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Geothermal: The Promise and the Pitfalls

Geothermal promises comparatively cheap, steady power. The millions of dollars required to find it are the problem.

RENO, Nevada --- Reno just might be the greenest little city in the world.

Ormat's Galena Power Plant at the edge of town provides the city with 100 megawatts of carbon-free electricity, or enough for 20 percent of Reno's daytime electricity and 50 percent of its nighttime power. Put another way, you could power every home in town with the electricity from the plant.

Pumps pull 6,000 gallons of water a minute out of reservoirs 3,000 feet below the surface. The water, naturally heated by geologic forces to approximately 300 degrees Fahrenheit (150 C), boils a chemical refrigerant contained in sealed loops. The refrigerant, now a gas, cranks a turbine.

But just as important is the quality of power. Unlike solar or wind farms, Galena churns predictable, baseload power 24 hours a day that is relatively easy for the grid to accommodate.

It doesn't even cover much land: it looks like an ordinary substation with most of the works hidden behind low-rolling hills. Many residents don't even know it exists. (I grew up in Reno and visit the town regularly, yet had never heard of it.)

Only seven to eight people work at Steamboat full time, but geothermal has a 4.25-job multiplier effect on contractors, pipe suppliers and companies that sell anti-scaling compounds.

"With **geothermal**, you're replacing fossil fuels with labor," says Paul Thomsen, director of policy and business development at **Ormat,** which has 600 megawatts of capacity under contract with investor-owned utilities in the U.S.

The **attractiveness of geothermal** is tough to deny. The U.S. has 3 gigawatts' worth of geothermal plants, mostly in Nevada and California, but roughly 38 gigawatts to 40 gigawatts of known reserves that can be developed and harvested with known technologies (that is, **not counting concepts like enhanced geothermal** that are still under development) exist here, according to says Dan Schochet, executive vice president of **Ram Power,** a geothermal developer and one of the early champions of geothermal in the U.S.

That would be enough power to supply the West with 10 percent of its power, he said. Approximately 25 percent can be brought on-line over the next decade. Projects are underway or being scrutinized in Arizona, New Mexico, Alaska, Hawaii, Colorado and even Gulf states like Texas and Louisiana.

"One hundred megawatts of geothermal is like 300 megawatts of solar," said Schochet. "On a macro level, everything is going geothermal's way."