

..... **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 years**¹

8.91 kg

Using 1 Gallon of Motor Gasoline²



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

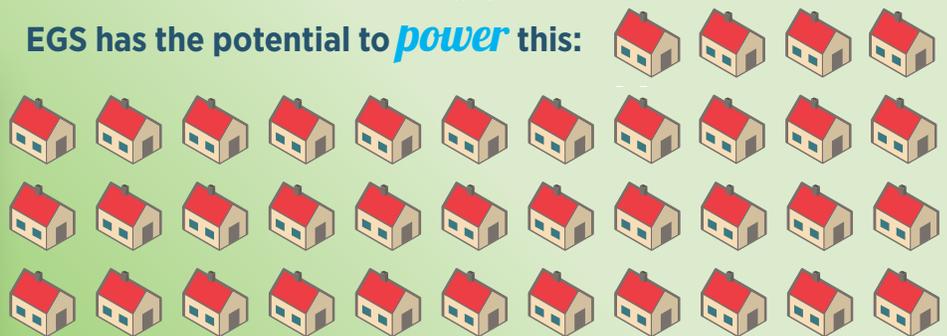
* A plant using moderately heated geothermal and secondary fluid that pass through a heat exchanger. The geothermal fluid causes the secondary fluid to flash to vapor driving turbines to power generators.

CLEAN ENERGY FOR AMERICA'S HOMES

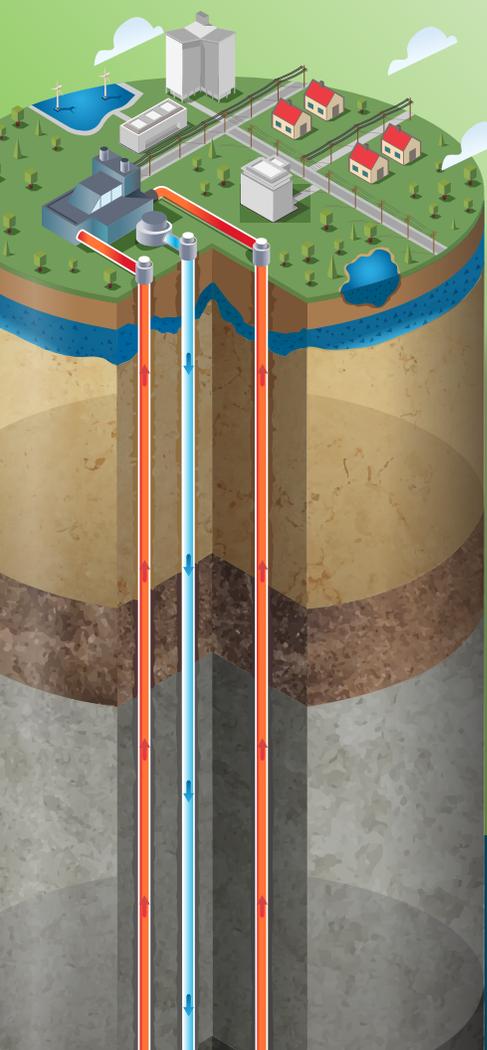
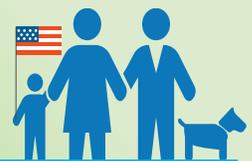


If this house represents **all** the households in Chicago,

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
ENERGY

Energy Efficiency &
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For more information visit: geothermal.energy.gov

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