

Geothermal Heat Pump Energy

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Environmental Geology 120 (2017)



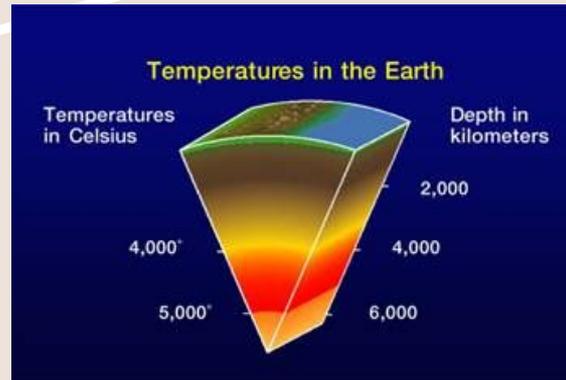
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What is Geothermal Energy?

Geothermal energy is heat energy generated and stored in the Earth

This energy comes from radioactive decay and heat loss from Earth's formation

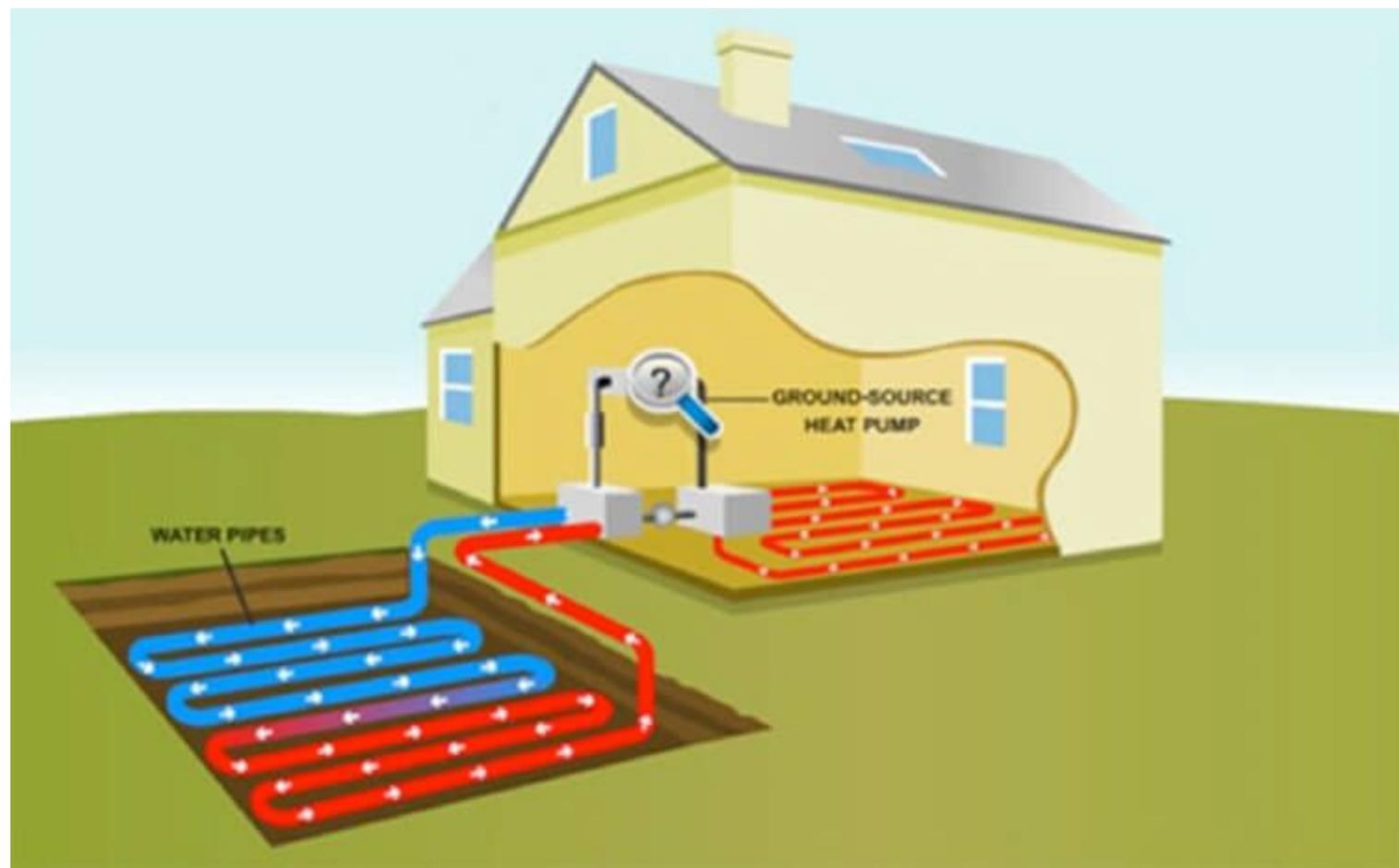
Earth's core is 10,800°F (6,000°C)



How Does it Work?



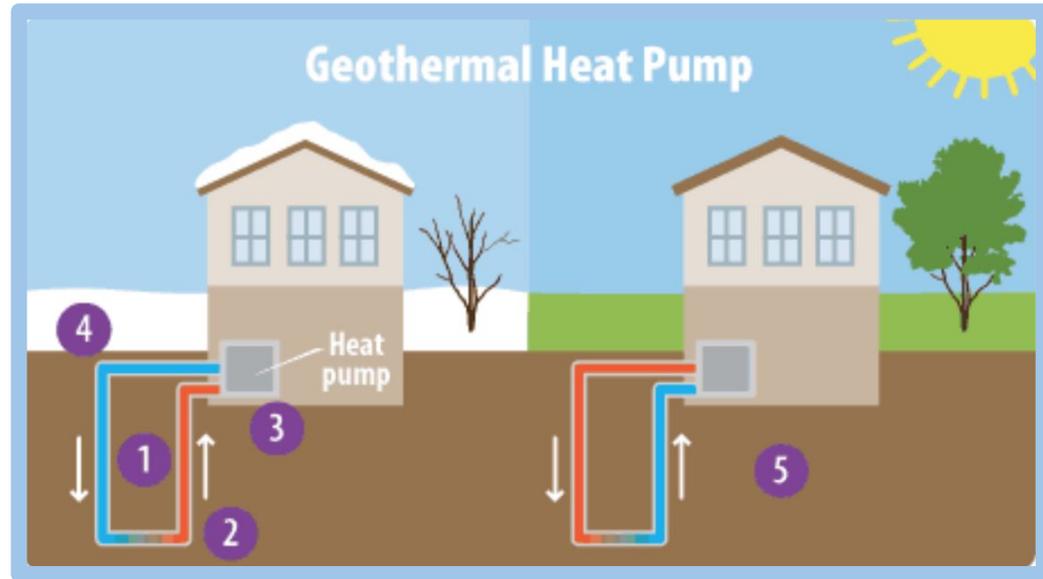
- A location is chosen that will optimize energy
- Pipes are drilled 520 ft. down
- Water is pumped through the tubes and energy is exchanged between the water and the ground



What is the difference between geothermal energy and geothermal heat pumps?



<https://financialtribune.com/articles/energy/64026/iceland-drills-volcano-for-clean-energy>



<https://www.energymaine.com/renewable-energy/geothermal-heating-cooling-systems/>

Mini Bald Spot

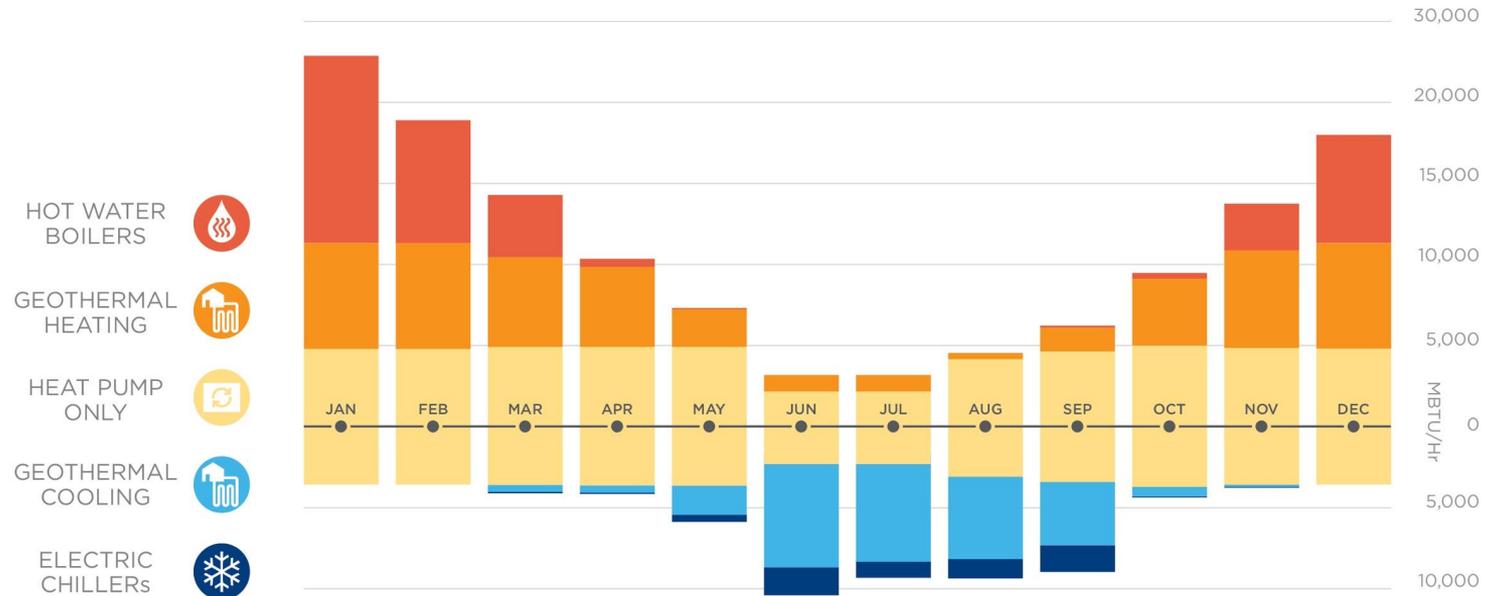


https://apps.carleton.edu/geothermal/updates/?story_id=1639330



https://apps.carleton.edu/geothermal/updates/?story_id=1638956

FUTURE HEATING & COOLING LOAD PROFILE



https://apps.carleton.edu/geothermal/charts/?image_id=1611035

The boilers and chillers will provide additional warming and cooling during the especially hot and cold times of the year.

Impact

- Geothermal Heating/Cooling Pumps= less dependent on Fossil Fuels
- Inspire other campuses/towns/ schools/ to use Geothermal Heating/Cooling Pumps
- Carbon Free by 2050!

CARBON
FREE
BY
2050

The text 'CARBON FREE BY 2050' is rendered in a bold, yellow, textured font. The word 'BY' is enclosed within a circular sunburst icon, which is positioned between the words 'FREE' and '2050'. The entire graphic is set against a white background.

Kahoot!

Teacher: Make Kahoot account and find Ground Source Heating and Cooling made by eshedd17, begin game

Students: Go to <https://kahoot.it> on devices and enter the game code

This is a final project for the Geo 120 course at Carleton College prepared by Lorraine Byrne, Izzy Link, and Emma Shedd