

Stanford experts say Silicon Valley is poised to play a key role as Japan restructures its power industry

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Satellite image of damage at the Fukushima Daiichi Nuclear Power Plant in Japan following the March 11, 2011, earthquake and tsunami. Credit: DigitalGlobe

As cities and towns rebuild after last year's devastating tsunami and earthquake in northeastern Japan, there is a potentially huge demand for the green technology and new information technology now being created in labs at Stanford and start-ups across Silicon Valley.

"[Energy efficiency](#) is starting to take precedence when people talk about rebuilding," said Masahiko Aoki, a senior fellow at Stanford's Freeman Spogli Institute for International Studies. "And Japan will look, and is already looking, to [Silicon Valley](#) for solutions."

Aoki, an emeritus professor of economics and Japanese studies, said the demand for alternative energy solutions is high after last year's disaster triggered multiple meltdowns at the Fukushima [nuclear plant](#) and rocked the public's confidence in [nuclear power](#).

He said when he flew into Japan several months after the disaster, the lights of Tokyo left a bluish hue in the [night sky](#) – a sign that energy-efficient LED lights had been adopted by many businesses and residents.

Aoki compared the new motivation for alternative power to what happened with the Japanese auto industry after the oil crisis of the 1970s.

Disaster triggers opportunity

"Japanese cars took off because Japanese automakers came up with more fuel-efficient vehicles in response to the oil shortage," he said. "Disaster can sometimes trigger opportunity."

Aoki and Kenji Kushida, a Stanford alum and researcher at the Walter H. Shorenstein Asia-Pacific Research Center, spoke to the Stanford News Service ahead of the anniversary of the March 11 disaster.

"In the short-run there will be quite a bit of investment in infrastructure, housing," Aoki said. "But long-term innovation will center on restructuring the power industry."

Kushida said there is a natural linkage between Japan and the technological innovations of Silicon Valley and Stanford.

"In the devastated areas there will be massive budgets to rebuild cities and to reinvest in local industries, and some of those delegations are looking into what technologies from Silicon Valley they can use to be

more efficient and less dependent on nuclear power," Kushida said.

As information technology becomes a major part of smart power grids, consumer applications, electric cars and plug-in hybrids, Silicon Valley firms can potentially play a major role.

"It's very early in the commercial battles for who exactly is going to build or provide what, but Silicon Valley can see opportunity in Japan and vice versa," he said.

Aoki mentioned research in quantum physics at Stanford aimed at making computers more energy-efficient, as well as efforts to innovate in battery technology, which would be essential for revolutionizing the automobile. Kushida noted that there is even a Silicon Valley startup developing renewable fuels and chemicals from seaweed.

Even as energy alternatives are considered, the Japanese government has not backed away entirely from its nuclear program. Only two of 54 reactors are currently running, but Prime Minister Yoshihiko Noda said this week that officials are still considering the "best mix" of power.

Challenges of restructuring

Restructuring the energy industry will be a challenging transformation for Japan, where the power supply for Tokyo and Eastern Japan is monopolized by Tepco, the Tokyo Electric Power Company.

Aoki said he supports proposals to unbundle the vertically integrated monopoly to make the industry more competitive, safer and more innovative.

But even as the details are still being worked out, Japanese people have come up with innovations of their own to deal with the aftermath of last

year's natural disaster that killed more than 20,000 people and swept away entire towns.

Aging farmers are joining together to form partnerships to work with young people or corporations. Fishermen have been sharing the remaining boats.

Companies, too, have managed to adapt to a new workforce or fewer resources.

"In the past 15 to 20 years, the Japanese economy has been in a repeated cycle of nascent recovery followed by abrupt shocks, largely from financial or natural disasters," Kushida said. "With each iteration, the companies become leaner, they figure out how to better use their assets, they increase competitiveness. On the one hand there are these shocks. But then they bounce back stronger than before."

Provided by Stanford University

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