

Japan: Despite all the numbers, energy policy questions fall short

Wednesday 26 September 2012, by [JOHNSTON Eric](#) (Date first published: 23 August 2012).

OSAKA – Numbers, numbers everywhere. So what are we to think?

That's the question activists, academics and members of the public are asking as they follow the debate over the next long-term energy plan, which centers on three different basic scenarios for Japan's energy mix in 2030 and, more to the point, what role nuclear power will play.

The three scenarios, which lay out what percentage of the overall energy mix would be nuclear-sourced, are: zero percent, 15 percent or 20 to 25 percent. A final decision by Prime Minister Yoshihiko Noda was to be made by the end of this month, but that's now expected to be delayed by several weeks.

Calls for public comment, which concluded Aug. 12, indicate most respondents favor the zero option, despite warnings from those who favor maintaining nuclear power about the possible negative economic effects of phasing it out.

Minister of Economy, Trade, and Industry Yukio Edano said in early August that even though METI has traditionally been a key promoter of nuclear power, the zero option is possible.

"I don't think the zero scenario is bad for the economy. On the contrary, it can create growth as efforts to develop renewable energy and improve energy efficiency could boost domestic demand," Edano said.

But corporate interests like the Keidanren business lobby and the Federation of Electric Power Companies strongly back the 20 to 25 percent option, citing the high costs involved in phasing out nuclear power and replacing it with renewable energy sources, as well as what they claim to be fundamental problems of supply stability with solar, wind and the other sources.

"It's necessary to calculate how much it would cost to introduce large amounts of solar and wind power. Based on cost and energy security and stability issues, we judge that nuclear power's share should be at least 20 to 25 percent," Makoto Yagi, head of the power company federation and Kansai Electric Power Co., said in late July.

Under the zero scenario, Japan would eliminate nuclear power entirely by 2030 and have 35 percent of its electricity supplied by renewable energy. The rest would be produced with fossil fuels.

Renewable energy, which accounted for 10 percent of Japan's electricity generation in 2010 (though only 2 percent if hydropower is excluded), would increase to 35 percent (24 percent without hydropower, which would continue to make up the other 9 to 10 percent).

Also under the zero scenario, by 2030, GDP would be expected to amount to somewhere between ¥63 trillion and ¥628 trillion. GDP in 2010 was ¥511 trillion. The average cost for electricity under this scenario would be about ¥15.1 per kwh, or about ¥6.5 more than the official current average of ¥8.6.

Household electricity bills are predicted to rise to between ¥14,000 and ¥21,000 per month. In 2010, the average household's electricity bill was about ¥10,000.

Under the 15 percent scenario, by 2030, 15 percent of the electricity supply would come from nuclear power, 30 percent from renewable energy and the remaining 55 percent from fossil fuels.

In drawing up these numbers, the government assumed reactors would have a lifespan of 40 years and any attempt to build new ones would still be politically difficult. Of the current 50 commercial reactors still usable, around 30 will be at least 40 years old by 2030.

This scenario also assumes a 2030 GDP between ¥579 trillion and ¥634 trillion. The average cost of electricity is expected to be ¥14.1 per kwh and the average family electricity bill to range between ¥14,000 and ¥18,000 a month.

Under the 20 to 25 percent scenario, half of Japan's electricity would be supplied by fossil fuels and either 25 or 30 percent would be from renewable energy, with the remainder from nuclear power.

This scenario assumes new reactors will be built, that old ones will be refurbished, and that reprocessing of spent nuclear fuel and disposal of nuclear waste in new facilities will be possible.

It further assumes 2030's GDP would be between ¥581 trillion and ¥634 trillion, the average cost per kwh ¥14.1 and the average family's monthly electricity bill ¥12,000 to ¥18,000.

The logic behind the assumptions of all three scenarios has been widely criticized by those seeking a total end to reliance on nuclear power as well as those favoring the 20 to 25 percent scenario. The problem, both sides say, are the numbers the government didn't consider when the predictions were made.

"According to FEPCO, between 1990 and 2010, average annual operating capacity at Japan's nuclear plants was between 59 and 84 percent. Over roughly the past decade, they've only been running at about 68 percent capacity," Junko Edahiro, an expert with the Institute for Studies in Happiness, Economy and Society, said at a Tokyo-based NGO event on renewable energy in early August.

"However, I was told by the government that, under the 15, 20 and 25 percent scenarios, the assumption is that in 2030, nuclear plants at the end of their life cycle had been operated at an average capacity of 70 to 80 percent." My own calculations are that, even under the 15 percent scenario, we'd need to build three new reactors by 2030. Under the 20 percent scenario, we might need nine more, also by 2030," she said.

Keidanren and the Federation of Electric Power Companies put forward their own numbers about why it's best to rely on nuclear power for up to 25 percent of electricity.

However, their arguments avoided questions about additional costs if projected nuclear power capacity does not meet government predictions, just as many zero-scenario proponents did not include future projected capacity rates of renewable energy sources in their public arguments.

"The zero scenario is the most unrealistic, including its call for measures that are ignorant of economic efficiency and entailing large increases in the public burden. The 15 percent scenario not only requires an energy conservation level and renewable energy that are difficult to attain, but also sidesteps the decision of whether to maintain nuclear power," Keidanren said in a July opinion paper on the three scenarios.

The business lobby notes the scenarios are all based on the assumption GDP will grow at 1.1 percent this decade, and by 0.8 percent between 2020 and 2030. But it says these figures are different from the government's own growth strategy, and warn that creating policy based on these GDP numbers could, in the worst case, lead to an 8.1 percent gap between available supply and demand, the equivalent of an 8,000 gigawatt-hour shortage. In fiscal 2009, total electricity output was just more than 1.1 million gigawatt-hours.

And there is the cost in the scenarios to consumers of choosing options with a larger renewable energy share.

"Under each scenario, the electricity bills are expected to rise, and we will see a negative macroeconomic effect. By 2030, electricity bills are predicted to rise between 26 and 130 percent, Keidanren said.

The lobby added, without explanation, that hundreds of trillions of yen would also be needed for introducing renewable energy generation and distribution systems, and Japanese industry's international competitiveness would be deeply strained if this meant the necessary funds for investment were not available.

While admitting that investment in new systems to deliver renewable energy-generated electricity will not be cheap, proponents of the zero option dismiss warnings of sky-high power bills as alarmist and threats by industry to leave Japan because of cheaper electricity elsewhere as overblown.

"If you look at any large firm's fixed expenses, you'll see electricity costs are much less than other expenses, like personnel costs. It's unlikely a large company would leave Japan for another country, with all of the attendant costs and risks, just due to fears about higher electricity costs," said Tetsunari Iida, founder of the Institute for Sustainable Energy Policies.

But perhaps the most fundamental projections absent from the charts and graphs passed out at public hearings are answers to the question of how many people will need electricity in 2030.

According to the National Institute of Population and Social Security Research, Japan's current population of about 127 million is expected to drop to about 116 million by 2030, and then to 86 million by 2060. The number of working-age people will also drop as the number of elderly rises.

The government officials, activists, academics and private firms that have looked into electricity usage in 2030 largely agree fewer people and a higher proportion of elderly means less electricity usage overall than at present. The question of how many people will be around in 2030 and how much energy they will need goes to the heart of the equation.

And, as Kazuhiro Ueta, a professor at Kyoto University's Graduate School of Global Environmental Studies, noted in May, many people at the public hearings are less interested in what the national electricity policy should be in 2030 and more concerned about what their own region will require, and how to calculate the best energy mix to meet those requirements.

"Electricity demand in 2030 in a society that is less populous than today is being discussed by the central government. But what we've been seeing recently is that more local governments are putting forth their own energy plans, and including renewable energy plans for the future that they see as a key to local economic and industrial revitalization," Ueta said.

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P.S.

* <http://www.japantimes.co.jp/text/nn20120823f1.html>