

Matéria

Geothermal energy in Japan

Storm in a hot tub

TOKYO
Clean bodies versus clean energy

AS ANYONE who has been to Japan knows, there are strict rules about bathing in *onsen*, or hot springs. Bodies must be scrubbed beforehand, swimming trunks are banned and tattoos are taboo. The industry's jurisdiction extends far beyond the tub, however.

For decades, *onsen* owners have stifled development of a huge potential source of clean energy: geothermal power. They argue that the tapping of heated aquifers in volcanic Japan will drain the *onsen* dry, increase pollution and ruin a cherished form of relaxation. With Japan on the verge of running out of nuclear power, however, the demand for new sources of energy is becoming harder to resist.

Three Japanese companies—Toshiba, Mitsubishi Heavy Industries and Fuji Electric—control more than half of the global



Safer than nuclear, and more relaxing

market for geothermal turbines, yet Japan itself gets a mere 0.3% of its energy, or 537 megawatts, from its own steam. The industry's promoters say that Japan sits on about 20,000 MW of geothermal energy, or the equivalent of 20 nuclear reactors, though not all of this could be developed. Since the disaster at Fukushima last year, all but one of the nation's 54 nuclear reactors are now temporarily suspended, reducing Japan's power-generating capacity by about a third. That has accelerated the search for alternatives.

In July the government is set to introduce a feed-in tariff that will force the ten regional electricity monopolies to buy renewable energy at above-market rates—though a price has not yet been set. At the end of March the environment ministry said it would abolish guidelines that restrict geothermal development in some national parks. Companies including Idemitsu, a refiner, have quickly announced plans to build a geothermal plant in the mountains of Fukushima prefecture, which is famous for its hot springs. But they expect it will take ten years before they start generating electricity.

Experts say the long time lag reflects some of the difficulties of developing new business in Japan. Tetsunari Iida, head of the Institute for Sustainable Energy Policies, says the country needs a "strong and wise government" that can persuade the *onsen* owners and local communities that the industry would not spoil their spas. He also says the country needs companies with strong balance-sheets and a robust risk culture to lead the way. Having the world's best turbine manufacturers is not enough, he says.

To speed things up, Japan could also look overseas for help. Iceland, for instance, generates the same amount of geothermal energy as Japan, though Japan has 400 times more people. A Japanese expert, Hirofumi Muraoka, calculates that one mid-sized northern city, Aomori, with a population about the size of Iceland's 318,000, could save enormously on imported fuel bills and heating costs by tapping geothermal springs nearby. Besides generating electricity, it could use the hot water from the springs to heat houses, as Iceland does.

Iceland's ambassador to Japan, Stefan Stefansson, says his country's experience suggests Japan does not need subsidies to develop geothermal energy. It needs careful management of underground reservoirs, and an entrepreneurial vision. Besides heating houses, he says, Iceland's geothermal water is used for farming tasty tropical fish such as tilapia. As for the *onsen*-owners' protests, he snorts: "Go to your computer and type in 'Blue Lagoon'. There you will find the biggest *onsen* in the world and we have them all over Iceland. How's that for pollution?" •