

# The Future of Enhanced Geothermal Systems in the United States

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# Geothermal Energy: America's Renewable Powerhouse



## Electric Power

- **High temperatures (>300°F)**
- Wells up to many thousands of feet deep
- Reliable, flexible, baseload grid power



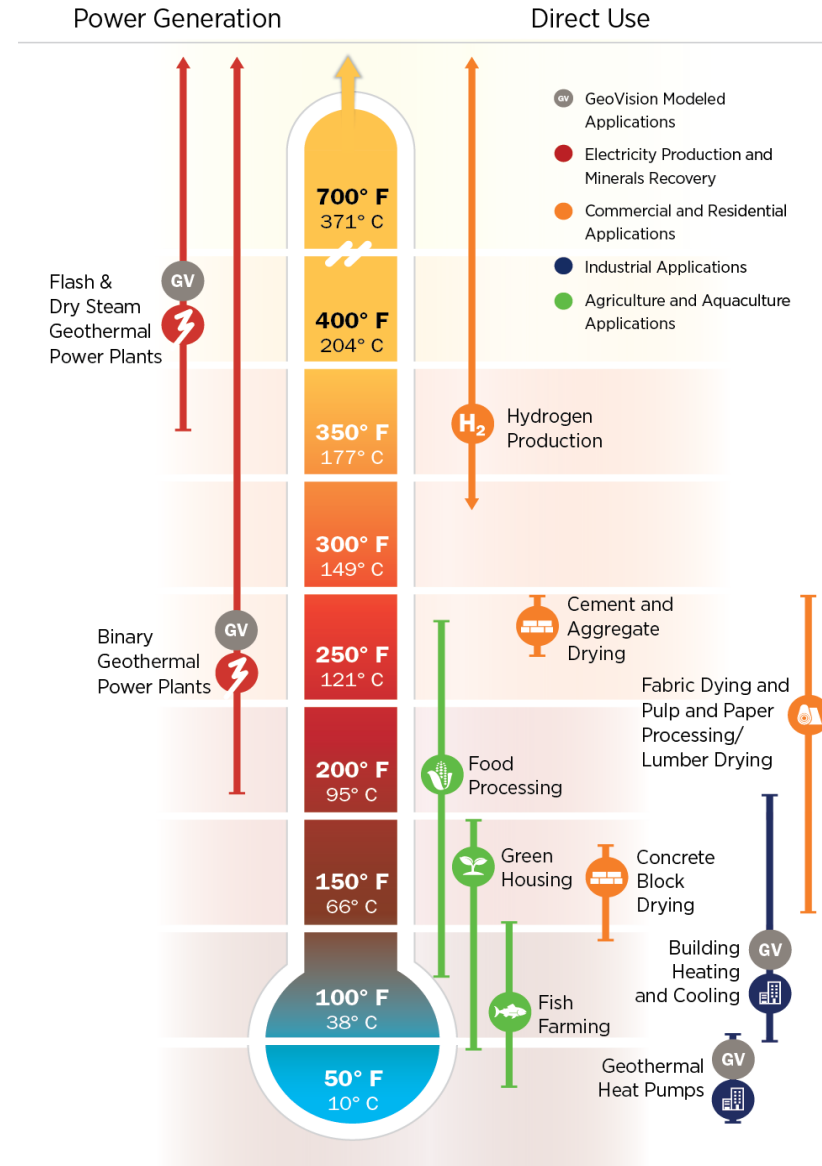
## Direct Use

- **Moderate temperatures (80-300°F)**
- Wells hundreds to thousands of feet deep
- Large buildings, agriculture



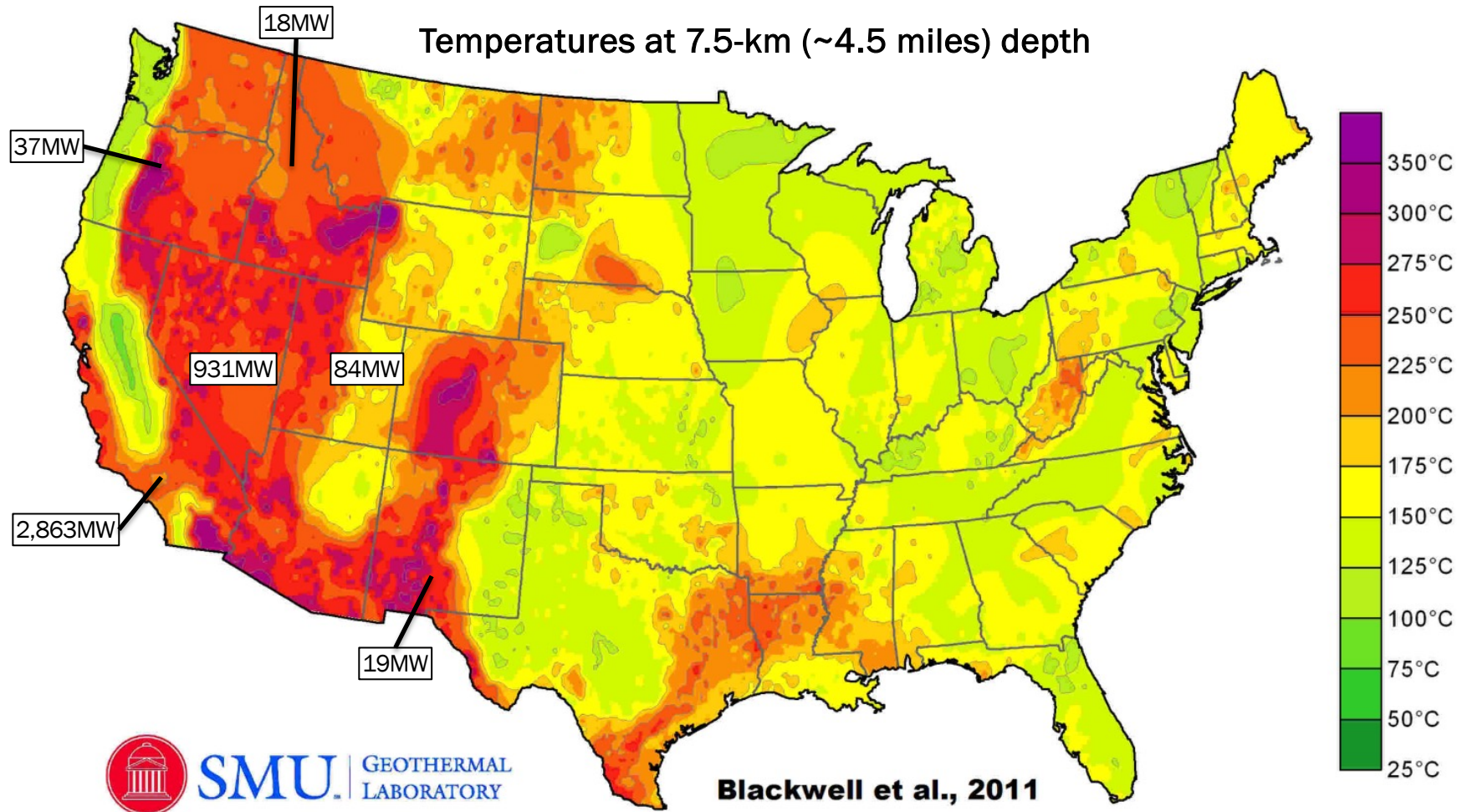
## Heating & Cooling

- **Near-ambient temperatures (40-80°F)**
- Shallow trenches to wells hundreds of feet deep
- Residential, light commercial





# The United States is Hot!



**5 TWe**  
heat resource:  
enough to power the  
entire country!

We use a tiny  
fraction!

## Geothermal Nameplate

### Capacity

- CA: 2,863 MW
- NV: 931 MW
- UT: 84 MW
- HI: 51 MW
- OR: 37 MW
- ID: 18 MW
- NM: 19 MW

**Total ~ 4.0 GW**

There are geothermal resources **everywhere** in the United States and innovation will help us utilize them!



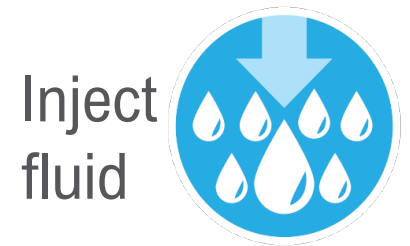
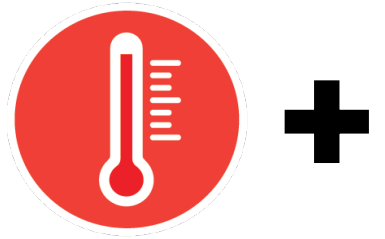
Blackwell et al., 2011

Southern Methodist University Temperature-at-Depth Maps  
[smu.edu/Dedman/Academics/Departments/Earth-Sciences/Research/GeothermalLab/DataMaps/TemperatureMaps](http://smu.edu/Dedman/Academics/Departments/Earth-Sciences/Research/GeothermalLab/DataMaps/TemperatureMaps)



# What are Enhanced Geothermal Systems?

Stranded HEAT is  
**EVERYWHERE**



Inject  
fluid



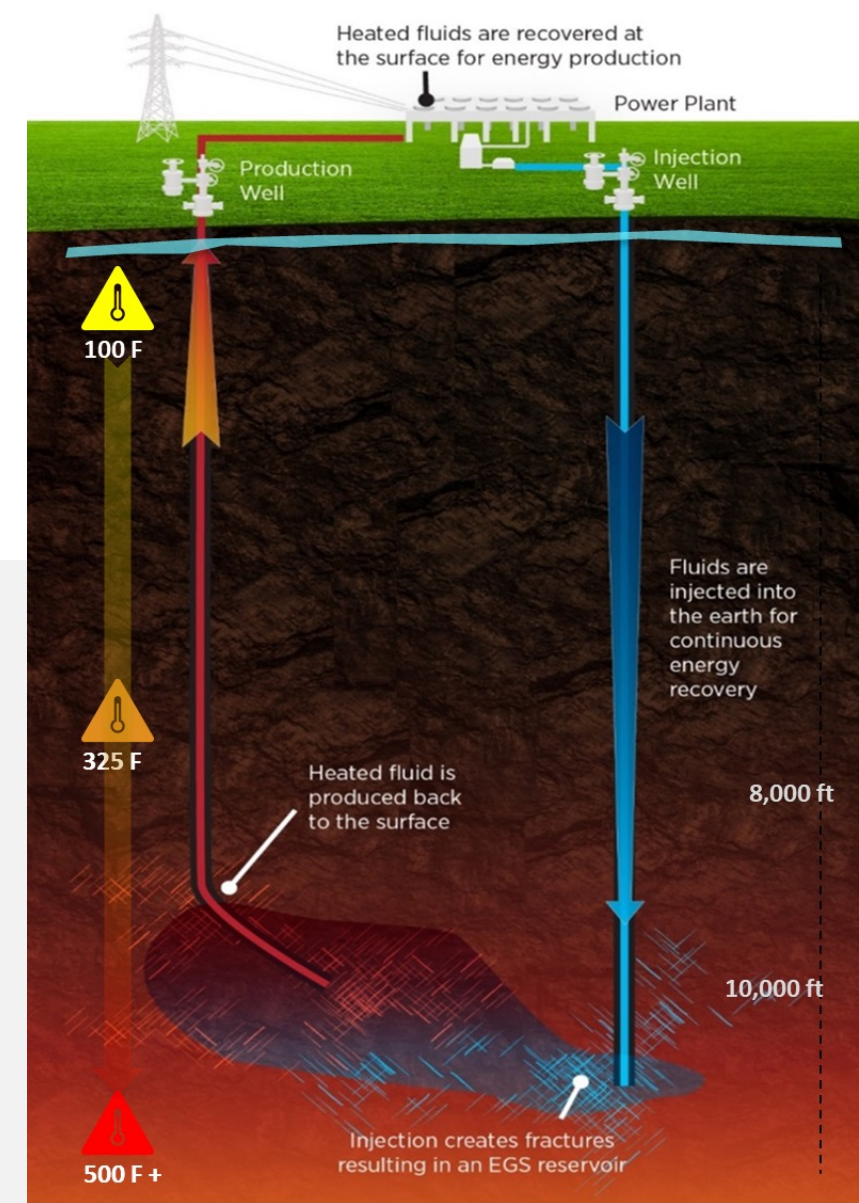
Create  
pathways



## NATIONWIDE POTENTIAL for

- Dispatchable
- Baseload
- Carbon-free

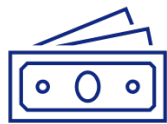
## POWER + HEATING AND COOLING



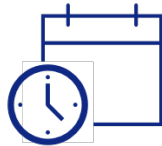
# GTO Initiatives with Significant EGS Focus



Reduce the cost of enhanced geothermal system electricity to \$45/MWh by 2035



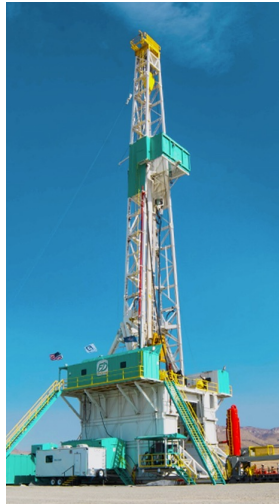
\$ 45/MWh



2035



Frontier Observatory for Research in Geothermal Energy (FORGE), **GTO's largest funding initiative**, is designed to accelerate breakthroughs in enhanced geothermal systems technologies and techniques.



U.S. DEPARTMENT OF ENERGY



Geothermal Energy from Oil and gas  
Demonstrated Engineering



Wells of Opportunity (WOO):  
Projects to help establish commercial viability of geothermal energy production from existing hydrocarbon fields or through stimulation of underproducing geothermal wells