

Beyond Fukushima: Toward a Post-Nuclear Society. By Koichi Hasegawa, translated by Minako Sato. TransPacific Press, Melbourne, Australia, 2015 xvi 228 pages, hardcover.

This important new book tackles a question that has vexed many observers since the 11 March 2011 earthquake and tsunami set off meltdowns at the Fukushima Dai-ichi nuclear power plants in Japan. While in the early 2000s many observers had proclaimed the start of a global nuclear renaissance, the inability of the Tokyo Electric Power Company (TEPCO) to prevent and then successfully contain a nuclear accident at Fukushima put that on hold. A number of governments around the world, including those in Germany, Belgium, Italy, and Switzerland used Japan's nuclear accident, rated at the maximum of the International Nuclear Event Scale level, as a policy window to change their energy policies. Uranium prices have dropped precipitously as the market envisions less global demand for nuclear fuel; the countries building the most new nuclear plants are primarily authoritarian ones (e.g. China and Russia).

Domestic critics of Japan's advanced commercial nuclear power program envisioned that Japan would follow suit. They believed that the Fukushima meltdowns along with massive anti-nuclear rallies (several of which had more than 150,000 participants), citizens' referenda on energy selection in several major cities, and widespread opposition to nuclear would provide sufficient weight to their arguments and shift Japan away from atomic energy. The forced evacuation of more than 140,000 residents from towns like Namie, Futaba, and Ōkuma near the Fukushima plants and the continued existence of more than thousands of evacuees in temporary shelters throughout the country even now remain front page news.

TEPCO's mismanagement of the disaster site, its inability to stop the outflow of contaminated water, and its need for financial rescue from near bankruptcy due to compensation for evacuees have caused dismay. Yet the current Japanese government under Prime Minister Shinzo Abe continues to push for full nuclear restarts for its remaining 48 commercial reactors and for a closed fuel cycle complete with fuel reprocessing. In this book, Hasegawa, like other scholars, including Richard Samuels (2013), Richard Hindmarsh, and Rebecca Priestly (2016), explores why Japan's energy policy has not changed course more drastically as a result of the catastrophe. Through a comparative policy analysis of Japan and other advanced, industrial democracies, Hasegawa reveals what may help move Japan beyond Fukushima.

Hasegawa argues that institutions, and not ideas or interest groups, have been the primary movers behind Japan's policy choices about atomic energy. A framework of financial redistribution to depopulating host communities known in Japan as the *Dengen Sanpō* (Three Power Source Development Laws, *Dengen sanpō kōfukin seido*) has given incentives to rural towns to invite in nuclear facilities (Aldrich 2008). Once the initial plant is completed and the town budget has been boosted by the millions of dollars a year in new buildings, roads, elderly care facilities, assistance for business relocation to the area, and other infrastructure, host communities often are forced to invite in additional plants. The amount of money from the initial plant wanes over time, so local officials must ask for additional plants to keep up their budgets and avoid dropping spending levels. Critics have called this a "cycle of addiction" and a "culture

of dependency” (Hasegawa 2004; Fackler and Onishi 2011) and others have pointed out that the actual economic impact of hosting is, at best, mixed (Ando 2015).

As a result, a number of towns host as many as seven nuclear power plants (such as the city of Kashiwazaki-Kariwa in Niigata) while others, like Futaba, hosted six. Beyond the demand side for nuclear facility hosting, other institutional factors such as a well-insulated nuclear bureaucracy (Hasegawa 2015: 27), site selection in impoverished rural areas with weak civil society organizations (ibid 34), and a national judicial system which rarely takes activist or anti-government stances (ibid 202) have helped Japanese authorities develop their nuclear program from the top-down. Japan also lacks a Green Party which has made environmental issues a top priority and been able to serve as a coalition member like in Germany. As a result of these institutional factors, there have been “no substantial changes to the nuclear energy targets” (186) set by earlier decision makers in Tokyo despite contentious political opposition in the field.

While there is tremendous inertia behind its nuclear program, Hasegawa sees Fukushima as a potential turning point in Japan’s energy history (180). Japan, he suggests, sits at a crossroads after the meltdowns which provides politicians and residents alike the chance to revisit its energy policies at all levels, from local to national. He hopes Japan will move toward social consensus, denuclearization, embedded energy conservation, and renewable energy. In short, the country could follow through on the goal articulated by ex-prime minister Naoto Kan (in charge during the disaster itself and author of a forthcoming English language description of that period of crisis) who spoke of Japan ending its dependence on nuclear energy. Using comparative cases from Europe (Germany and Denmark), the Middle East (Israel), and the United States (California Green Energy and the Sacramento Municipal Utility District), he illuminates several different energy approaches that Japan could adopt (162).

Hasegawa believes that energy should be affordable, clean, and stable, and finds that localities in other countries have been able to set up energy utilities which match these characteristics. For example, voters in the Sacramento Municipal Utility District (SMUD) in California voted to shut down their nuclear power plant in 1989 and focus on reducing energy use (69). By changing the norms about energy conservation, pushing energy saving appliances, better insulating homes from the heat, planting shade trees, and installing solar panels, the community set up a resilient system which did not rely on a centralized power source. The community’s self-generating capacity allowed it to come through the January 2001 blackouts relatively unscathed and remains at the forefront of green energy technologies including smart meters and grids (91). He brings similar case studies from cities like Freiburg, Germany and elsewhere to show how, at least on a small scale, real energy policy change has been possible.

Japanese communities, such as Tachikawa in Yamagata prefecture, have also altered their norms and practices to embrace localized renewable energy. Now known as a “wind power pioneer,” the city has built fourteen wind turbines providing 7.850 mW and has become a tourist stop for many interested in renewables. Civil society organizations in the city of Kushima in Miyazaki Prefecture organized initially against a planned nuclear power plant and went on to create a consumer cooperative focused on green electricity production. Various prefectures,

including Hokkaido and Fukushima, have established green funds to push investments into citizen-driven renewable energy production. In the face of long odds, Hasegawa lays out a variety of ways forward which involve decommissioning nuclear reactors and deploying renewables and energy conservation in their place (198). Yet he admits overall the national level system - with nuclear fuel reprocessing at Rokkasho, mixed oxide (MOX) fuel use, and strong dependence on nuclear power - remains the goal for the current administration. Cynicism among the population (209), strong economic ties between the long ruling Liberal Democratic Party (LDP), TEPCO, and bureaucrats (205), and the political economy of atomic plants creates a strong iron triangle that will be hard to shift.

Yet there are signs that local politics and regional courts may yet nudge Japan's energy policies where politicians fear to tread. Support from neighboring communities just outside the host towns has fractured (Aldrich 2013). The recent election of an anti nuclear governor in Niigata, home to the Kashiwazaki-Kariwa nuclear power plant complex, shows that even with national support, utilities may find themselves facing vetoes from local decision makers. Courts have kept Kansai Electric's Takahama reactors offline and ongoing technical problems with TEPCO's futuristic, water retaining ice wall keep the issue in the news. Protests against TEPCO and nuclear energy have moved from the streets into popular culture and music (Manabe 2015). Hasegawa's vision of a nuclear free Japan may not be here yet, but his book lays out a vision of the future which remains tantalizingly possible.

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