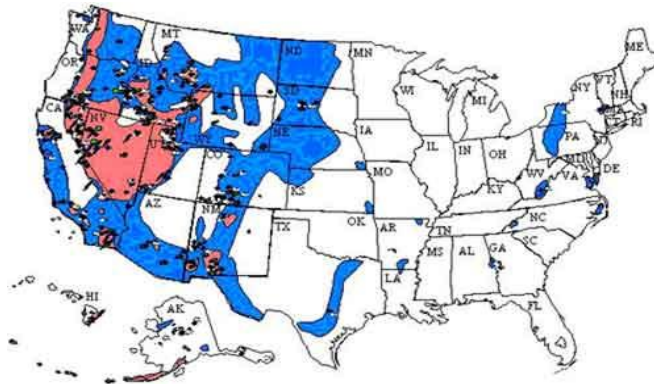




Brief on Geothermal Energy – August 2008 Newsletter

Geothermal Energy is essentially thermal energy derived from the earth's crust, where it is contained in rock and fluid. It is assumed to be a limitless supply of energy, perhaps with a continuous availability of as much as the equivalent of 42 million megawatts of power. The use of this thermal source varies. Heat sources below 300F are mostly used for heat pumps and other forms of direct heat use. Sources with higher temperatures can be used for electric power generation. What makes geothermal particularly attractive is its high reliability of energy output, which is constant as long as the earth maintains its physical properties (and if it doesn't we have bigger problems to worry about!).

Most of the geothermal energy generation occurs in the Western U.S., with Nevada in the top spot. Electricity generation from 2002 – 2006 has been essentially flat at 14.5 billion KWh and amounted to about half of what wind produced in 2006. The largest producer in the U.S. is Calpine, which owns 19 out of 22 plants in the Geysers in Northern California, the world's largest dry steam field, which has an installed capacity of 1,360 megawatts. Since 2006, growth has picked up, with 75 new projects under way as of May '07.



According to a 2006 MIT report, with technical improvements to Enhanced Geothermal Systems (Hot Dry Rocks Systems that drill 10 km down into the earth and inject water in return for steam), we might be able to supply enough energy for several millennia. I am not banking on that one in my investment portfolios, but even a more down-to-earth assessment by the Western Governors' Association (WGA) bodes well: WGA estimates that 13,000MW of identified resources, which is about half of the geothermal resources known to the U.S. Geological Survey, are expected to be developable within the next 10-20- years of which 5,600 megawatts can be developed within the next 5-10 years at competitive prices with the production tax credit.

As far as investments, I hold Ormat Technologies, which is the largest pure-play geothermal company in the U.S. They both develop and operate geothermal power plants, as well as supply equipment and power units to companies that wish to build geothermal generation facilities. If the geothermal industry follows in the path of wind and solar, Ormat is ideally positioned to reap the benefits.