



Geothermal systems provide a cost-effective, consistent and sustainable source of energy.

Ameresco designs and builds geothermal energy systems for facilities, such as commercial, educational, governmental, healthcare, and multi-residential buildings. As a full-service energy contractor, Ameresco optimizes a building's overall performance and manages related costs, first by analyzing current energy use and then by custom-engineering a geothermal energy system that can provide up to 100% of needed heating, cooling, and hot water.

Ameresco develops geothermal systems for architects and mechanical engineers that offer cost-effective solutions and integrate fully into all types of buildings. We offer simple financing solutions that can help facility managers meet sustainability mandates within existing budgets or allow condominium developers and corporations to upgrade new or existing properties with minimal up-front costs. We also offer attractive pricing for owner/operators who want to purchase geothermal systems.

A Geothermal System from Ameresco delivers these advantages:

- ▶ *Savings of 40% compared with conventional HVAC operating costs*
- ▶ *Reliable and cost-effective energy that is environmentally friendly*
- ▶ *Reduced risk of fuel-price volatility*
- ▶ *Additional architectural space within a building plan*
- ▶ *Flexible funding options, from turnkey design-and-build to budget-neutral ESPCs*
- ▶ *Explicitly own and operate as a viable financing option*



- ▶ *Access to federal and local incentives tied to energy savings*
- ▶ *Experienced assistance with ENERGY STAR® and LEED® applications*

How does it work?

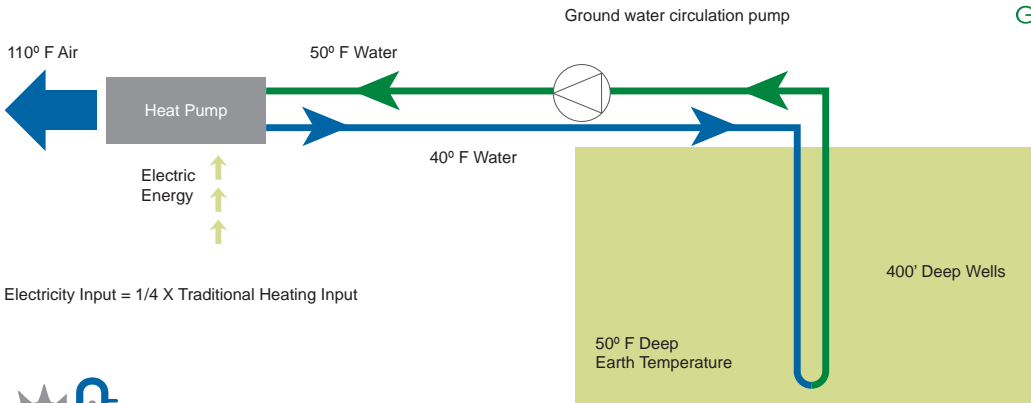
Geothermal technology uses the higher, constant temperatures found beneath the surface of the Earth to heat and cool a building and to provide hot water for domestic use. Geothermal energy has been in use for more than 30 years in North America, with more than 650,000 installations now supplying residential homes-and commercial/ multi-residential facilities.

While temperatures are constantly changing on the surface of the Earth, they are constant just a few

feet beneath the surface. Throughout the extremes of winter and summer, below-surface temperatures range from approximately 45°F (7°C) in the northern and southern latitudes to 72°F (22°C) near the Equator. Geothermal technology uses these constant temperatures to provide renewable and extremely efficient heating and cooling.

Water circulates in specially designed geothermal piping, installed vertically or horizontally into the ground in a return closed-loop configuration. This circulating water brings back heat in the winter and sheds heat in the summer. Because no fossil fuels are burned, geothermal technology greatly reduces the production of CO₂ and greenhouse gases (GHG).

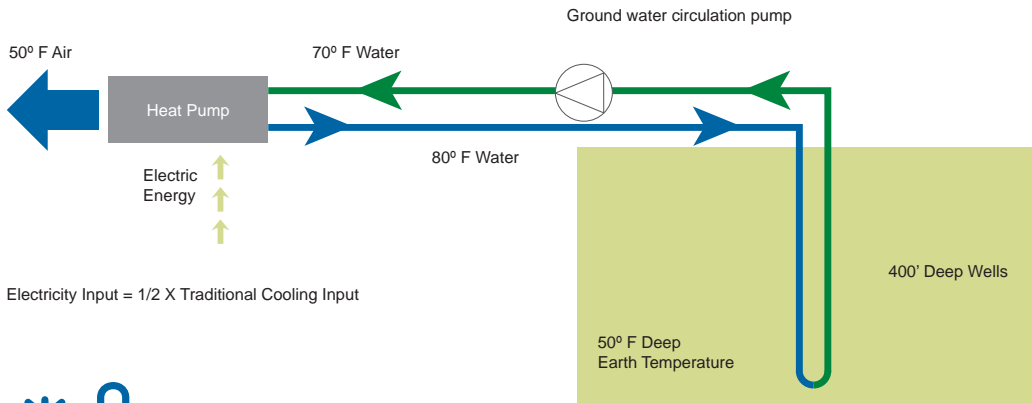




Electricity Input = 1/4 X Traditional Heating Input



Ground Source Heat Pump – Heating Mode



Electricity Input = 1/2 X Traditional Cooling Input



Ground Source Heat Pump – Cooling Mode

Geothermal heat pumps inside the building compress heat from the geothermal system and convert it to hot air that is circulated to provide winter heating. In the summer, the heat pumps reverse their process, extracting heat from the air in the building and depositing it into the geothermal system, which carries it back into the ground.

Geothermal water pumps and heat pumps require electricity, but no fossil fuel or electric power is used to generate thermal energy.

This makes geothermal energy 400% to 500% more efficient than the most efficient natural gas furnaces, while eliminating the CO₂ and GHG emissions from traditional boilers and chillers.

Operating costs are typically 40% to 75% lower than for conventional HVAC systems. The actual heat is natural and free, and it comes from the ground, so it will not be affected by rising fuel prices, unlike natural gas.

Geothermal energy systems have advanced rapidly in the last five years, driving down installation costs substantially. More efficient heat exchange equipment and sophisticated computer simulation engineering now produce extremely reliable, economical systems with the highest energy efficiency and with the complexity required to heat and cool large commercial buildings, even on dense urban sites.

Depending on location, utility rates, and current facility conditions, geothermal heating and cooling could be a good solution for your facility. Geothermal systems can reduce operating costs 40% to 75% and significantly reduce CO₂ emissions and GHG for both new construction projects and retrofits. These systems make great sense – economically and environmentally.

For more information about Ameresco and our full range of energy efficiency and renewable energy solutions, please visit www.ameresco.com or call 866 AMERESCO.