

Current Nuclear Energy Updates: February-October 2009

The DPJ's New Administration and Its Environmental and Nuclear Energy Policies

The Japanese Diet's Lower House elections held on August 30, 2009, resulted in a landslide victory for the Democratic Party of Japan (DPJ) and allowed the launch of a new DPJ administration. In its election manifesto, the DPJ set a 2020 target of a 25% CO₂ reduction below 1990 levels, which is twice as stringent as the goal of the former Liberal Democratic Party administration. In terms of nuclear power generation, even the previous administration's CO₂ reduction target would have required the construction of nine additional nuclear power plants with a combined capacity of 6,510MW.

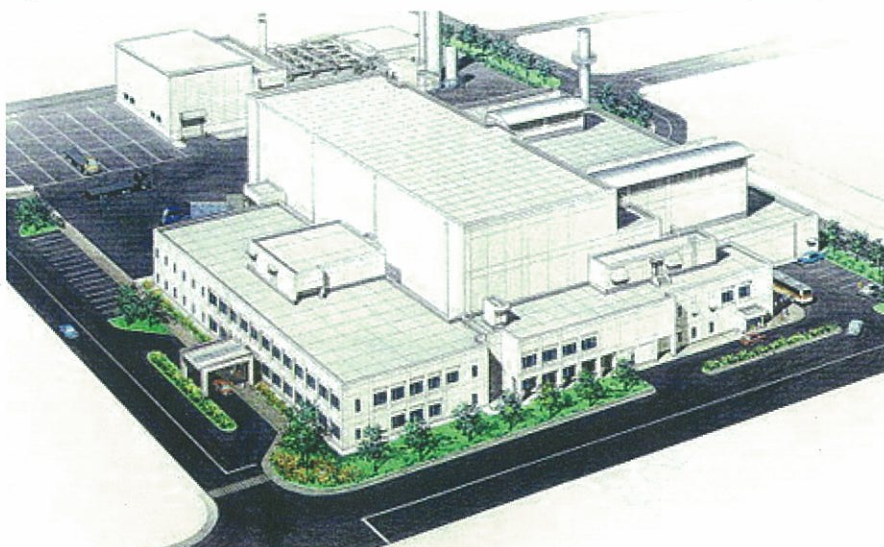
While the DPJ's election manifesto states that they will take steady steps toward the use of nuclear power, the administration's nuclear energy policy has yet to be clarified, and some observers point out that the DPJ has formed a coalition with the Social Democratic Party, which opposes nuclear power generation. Nevertheless, to date, no significant change to nuclear power policy has been observed. The electric power companies of Japan anticipate that nuclear power will only grow in importance, particularly in light of the new administration's climate targets. Whatever the case, we remain fully committed to achieving smooth progress in the development of nuclear power generation and the nuclear fuel cycle, based on a safety-first principle.

P O W E R T O P I C S

Progress of MOX Fuel Use

The world's oil, natural gas, uranium and other energy resources are not inexhaustible. Japan's self-sufficiency rate for energy resources is very low at about 4%, and therefore promoting the nuclear fuel cycle, in which plutonium is recovered from spent nuclear fuel and converted into fresh "mixed-oxide" (MOX) reactor fuel, is an important means of both conserving uranium and securing a steady supply of energy.

Meanwhile, Japan has made a pledge to the international community that it will not possess any unneeded or surplus plutonium. Therefore, the expedient, successful and safe implementation of our MOX fuel program is important not only for energy security, but also to help ensure that our plutonium is used only for peaceful purposes.



JNFL's MOX Fuel Plant (Conceptual Drawing)

Progress of MOX Fuel Use

The use of MOX fuel is a very important policy for Japan and, as such, it has been planned and promoted since the early days of nuclear power development. Currently, eleven companies, including nine Japanese electric utilities, the Japan Atomic Power Company (JAPC) and the Electric Power Development Co., Ltd (J-POWER) aim to initiate the use of MOX fuel at 16 to 18 nuclear reactors by fiscal 2015 at the latest. To date, steady progress can be seen.

In May 2009, three electric utility companies—Kyushu EPCo., Shikoku EPCo. and Chubu EPCo.—safely completed transport of MOX fuel from France. Of these three companies, Kyushu EPCo. completed the loading of MOX fuel into its Unit 3 reactor at the Genkai Power Station on October 18 during a planned off-line inspection. The resumption of Genkai-3 operations scheduled for December of this year will mark the first commercial commencement of MOX fuel use in a thermal reactor in Japan.

Shikoku EPCo.'s Ikata-3 and Chubu

EPCo.'s Hamaoka-4 are carrying out activities such as inspections of MOX fuel in preparation for the start of fuel utilization, and the other companies are in various stages of obtaining approvals and entering into fuel fabrication contracts. J-POWER's Ohma Nuclear Power Plant, which is designed to run exclusively on MOX fuel, is under construction to start commercial operations in November 2014.

Once all 16 to 18 nuclear reactors have commenced MOX fuel utilization, they will consume between 5.5-6.5 tons of fissionable plutonium annually, leading to a steady decrease in plutonium supply from Japan's current levels. All of the recovered overseas plutonium will be brought back to Japan in the form of MOX fuel to keep pace with the progress of MOX fuel use at domestic nuclear power plants.

To ensure a steady supply of nuclear fuel in the future, Japan has promoted the construction of domestic reprocessing and MOX fuel fabrication plants at Rokkasho Village. Japan Nuclear Fuel Ltd. (JNFL) is in its final

MOX-Use Program (referred to as the Plutothermal Program in Japan)

Electric power company (EPCo.)	Number of units under plutothermal programs	Nuclear Power Plants (NPPs) with plutothermal programs	Remarks
Hokkaido EPCo.	1	Tomari-3	Prior consent already gained based on the safety agreement. Now filing application for a license amendment for loading MOX fuel
Tohoku EPCo.	1	Onagawa-3	Now filing application for a license amendment for loading MOX fuel
Tokyo EPCo.	3-4	3 or 4 units at TEPCO's NPPs	Declaring a basic policy to regain the trust of the local community
Chubu EPCo.	1	Hamaoka-4	To be implemented in fiscal 2010
Hokuriku EPCo.	1	Shika NPP	Committed to ensuring the trust and sense of security of the local community
Kansai EPCo.	3-4	Takahama-3 and 4, 1 or 2 units at Ohi NPP	To be implemented in fiscal 2010 as for Takahama NPP
Chugoku EPCo.	1	Shimane-2	Prior consent already gained based on the safety agreement. Application for a license amendment for loading MOX fuel has already been permitted
Shikoku EPCo.	1	Ikata-3	To be implemented by fiscal 2010
Kyushu EPCo.	1	Genkai-3	To be implemented by fiscal 2010
JAPC	2	Tsuruga-2, Tokai-2	Committed to gaining understanding of the local community
EPDC	1	Ohma NPP	To be implemented in fiscal 2013
Total	16-18		

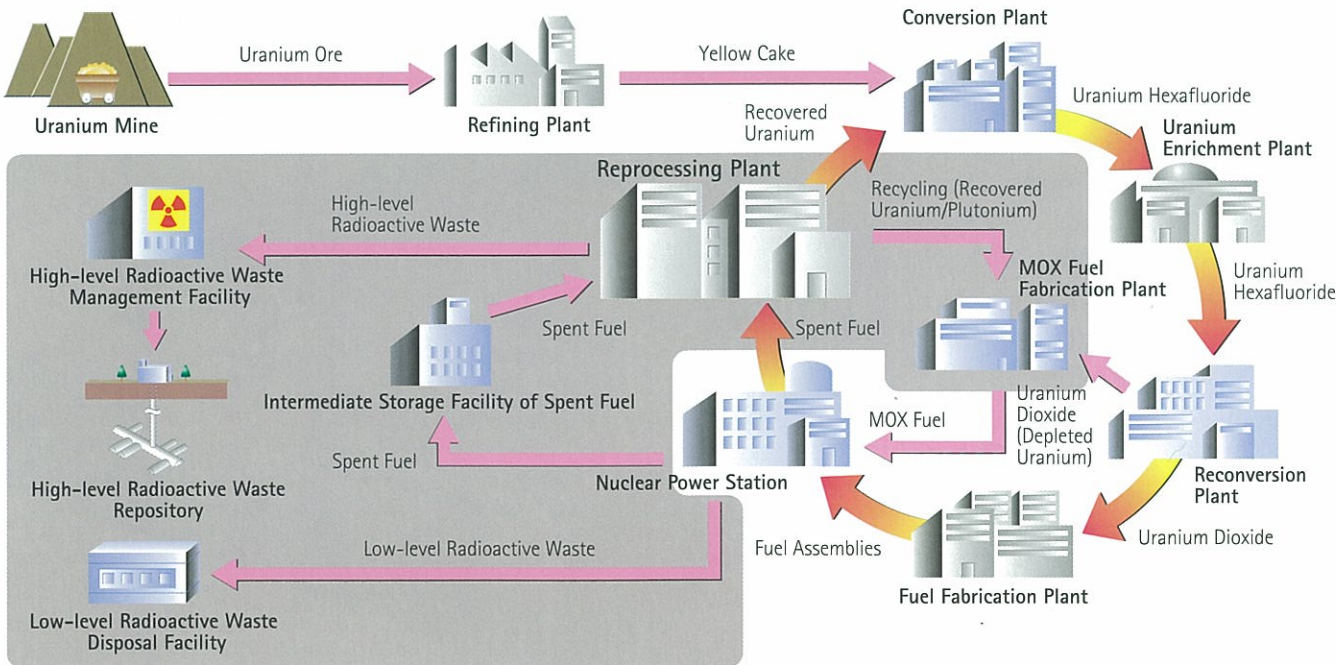
stages of testing the reprocessing plant in preparation for scheduled commercial operations in October 2010. The Rokkasho MOX fuel fabrication plant, which is scheduled to commence operations in June 2015, will fabricate all the plutonium recovered at the Rokkasho Reprocessing Plant into MOX fuel.

In accordance with Japan's policy not to possess any unneeded or surplus plutonium, the 11 Japanese electric power companies are committed to fully commencing MOX fuel use by fiscal 2015 at the latest, when the Rokkasho MOX Fuel Fabrication Plant is scheduled to come on line.

Nonproliferation Measures at Rokkasho Reprocessing Plant

The Rokkasho Reprocessing Plant will recover plutonium in the form of MOX powder, which has proliferation-resistant capabilities. Comprehensive and strict IAEA safeguards are applied in order to conclude that all nuclear materials in the plant are processed as declared and used only for peaceful activities. The Japanese safeguards authority and the IAEA independently verify the results of JNFL's material accountancy and monitor the plant on a 24-hour basis.

The Nuclear Fuel Cycle



Construction of Nuclear Power Plants

As of November 2009, a total of 53 nuclear reactors are in commercial operation in Japan and three others are under construction. The Tomari 3 Reactor of Hokkaido Electric Power Company (EPCo.), which has been under construction since November 22, 2003, is scheduled to start commercial operations in December. The reactor reached 100% capacity during its commissioning in July of this year. Chugoku EPCo.'s Shimane 3 Reactor and J-POWER's Ohma Nuclear Power Plant remain under construction; they are expected to commence operations in 2011 and 2014, respectively.

Also worthy of note is that Kyushu EPCo. received the Minister of Economy, Trade and Industry's recommendation concerning a draft environmental impact assessment statement for Sendai Power Station Unit 3 on October 2. This is significant because both Minister of Economy, Trade and Industry Masayuki Naoshima and Minister of Environment Sakihito Ozawa, who submitted his opinions to the Economy, Trade and Industry Minister in the new administration on September 28, insist on making the most of this plant, with safety principles in place, in order to reduce CO2 emissions.



Tomari Nuclear Power Plant

Nara: The Ancient City

In 2010, Nara Prefecture will celebrate the 1,300th anniversary of Heijo-kyo, the ancient city located within present-day Nara. Heijo-kyo served as the capital of Japan for much of the Nara period (710-794). Eight historic monuments and natural areas here, including the remains of Heijo-kyo, have been registered as World Heritage Cultural Properties.

Remains of Heijo-kyo

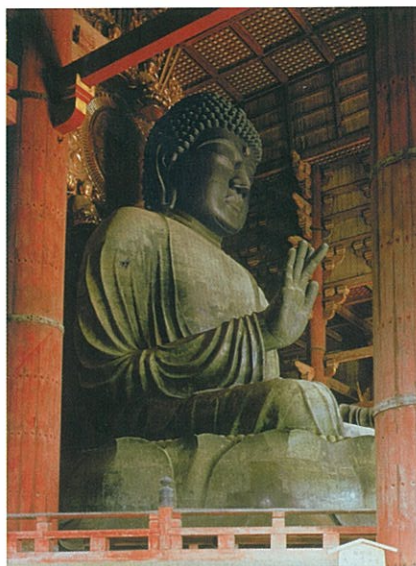
Next year will mark the 1,300th anniversary of the relocation of the capital of Japan from nearby Fujiwara-kyo to Heijo-kyo in 710. In Heijo-kyo, a constitutional form of government was established and during that time, Japan encouraged interaction with China, Korea and other countries, which helped to consolidate the foundations of this country's society and culture.



The gate located at the remains of Heijo-kyo

The Great Buddha of Todai-ji

This temple, typical of temple architecture from the Nara period, houses the Great Buddha statue.



The Great Buddha of Todai-ji

The Hall of the Great Buddha is one of the largest wooden buildings in the world. Emperor Shomu officially announced commencement of building of the Great Buddha in 743 and consecration of the Great Buddha was held in 752. Subsequently, successive temple buildings were built, and the entire precinct was completed in about 40 years. The temple has burned down



Travel information

About 3 hours from Tokyo by Shinkansen and local trains.
About 45 minutes from Osaka by local trains.

and been rebuilt twice: many of the buildings seen today were reconstructed during the Edo period (1603-1867).

Nara Park

This vast park stretches over some 500 hectares. There are wild deer here which can be seen year-round. Deer are thought to be messengers from the gods, and are thus protected. The park is located in the eastern part of Nara, and serves as a symbol of the ancient city. Nara is best described as a city where one can find the Great Buddha, temples, green fields and roaming deer.



Nara Park

Specialties of Nara

Nara-zuke pickles are made by salting cucumbers, eggplant, melons, ginger and other vegetables, and pickling them in fresh sake lees. These pickles are rich with the flavor of sake lees.

Kaki-no-ha-Sushi, persimmon leaf sushi, is made by placing a slice of salted mackerel or salmon on a ball of marinated sushi rice,

which is then wrapped in persimmon leaves. The sushi is placed in a box and covered with heavy stones overnight. The added fish flavor and aroma of the persimmon leaves make the sushi rice very flavorful. The leaves should be removed before consumption.

Nara-zuke pickles



Kaki-no-ha-Sushi
(persimmon leaf sushi)

PowerLine JAPAN is published and distributed by The Federation of Electric Power Companies of Japan.
Home Office: Keidanren Bldg., 3-2, 1-Chome, Ohtemachi, Chiyoda-ku, Tokyo 100-8118, Japan Tel: +81-3-5221-1440 Fax: +81-3-6361-9024
Website: <http://www.fepc.or.jp/english/index.html>
Washington Office: 1901 L Street, N.W., Suite 600, Washington, D.C. 20036, U.S.A. Tel: +1-202-466-6781 Fax: +1-202-466-6758
Website: <http://www.japannuclear.com>
In case of address changes, please contact us at webadminfepc2@fepc.or.jp.
©2009 by The Federation of Electric Power Companies of Japan. All rights reserved. Printed in Japan on recycled paper.

Credits (p.4): Nara City Tourist Association (left and top right); amanaimages (top center, bottom center and bottom right)