To sustain the research, development, and utilization of nuclear energy technologies in Japan, it is essential that the coming generations smoothly incorporate the knowledge and experience of matured researchers and skillful workers who will continue to retire. It is essential, therefore, to establish systems for managing knowledge to assure effective knowledge transfer between generations and to develop human resources for the coming generation. It is also important to establish and enhance occasions for the general public to learn about energy, especially nuclear energy, and the relationships between society and nuclear energy. In addition, as shown in the basic policy of promoting the research and development of the fast-breeder reactors and their fuel cycle technologies, it is important in the promotion of research and development of such industrial technologies to create schemes for effectively managing intellectual property, including tacit knowledge that will form the basis for industry to excel in the emerging markets.

Public Hearings And Public Information Activities

Nuclear research, development, and utilization activities such as siting and operation of nuclear power generation and its fuel cycle facilities, introduction of MOX fuel loading, management of high-level radioactive waste, food irradiation, and other issues should be promoted effectively and efficiently by planning safety assurance measures based on scientific and rational judgment from the most up-to-date knowledge; these measures must be implemented with the greatest care and attention, and should be continually improved based on regular reviews. At the same time, however, the government and other operating entities must make constant efforts to communicate what they are doing and understand what the stakeholders concerns are, so as to build trust and credibility with the general public and with the people living in areas around nuclear facilities. Therefore, government and operating entities should continue to enrich public hearing and public information activities, including direct two-way communications.

The Atomic Energy Commission will plan and decide appropriate policy directions in collaboration with related governmental agencies so as to realize steady progress in the research, development, and utilization of nuclear energy. It will pay careful attention to the above-mentioned points, and continually evaluate the activities of concerned organizations to pursue the basic policy depicted in the Framework for Nuclear Energy Policy. It will also listen to the opinions of various sectors, including specialists, general citizens, municipal corporations, and policy proposal groups. The Commission sincerely hopes that everyone will support and cooperate with us by giving us thoughtful and accurate criticisms and proposals.