

# Enhanced Geothermal Systems: Unlocking Earth's Potential

## What are Enhanced Geothermal Systems (EGS)?

EGS uses directional drilling and stimulation techniques used in oil and gas, creating fractures to allow fluid to flow through hot dry rock, eliminating the need to rely on the presence of natural pathways in geothermal reservoirs

## Why EGS?

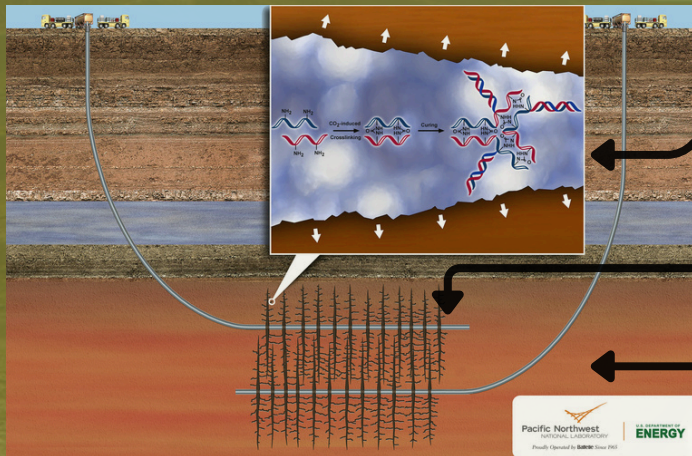
Clean and Firm 24/7 Power

Flexible and Load Following

Easily Transferable Skills from Oil & Gas and Fossil Generation Workforces

## What Makes a Good EGS Site?

Increasing Depth and Heat



Favorable Geological Stresses for Stimulation

Competent Granitic or Metasedimentary Rocks

Heat >182 degsC at < 3km depth

## Environmental Considerations

### Air Quality

Gases from geothermal wells can contain low amounts of sulfides and CO<sub>2</sub>. Recycling geothermal steam and adding scrubbers reduces most of the pollutants.



### Water Quality

Water is potentially affected by geothermal processes, but is mitigated by engineering and fluid reuses. To date no geothermal well has caused water quality issues.



### Water Quantity

A 30 MW Geothermal plant uses 2-6 million gallons of water per year, compared to a coal plant which uses 2.3-2.7 billion gallons per year. In addition geothermal can run off brackish or waste water.



### Seismicity

Geothermal activities can induce seismicity, causing earthquakes that have resulted in deaths and millions of dollars in damages. Projects with intensive site specific protocols have seen no induced seismicity.



## Pathway to Cost Reduction

Improved data collection to better characterize resource through new technologies and computational methods

Advances in drilling technology like polycrystalline diamond bits and mud coolers

Standardization of well stimulation to have more predictable flow rates

Repeatability from drilling many wells on a project site, with the expectation each well will be cheaper and faster due to learning rates

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