



Unleashing the Heat Beneath our Feet: How the U.S. Government Can Support Enhanced Geothermal Systems (EGS)

The heat beneath the earth's surface is essentially an unlimited resource. What if it could be developed to help solve our energy challenges and fight global warming? Enhanced Geothermal Systems, or EGS, attempts to do just that. EGS expands the potential of geothermal energy by orders of magnitude. The traditional geothermal approach relies on finding naturally occurring pockets of steam and hot water. The EGS process, by comparison, replicates these conditions by fracturing hot rock, circulating water through the system, and using the resulting steam to produce electricity in a conventional turbine.

EGS is a big challenge, but with the potential to power the world many times over, it demands our immediate attention. That's why Google.org, through our RE<C initiative, is making investments, funding research, and developing information tools to advance EGS. Public policy will also play a major role in deploying EGS on a large scale. A landmark MIT study on EGS identifies no showstoppers to accessing a large percentage of the massive available U.S. resource and says that the remaining challenges can be solved at a reasonable cost and in a relatively short timeframe. We ask the President and Congress – what are we waiting for?

The current funding for the federal geothermal program - \$20 million for 2008 - is grossly inadequate given the vast potential of EGS. The Department of Energy has done a lot with a little - but given the planet's need for clean energy, we must do more. The President and Congress should put EGS high on the list of options for a clean energy future. At a minimum we believe the following federal actions are needed:

- **Boost funding for federal research and development** – Federal funding is key to driving the development of new energy technologies. With EGS, we have a roadmap from MIT and others urging concentration on areas such as drilling, reservoir creation, heat recovery and power conversion. To cover these urgent needs, funding for DOE's geothermal program should be increased to \$50 million in 2009, and steadily ramped up to well over \$100 million annually in the next few years.
- **Put the federal house in order** – Siting, leasing and permitting energy projects on federal lands is slow and arduous. The next President should issue an Executive Order to identify appropriate federal lands for EGS and other priority renewable energy projects and accelerate siting, leasing and permitting decisions by relevant federal agencies while maintaining strong environmental standards.
- **Provide financial incentives to developers and producers** – In addition to extending current renewable energy tax credits Congress should add geothermal-

specific tax provisions to encourage investment in EGS exploration, drilling and interconnection. Congress should also adopt pending legislation that would provide loan guarantees and a secondary market for loans for clean energy projects.

- **Enact a National Renewable Portfolio Standard** – A majority of states have adopted a renewable portfolio standard (RPS) to accelerate deployment of renewable technologies like EGS. It is time for a federal RPS to establish a nationwide commitment to renewable energy.