Office of Geothermal

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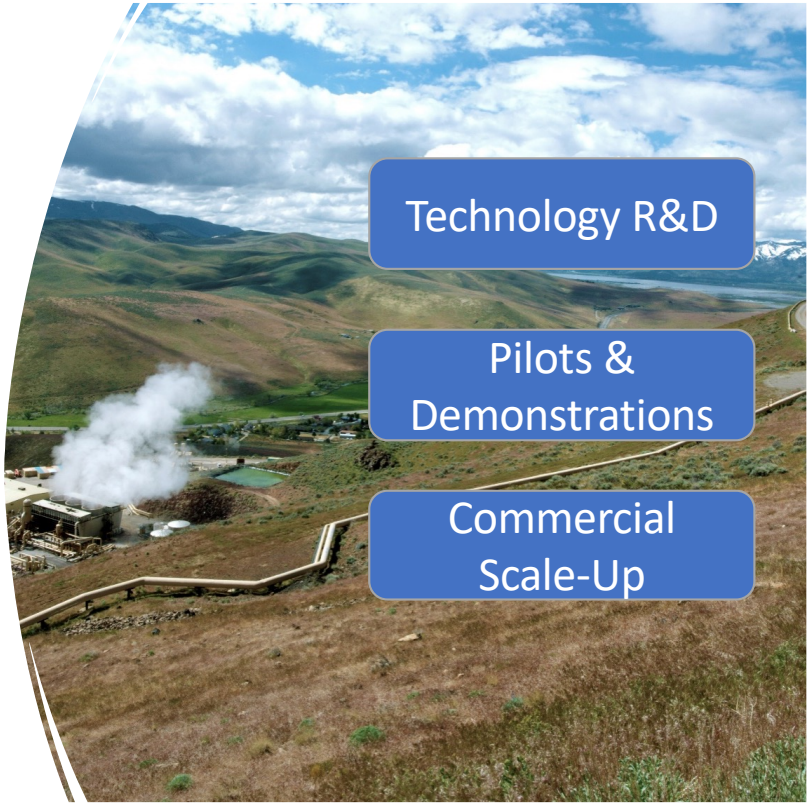
U.S. DEPARTMENT of ENERGY | Hydrocarbons and Geothermal Energy Office



Office of Geothermal:
2026 Strategic Goal and Objectives

Accelerate the discovery and development of gigawatt-scale geothermal energy and position geothermal as a competitive domestic source for reliable baseload electricity generation.

- Supporting resource characterization and advancing the best opportunities for development.
- Driving innovations that enable development optimization of advanced materials, tools, and methods.
- Investing in the revitalization of existing geothermal production.
- Pursuing methods of utilizing geothermal for storage and load-following capabilities.



Office of Geothermal – Research Areas



Pilots & Demonstrations

Advance geothermal innovation through pre-commercial EGS pilot deployments in new geologic and structural settings

Support and manage field activities at Utah FORGE

Improve reservoir performance for EGS and thermal cycling for thermal energy storage



Technology R&D

Improve geothermal exploration using advanced geophysical tools, AI-enabled sensing, and integrated subsurface workflows

Improve drilling speeds and materials

Increase system performance through improved power conversion

Explore opportunities to recover critical minerals from geothermal brines



Commercial Scale-Up

Enable improved permitting processes and accelerated project approvals

Manage all modeling associated with geothermal power and storage uptake, including the GDR

Assess geothermal's contributions to grid services, markets, and long-term reliability

Improve awareness and understanding of geothermal energy

Geothermal Exploration Data

Regional Partnerships for Geothermal Data

- Aims to facilitate discovery and development of new U.S. geothermal resources through field data collection, including geophysics and exploratory drilling
- Projects across multiple regions in the Western United States, Alaska, and Hawai'I

Exploration Drilling

- 16 newly selected projects to gather subsurface data needed to characterize and potentially confirm promising next-generation and conventional hydrothermal geothermal resources
- Projects planned for Alaska, California, Idaho, Nevada, New Mexico, Oregon, Utah, Washington (pending negotiations)

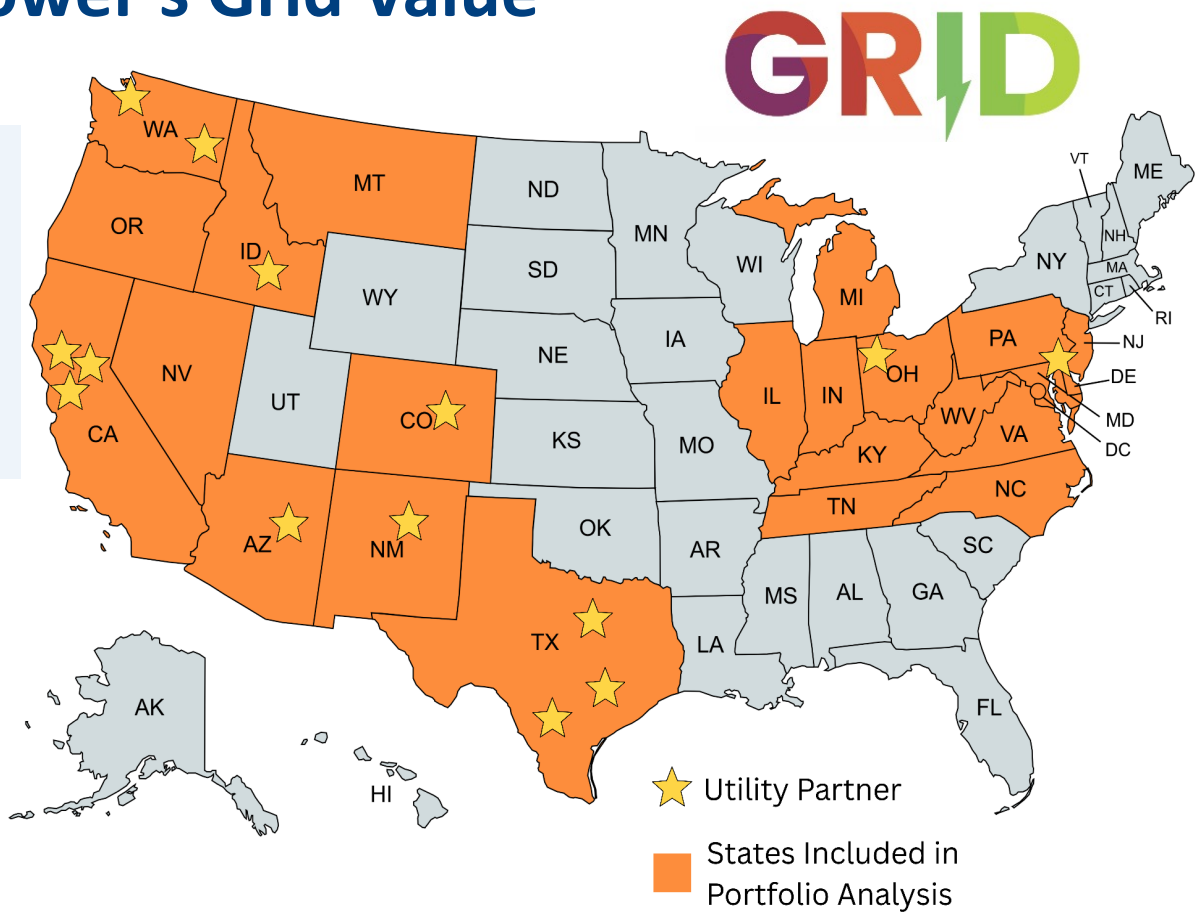


36-MW Don A. Campbell Geothermal Power Plant (Ormat), a hidden system discovered during mineral exploration drilling. Photo courtesy Ormat.

Capturing Geothermal Power's Grid Value

The $9.5M GRID initiative is **quantifying the contribution of geothermal power to the U.S. grid** across 7 projects using analysis approaches and tools like capacity expansion modeling, production cost modeling, and machine learning.

- 5 grid operator, regulator, and industry association partners
- More than a dozen utility partners and additional utility support throughout the regions of study



Geothermal Analysis and Permitting Work

reV: Detailed spatial-temporal visualization model for renewable energy capacity, generation, and cost https://www.nlr.gov/gis/rev

RAPID Toolkit: One-stop access to federal and state permitting information, best practices, and reference material https://openei.org/wiki/RAPID

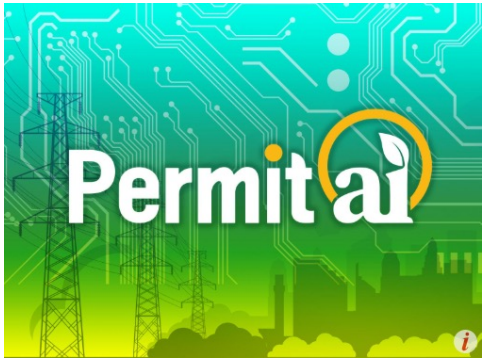
Permit AI: AI-powered tools to improve permitting and environmental review across the government https://www.pnnl.gov/projects/permitai

Continuous Ordinance Mapping for Planning and Siting Systems (COMPASS): Using Large Language Models to collect and organize local ordinance data

Permitting Timelines: Will assemble and analyze first-of-its-kind dataset of large-scale geothermal permitting timelines and outcomes







Geothermal Power Accelerator

- Enables collaborations among states to share best practices and learnings
- Facilitates opportunities to work with industry, national laboratories, and federal agencies
- Empowers states to address distinct needs while still creating replicable solutions
- Provides technical assistance to target state-identified concerns
- Creates a body of “first-mover” states who can support other states interested in geothermal

