

THE END OF AN ERA? FINAL JAPANESE NUCLEAR POWER PLANT TO SHUT DOWN SUNDAY



Damage at Fukushima Daiichi as seen on March 18, 2011. (photo: DigitalGlobe)

Before the massive earthquake and tsunami in Japan on March 11, 2011, about a third of the country's electricity was supplied by the 54 nuclear power plants scattered throughout the country. In the intervening time, those nuclear reactors not directly damaged on March 11 have been shutting down for inspections and public opposition is preventing their re-start. The final plant remaining online, the number 3 reactor at the Tomari plant in Hokkaido, will be powered down late Saturday night into Sunday morning.

The Washington Post describes the political process by which the plants have been shut down:

The break from nuclear power is less a matter of policy than political paralysis. Japan's central government has recommitted to nuclear power in the wake of last year's triple meltdown at

Fukushima Daiichi, but those authorities haven't yet convinced host communities and provincial governors that nuclear power is necessary – or that a tarnished and yet-unreformed regulatory agency is up to the job of ensuring safety.

Because Japan depends on local consensus for its nuclear decisions, those maintenance checkups – mandated every 13 months – have turned into indefinite shutdowns, and resource-poor Japan has scrambled to import costlier fossil fuels to fill the energy void.

Before the Fukushima accident, Japan operated 54 commercial reactors, which accounted for about one-third of the country's energy supply. But in the last year, 17 of those reactors were either damaged by the March 11 earthquake and tsunami or shut down because of government request. Thirty-six others were shuttered after inspections and have not been restarted.

The New York Times has more on the political standoff:

The showdown between local and national leaders has played out in recent weeks at a plant in Ohi, near Osaka, which the government of Prime Minister Yoshihiko Noda has set up as a crucial test case of Japan's nuclear future. Two reactors at the idled plant were the first to pass simulated stress tests meant to show that most reactors, unlike those at the Fukushima plant devastated in last year's earthquake and tsunami, could withstand similar disasters. The administration trusted that Ohi's reactors would be back in operation by now, or at least would receive local approval to start up soon.

Instead, the central government has

found itself battling an improbable adversary: Osaka's mayor, Toru Hashimoto, the young, plain-speaking son of a yakuza gangster who has ridden Japan's loss of faith in government to become, seemingly overnight, the country's best liked politician, according to recent polls.

He has won widespread public support by giving voice to deep-seated public suspicions that the Tokyo government is rushing to promote the interests of the powerful nuclear industry at the expense of public safety – a situation that many Japanese now blame for leaving the Fukushima Daiichi plant so vulnerable in the first place.

Reuters explains that if Japan makes it through the upcoming summer without major power outages while the nuclear plants remain offline, it may well be the end of the nuclear power era in Japan:

The shutdown leaves Japan without nuclear power for the first time since 1970 and has put electricity producers on the defensive. Public opposition to nuclear power could become more deeply entrenched if non-nuclear generation proves enough to meet Japan's needs in the peak-demand summer months.

"Can it be the end of nuclear power? It could be," said Andrew DeWit, a professor at Rikkyo University in Tokyo who studies energy policy. "That's one reason why people are fighting it to the death."

Japan managed to get through the summer last year without any blackouts by imposing curbs on use in the immediate aftermath of the earthquake and tsunami. Factories operated at night and during weekends to avoid putting too much

stress on the country's power grids. A similar success this year would weaken the argument of proponents of nuclear power.

"They don't have the polls on their side," said DeWit. "Once they go through the summer without reactors, how will they fire them up? They know that, so they will try their darndest but I don't see how."

The Guardian points out both the economic and potential environmental costs of the plants remaining offline:

Over the past 14 months, dozens of nuclear reactors not directly affected by the tsunami have gone offline to undergo regular maintenance and safety checks, while utilities have turned to coal, oil and gas-fired power plants to keep industry and households supplied with electricity – imports that contribute to Japan's first trade deficit for more than 30 years last year.

Japan, already the world's biggest importer of liquefied natural gas, bought record amounts of LNG last year to replace nuclear. The international energy agency estimates the closure of all nuclear plants will increase Japanese demand for oil to 4.5m barrels a day, at an additional cost of about US\$100m a day.

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Critics of the nuclear shutdown have also highlighted the impact more fossil fuel power generation will have on Japan's climate change commitments. Even big investors in renewables, such as the Softbank chief executive Masayoshi Son, concede it will take time for them to have any real impact on the country's

energy mix.

They will be buoyed by a new environment ministry panel's assertion that Japan can still reduce its greenhouse gas emissions by 25% by 2030 from 1990 levels without nuclear, through energy saving and the quicker adoption of renewables, which it hopes will account for between 25% and 35% of total power generation by 2030.

Will Japan be able to avoid large blackouts when summer demand reaches its peak? If so, look for the nuclear advocates to fail in their attempts to bring the power plants back online. However, if power generation falls so far short of demand that citizens are left without air conditioning and businesses have to cut back on production of goods (and presumably lay off workers) nuclear power advocates feel they will have a stronger argument to make for bringing the nuclear plants back online. Surely, none of the players involved would game the system to get the outcome they want. After all, the US showed, with Enron, that electricity markets are pure free markets incapable of being manipulated.

I don't know how much excess capacity the system in Japan had before the earthquake, but my understanding of the electricity grid in the US is that it operates very close to the edge, so loss of a third of generating capacity in a year would be expected to be catastrophic. Unless the Japanese situation is dramatically different from the one here, that would mean that massive outages in Japan this summer likely would be due to actual shortfalls in capacity. Nevertheless, I want the warning about gaming the system to be out for consideration if outages hit.