



Drill Mother Earth for Heat Instead of Fossil Fuels

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LOS ALAMOS — Al Gore and T. Boone Pickens may not have expressly supported nuclear power in their recent statements about the energy future of the world, but neither did they condemn it.

Rather they called for a broader look at all the ways to produce clean energy for the world, and in doing so attempted to raise public awareness of the vast array of possibilities that exist for providing answers to pressing energy issues.

We would like to briefly outline one of those new energy answers that to date has gone largely unrecognized.

At Los Alamos National Laboratory in the early 1970s, a small group of researchers invented, and patented, the then new idea of hot dry rock (HDR) geothermal energy — mining the earth for its existing thermal energy rather than for its fossil fuels.

A study by the Massachusetts Institute of Technology indicates that the size of this clean energy resource — the accessible heat of the earth itself (now sometimes referred to as earth power for easy comparison to wind power and solar power) — is several orders of magnitude greater than all the remaining U.S. reserves of fossil fuels: coal oil and gas.

With a concerted government/industry effort, not unlike the Manhattan Project that was undertaken here at Los Alamos during World War II, we believe the high-grade HDR geothermal resources broadly distributed throughout the West could make a significant contribution to our area's electric power generation — in the range of 20 percent or more — within 10 years (Al Gore's target period for getting "unhooked" from oil). We envision hundreds of 10- to 20-megawatt HDR power plants scattered across the Western states. Each would supply local electric power demands and feed any surplus power into existing transmission lines to help serve power needs elsewhere.

Like nuclear power, HDR geothermal energy is available 24/7, with a demonstrated high degree of availability. Work at Los Alamos has also shown that, unlike nuclear, it could easily be adapted to provide peaking power during those few hours each day when human activities greatly increase the demand for electricity.

Perhaps most importantly, energy from HDR can be extracted with essentially no pollution. Greenhouse gases are not released and, unlike nuclear power, long term waste disposal problems are not created. Heat is removed from the earth using pressurized water as the transfer medium, and the same water is continuously recirculated with no waste products — Simple and elegant.

With a federal subsidy similar to what the nuclear power industry has received, to move it from a proven idea to practical application, HDR geothermal energy would literally "fly out of the blocks," to use a sprinter's metaphor.

In doing so, it would provide clean energy for the United States and potentially the world, and create a very significant number of "greencollar" jobs in every locality where it was put to use.