



..... **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 CO<sub>2</sub> over their lifetime.

CO<sub>2</sub> Emissions

**0.05 kg**

Geothermal Binary Closed Loop Plant\*  
Life Cycle of **30 years**<sup>1</sup>

**8.91 kg**

Using 1 Gallon of Motor Gasoline<sup>2</sup>



<sup>1,2</sup> For more information about the references visit: [energy.gov/FORGE/Information-resources](http://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 &  
Renewable Energy

For more information visit: [geothermal.energy.gov](http://geothermal.energy.gov)

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