

Natural Geothermal Systems

To generate power from natural geothermal systems you need:



Abundant heat
found in rocks at
depth

+



Fluid to carry heat
from the rocks

+



Small pathways to
conduct fluid through
the hot rocks

Problem

Despite the presence of heat, sometimes conditions are not ideal
for power generation from natural geothermal systems.

In these cases you have:



Abundant heat found
in rocks at depth

+



Insufficient fluid
to carry the heat

+



Limited pathways
to conduct fluid

ENHANCED GEOTHERMAL SYSTEMS

Solution

A man-made enhanced geothermal system (EGS) can extract the abundant heat resource
tens of thousands of feet below the surface and put it to good use. This would require:



=



+



+



*What
makes EGS?*

An abundant,
previously-stranded,
heat source

Fluid injected from
the surface

Permeable pathways
enhanced by injected
fluids

**With an enhanced geothermal reservoir, you can generate power
anywhere with hot rocks at depth!**

ENERGY THAT *Works* AROUND THE CLOCK

EGS is a reliable, baseload energy source. It can provide power **24** hours a day, **365** days a year, independent of weather conditions and with the flexibility to meet consumer demand.



GREEN TECHNOLOGY FOR A *Greener* WORLD

Power plants built for EGS emit *very* little CO₂ over their lifetime.

CO₂ Emissions

0.05 kg

Geothermal Binary Closed Loop Plant*
Life Cycle of
30 years¹

8.91 kg

Using 1 Gallon of
Motor Gasoline²



^{1 & 2} For more information about the references visit: energy.gov/FORGE/Information-resources

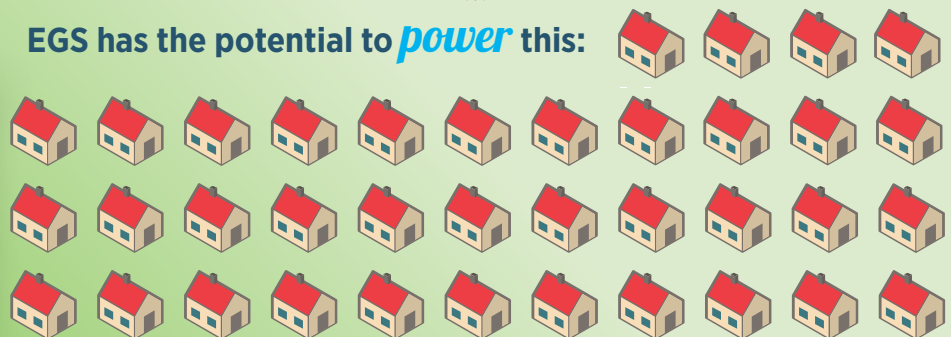
* A plant using moderately heated geothermal and secondary fluid that pass through a heat exchanger. The geothermal fluid causes the secondary fluid to flash to vapor driving turbines to power generators.

CLEAN ENERGY FOR AMERICA'S HOMES

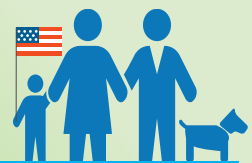


If this house represents *all* the households in Chicago,

EGS has the potential to *power* this:



EGS could provide more than **100 GWe** for the American people; the equivalent of **100,000,000 homes!**



U.S. DEPARTMENT OF
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For more information visit: geothermal.energy.gov

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