



► What is Geothermal Energy?¹



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Thermal GeoNews

ADDRESSING THE NEEDS OF SOCIETY THROUGH UNIQUE ENERGY RESOURCES.
GEOHERMAL ENERGY: OUR FUTURE

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What is it and How it Works

Geothermal energy. What exactly is it? Does anyone really know? Of course! And you're about to know as well! Geothermal is a word of Greek origin, *Geo*, meaning Earth, and *Thermos*, meaning heat. From that background information, you can figure out it means Earth heat. Well that's exactly what geothermal energy is!

The Earth is the natural version of a steam engine. Water in the water table, in underground springs, and in hotbeds is heated by the Earth's naturally produced heat. This produces the steam that we see and feel. One abundantly known example is a steam geyser, the Earth naturally produces the heat, which makes the water steam up and boil, and then bursts from the ground. That's an extreme example, but it's the same basic principal.

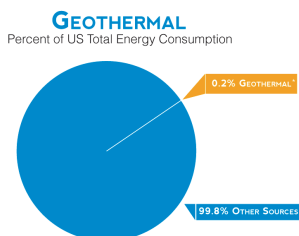
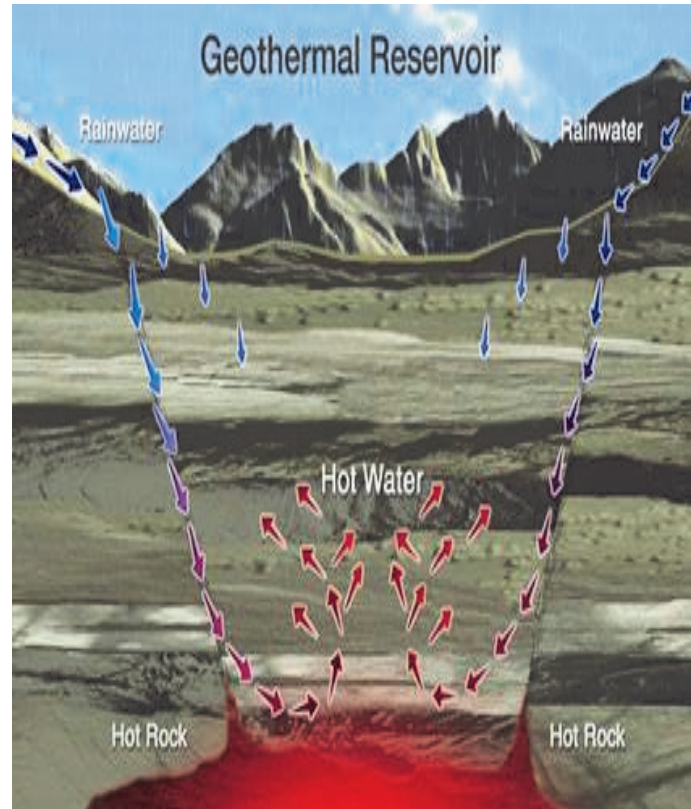
So how do we harness this natural energy

to our use? Turbines.

Essentially, the steam the Earth produces can be harnessed into power plants and turns turbines. These turbines produce the energy which can be harnessed and used to heat a house, provide electricity, and produce power.

Turbines are the power plant level of geothermal energy. There's also an option for residences to use geothermal energy that puts a pipe in the ground, or spreads out across the owner's lot, and it collects and removes heat from homes.

It's a great way to save money, and will last as long as the Earth's core continues to produce heat. Which we hope it will for a long while.

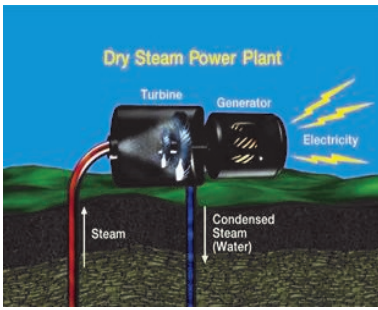


Do Some Math on the Subject

The United States is currently the leader in producing geothermal energy in its usable form, with it accounting for .4% of the energy that the US produces. However, It's only .2% of the total consumed energy of the united states. This low percentage can be attributed to the high cost of installing and using geothermal energy. In a 2500 sqft home for example, it would cost between 20,000 and 25,000 dollars to install a geothermal system. However, in the long run it would cost 40%-60% less than the cost of conventional heating, cooling and hot water.

¹alleged to remain visible
Source: Energy Information Administration, Monthly Energy Review April 2013 (E00013)





Also on the subject of using a geothermal based H&C and a conventional H&C is that a geothermal system lasts 18-23 years. That's nearly double what a conventional system lasts.

Fun Facts and Trivia: The Good Stuff!

- Iceland is almost completely powered by geothermal energy, due to their volcanic activity, they produce quite a bit of steam. In fact, the cost of producing geothermal energy in Iceland is so low that they actually have heated pavement in Reykjavik!
- Geothermal Plants for various uses, not just residential, run, on average for 25 years!
- Most commonly used in volcanic regions, where the water is more easily heated. Places such as Iceland, New Zealand, and Italy are hotbeds for projects. There are also many ongoing projects in places like France, the US, and the UK.

WE CAN HAND OVER THE JOBS OF THE FUTURE TO OUR COMPETITORS, OR WE CAN CONFRONT WHAT THEY HAVE ALREADY RECOGNIZED AS THE GREAT OPPORTUNITY OF OUR TIME: THE NATION THAT LEADS THE WORLD IN CREATING NEW SOURCES OF CLEAN ENERGY WILL BE THE NATION THAT LEADS THE 21ST CENTURY GLOBAL ECONOMY.

BARRACK OBAMA

GEO THERMAL: ADVANTAGES Vs. DISADVANTAGES

Advantages:

- Doesn't depend on weather like solar and wind powers do.
- Clean, and produces 0 CO₂.
- Quiet, and energy efficient.

Disadvantages:

- High installation costs
- Potential to release harmful gases in an underground hotbed is hit.
- Runs out of Steam if the water runs out.

Citation Information:

Webpage:

John C. Villanueva. (18 November, 2009). *How Does Geothermal Energy Work?*. Retrieved from <http://www.universetoday.com/45518/>

Various Contributors. *Basics*. Retrieved from <http://geo-energy.org/basics.aspx>

Various Contributors. *Faqs and Myths*. Retrieved from <http://www.geothermalengineering.co.uk/page/faqs-and-myths.html>

Various Contributors. *Geothermal*. Retrieved from <http://www.instituteeforenergyresearch.org/energy-overview/geothermal/>

Various Contributors. *Geothermal Energy Cost*. Retrieved from <http://www.conserve-energy-future.com/GeothermalEnergyCost.php>

Various Contributors. *Installation and Cost*. Retrieved from <http://www.energyhomes.org/renewable20technology/geoinstallation.html>

Video:

DTEEnergyCompany. (14 October 2009). *Geothermal Energy*. Retrieved from <http://www.youtube.com/watch?v=uVDBRQvBVso>