

## **Nuclear Power Generation in the World and in Japan**

Tomoko Murakami, Group Leader

Nuclear Energy Group, Strategy and Industry Research Unit

In the midst of the global warming issue, which became more acute during 2007, it was also a year when ever-increasing attention was drawn to nuclear power generation as a promising alternative that can coexist with a stable supply of energy. Around the world, first in the United States, approaches to build new nuclear power stations took form for the first time in 20 years, and five electric companies filed Combined License (COL) applications for the construction and operation of nuclear power facilities with the United States Nuclear Regulatory Commission (NRC). Many more electric companies are scheduled to file applications in 2008, but attention is now being attracted as to how many companies will actually file such applications, and reviews will be started. In addition, attention is also drawn to uncertainties associated with the progress of approval and license processes, policies of each presidential candidate, and investment risk assessments from the viewpoint of financial institutions.

On the one hand, Russia enacted a law, which comprehensively controls the domestic nuclear power industry under the governmental supervision. It is expected that the Angarsk uranium enrichment facility will be placed under IAEA safeguards in 2008, and following an agreement with Iran to supply nuclear fuel, attention will be drawn to a nuclear fuel cycle concept. There is a move in the United States to start a laser uranium enrichment business in which both GE-Hitachi will participate, and it is expected that competition in the field of nuclear fuel cycles will become active. Russia's level in nuclear fuel cycle technology is very high when compared with the performance of Japanese or American atomic power industry, and it is a powerful competitor for atomic power enterprises in both countries in addition to Areva, France.

The Japanese nuclear power industry faced a great ordeal in 2007, which was the unplanned shutdown of all the reactors at Tokyo Electric Power's Kashiwazaki-Kariwa Nuclear Power Station. Attention has been drawn to the outcome of technical verification and reviews based on the new seismic guidelines for the entire nuclear power station toward restart. In addition, in 2008, it is

expected that a new inspection system, including reviews of periodic inspection intervals, will come into operation by turns, and the nuclear energy industry has strongly requested that the electric factor of existing nuclear power stations be enhanced on the condition that safety is secured.

On the other hand, nuclear power related plant manufacturers have clearly announced their positive international business rollout, including the establishment of a joint venture between GE and Hitachi and the establishment of a new company in France by Mitsubishi Heavy Industry and Areva. On the basis of superior manufacturing technologies in which they have advantages, Japanese plant manufacturers are expected to participate in many projects including international cooperation in the United States and new markets in Asia. Markets other than the United States, including the United Kingdom, China, and India, may be mentioned. In particular, attention will be drawn to the outcome of discussions with India about nuclear cooperation in association with the issues relating to nuclear nonproliferation

Contact: [report@ky.ieej.or.jp](mailto:report@ky.ieej.or.jp)