



Ikata Nuclear Power Plant

# Electricity sector deregulation one of the keys to Japan's plan of resurrecting nuclear power

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More than four years after a massive tsunami struck the island country, the tragedy of Fukushima still haunts Japan, a powerhouse economy dependent on nuclear energy. The accident, brought forth by a massive magnitude-9 earthquake, has sent ripples from Japan to other countries, questioning current safety frameworks of nuclear power plants and emergency response mechanisms in times of catastrophic disasters.

The March 2011 disaster at the Fukushima I Nuclear Power Plant has cast a shadow of doubt on the future of nuclear energy in the country, despite the Japanese government's plan to restart some nuclear plants this year. "Nuclear power has been a cornerstone of Japanese energy policy since the mid-1970s and before Fukushima, accounted for approximately 30 percent of electricity production," says **Steve Kidd**, independent nuclear consultant and economist with East Cliff Consulting.

At that time, Japan ranked as the third-largest nuclear power generator in the world behind the United States and France. Natural gas and coal were the primary fossil fuels used in Japan, making up about 30% and 24% of Japan's electricity mix, respectively, in 2010. Oil, one of



Jonathan Cobb



Akira Tokuhiro



Tony Segadelli

the most expensive and least-clean fuels to burn, accounted for just 7% of power generation in 2010. Renewable energy made up about 11%, mostly from hydro-electric generators, says **Candace Dunn** of the United States Energy Information Administration who notes that after the meltdown at Fukushima Daiichi, the country proceeded to shut down almost all of its nuclear fleet.

Dunn says that in 2013, two years after the accident, more than 86% of Japan's generation mix was composed of fossil fuels. In 2014, Japan's nuclear generation was zero.

### Pre-Fukushima accident

Prior to the Fukushima accident and the gradual displacement of all of Japan's nuclear generation, nuclear generation represented 27% of Japan's net power generation in 2010. "Following the Fukushima accident, nuclear's share of electricity generation declined, and energy conservation measures were enforced for larger businesses and highly encouraged for smaller consumers. Japan's utilities initially substituted the lost nuclear generation with natural gas, heavy fuel oil, crude oil, and coal, but oil-fired generation began declining in 2013, as Japan relied more on natural gas and coal. Meanwhile,

almost 4 gigawatts of additional coal capacity came online in 2013, increasing the share of coal-fired generation. Japanese utilities have proposed building several additional natural gas- and coal-fired power plants to replace aging generators and to serve the country's high electricity demand," says Dunn.

Despite the biggest nuclear disaster since Chernobyl, the Japanese government is still keen on the use of nuclear energy to reduce the current energy supply strains and alleviate high electricity prices. "To achieve this, more than half of the operable reactors need to return to service and it would be necessary to commission new units as time passes. At the moment, only Ohma 1 is under construction," Kidd says. He adds that another important issue in resurrecting the nuclear power industry in Japan is the proposed deregulation of the country's electricity sector. It has already begun with the limited competition for bigger customers cutting across regional Japanese power companies, but the electricity market is due to be deregulated in April 2016. "How this will affect nuclear power plants remains to be seen," Kidd says.

The country's new energy policy, issued in 2014, emphasizes energy security, economic efficiency and greenhouse gas