

Current Nuclear Energy Updates January-July 2005

Start of operation of Japan's 53rd commercial reactor

On January 18, the Hamaoka Nuclear Power Plant Unit 5 of Chubu Electric Power Co., Inc., began operations. This unit is an advanced boiling water reactor (ABWR) with an output of 1,380MW, the largest capacity in Japan.

Establishment of new nuclear support organization

On April 13, the Japan Nuclear Technology Institute (JANTI) was established through the integration of the Nuclear Information Center of the Central Research Institute of Electric Power Industry, the Nuclear Safety Network (NS Net), and other organizations. In cooperation with the Japanese nuclear industry, JANTI will formulate guidelines to promote nuclear technology.



The Hamaoka Nuclear Power Plant

Signing of basic agreement on MOX fuel fabrication site

On April 19, Aomori Prefecture, the village of Rokkasho and Japan Nuclear Fuel Limited (JNFL) signed a basic agreement of cooperation for the site selection of a MOX fuel fabrication plant. On April 20, JNFL filed an application to the Minister for Economy, Trade and Industry for the construction of the MOX fuel fabrication plant.

Start of Japan's largest nuclear research institute

On July 22, it was announced that the Japan Atomic Energy Agency, a new organization which integrates the Japan Atomic Energy Research Institute and the Japan Nuclear Cycle Development Institute and the Japan Nuclear Research and Development Institute, will be established in October 2005. The Ministry of Education, Culture, Sports, Science & Technology has appointed Mr. Yuichi Tono-zuka, president of the Japan Nuclear Cycle Development Institute, as the first president of the new institute.

Final draft of Nuclear Policy Framework

On July 28, the Atomic Energy Commission of Japan finalized its General Framework of Nuclear Policy, which states the principles of Japan's nuclear policy. The draft supports the building of new nuclear power plant in Japan based upon public understanding and maintaining the spent fuel reprocessing policy in Japan.

Feature:

Study of medium- to long-term nuclear issues

On July 19, the Nuclear Subcommittee, which serves as the body to the Ministry of Economy, Trade and Industry (METI), undertook its study until June 2006 of various medium- and long-term issues regarding the promotion of nuclear power generation. (For description, see page 3)

Start of Study for Nuclear Future

ON JULY 19, the Nuclear Subcommittee of the Electricity Industry Committee, which serves the METI Advisory Committee for Natural Resources and Energy, commenced its study for the nuclear future.

- The Nuclear Subcommittee will discuss the following major issues concerning nuclear energy in Japan.
- 1) Simultaneous promotion of nuclear power and liberalization of the electric market;
 - 2) Role-sharing between public and private sectors regarding the second reprocessing plant and fast breeder reactors;
 - 3) Technological development of next-generation Light Water Reactors;
 - 4) Waste-related problems, including the substitution of radioactive waste returning to Japan, the possibility of side-by-side disposal of TRU waste and high-level radioactive waste.

The Subcommittee will discuss these issues for approximately one year with the goal of achieving the following three important pillars embodied in the basic policy of the Nuclear Policy Framework.

Major challenges facing Japan’s nuclear power industry
<div><div>(1) Demand</div><div>· Uncertain demand estimates owing to progress in liberalization of the electric power market and weakened demand</div></div> <div><div>(2) Prolongation</div><div>· Shortened horizon for investment decisions concurrent with the liberalization of the electric power market, yet the time required for site selection</div><div>· Long-term reimbursement period for nuclear power plants</div></div> <div><div>(3) Effective utilization of existing reactors</div><div>· Measures to cope with sluggish capacity factor and aging problems</div></div> <div><div>(4) Construction of new reactors</div><div>· Huge cash outlays and large initial investment depreciation</div><div>· Securing a new plant site</div></div> <div><div>(5) Technology and human resources requirements</div><div>· Maintain the required level of technology and human resources in the nuclear industry in Japan until approximately 2030 – timing of large-scale alternative plants construction</div></div> <div><div>(6) Strengthened ties with local entities</div><div>· Steps to maintain a positive relationship with the local government and the local communities</div><div>· Measures to support local communities in site selection</div></div> <div><div>(7) Nuclear industry</div><div>· Further development and establishment of a globally competitive nuclear industry</div></div> <div><div>(8) Nuclear fuel cycle issues</div><div>· Second reprocessing plant: In addition to technological development, efforts to address accounting system to recover costs and role-sharing between the public and private sectors.</div><div>· Fast breeder reactors: Implementation of research studies for FBR commercialization policy by 2015; preparing a scenario for commercialization; preparation of scenario to start FBR commercial operation by about 2050; and promotion of role-sharing between the public and private sectors</div></div> <div><div>(9) Radioactive waste</div><div>· Selection of a final disposal site for high-level radioactive waste</div><div>· Consideration of the side-by-side disposal of TRU waste and high-level radioactive waste</div><div>· Establishment of rules for low-level radioactive waste from overseas</div></div> <div><div>(10) International issues</div><div>· Measures for the simultaneous pursuit of non-proliferation and peaceful use of nuclear power</div><div>· Global development of the Japanese nuclear industry</div></div>

Three Important Pillars of the Nuclear Policy Framework

- a. “Nuclear Fuel Cycle” -A comprehensive evaluation of four basic scenarios, including direct disposal, with respect to ten factors, including safety, economic efficiency, energy security, and environmental suitability, concluded that spent fuel should be reprocessed, and plutonium and uranium recovered from reprocessing should be effectively utilized.
- b. “Energy and Nuclear Power Generation”- From the viewpoint of energy security, nuclear power will account for 30 percent to 40 percent of all electricity generation in Japan in 2030 and thereafter.
- c. “Fast Breeder Reactor Technology” - Fast breeder reactor technology should be introduced on a commercial basis from approximately 2050.

At its first meeting, the Nuclear Subcommittee identified the ten issues listed at left, on page two regarding Japan’s nuclear policy and decided to establish a Subcommittee on Radioactive Waste and a Subcommittee on Nuclear Fuel Cycle Technology.

Establishment of Radioactive Waste Subcommittee
<div>The Subcommittee on Radioactive Waste was established under the Nuclear Subcommittee to discuss policy issues related to the processing and disposal of radioactive waste, based on the deliberations of the Council for Establishing a New Plan under the Nuclear Committee of Japan.</div> <div><div>Principal subjects for discussion:</div><div>· Disposal of high-level radioactive waste</div><div>Revision of disposal plan</div><div>Review of final disposal costs and unit price of contributions</div><div>Method of securing final disposal site</div><div>· Returned waste</div><div>Return shipment of vitrified waste (solidified low-level liquid waste) from COGEMA in France</div><div>Return of high-level radioactive waste from BNFL in England in exchange for low-level radioactive waste (vitrified waste), a concept called “substitution” (adequacy of indices, required systems, etc.)</div><div>· Disposal of TRU waste</div><div>Side-by-side disposal of high-level radioactive waste and TRU waste</div><div>Concept of the organization responsible for TRU waste disposal, and involvement of the Japanese government in the disposal project</div></div>

Establishment of Subcommittee on Nuclear Fuel Cycle Technology
<div>The Subcommittee on Nuclear Fuel Cycle Technology was established based upon the need for continued investigation into the technological problems relative to various nuclear fuel cycle projects.</div> <div><div>Objective</div><div>As a neutral organization, this subcommittee is expected to provide appropriate advice to the private sector regarding technological problems, including technological transfer from the Japan Nuclear Cycle Development Institute and other organizations; establishment of technologies by private companies; and international technological cooperation in various nuclear fuel cycle projects (uranium enrichment, MOX fuel fabrication, reprocessing, etc.). The subcommittee is also expected to enhance the transparency of investigations on these issues through the advisory process.</div></div>

The electric utilities recognize these issues play a significant role concerning nuclear power generation and the stable development of nuclear energy. Therefore, we maintain our commitment to conduct forward-looking investigations and discussions. Concerning the “simultaneous pursuit of the promotion of nuclear power and the liberalization of the electric power industry,” it is essential to create an environment which supports nuclear power generation, including nuclear fuel cycle projects, in order to successfully promote nuclear power generation.