



CLEAN AIR
TASK FORCE



Fiscal Year 2025 Appropriations: Next-Generation Geothermal Technologies

Next-generation geothermal energy is the next frontier of clean-energy development in the United States. To ensure it meets its potential, our partner group of industry and climate leaders is seeking a paradigm shift in federal research, development, and demonstration funding to support the advancement and deployment of next-generation geothermal technologies.

These innovative technologies, which include Enhanced Geothermal Systems (EGS), Advanced Geothermal Systems (AGS) also known as Closed-Loop, and Supercritical Geothermal Systems, harness the Earth’s heat using innovative drilling technologies to provide **24/7 clean, firm, and dispatchable** energy that has a **small physical footprint** and **does not require rare earth materials**. According to the Department of Energy’s (DOE) new report, *Pathways to Commercial Liftoff: Next-Generation Geothermal Power*, next-generation geothermal technologies can expand geothermal power by more than 20x, providing 90 GW or more by 2050 across the U.S.¹

Geothermal Power Technologies			
Category		Description	Scale Potential; Maturity
Conventional	Hydrothermal	Access existing permeable reservoirs of hot water, which can be brought to the surface to generate electricity	Limited scale and growth potential; already commercialized
Next-Generation	Enhanced Geothermal Systems (EGS)	Access hot, dry rock by creating or enhancing fractures in rock and then circulating fluids through the newly fractured network, where they heat up, and are brought to the surface to generate electricity	High scale potential in the West, Gulf Coast, Appalachia and other areas; first pilots and demonstrations taking place
	Closed-Loop Geothermal Systems (AGS)	Access hot, dry rock with a closed-loop system that circulates fluids in a closed pipe and the hot fluids are brought to the surface to generate electricity and industrial-scale heating	High scale potential in the West, Gulf Coast, Appalachia and other areas; first pilots and demonstrations taking place
	Supercritical Geothermal Systems	Access hot, dry rock above 373 °C, the supercritical point of water, using either EGS or closed-loop technologies, generally at greater depths	Very high scale potential; several technology barriers remain to access supercritical conditions

Next-generation geothermal technologies have not received adequate federal funding despite their enormous potential and unique benefits. For instance, Section 3002 of the Energy Act of 2020 (Division Z of Public Law 116-260) authorizes \$170,000,000 annually for Fiscal Years 2021-2025 for geothermal technologies, but even these modest levels have never been fully funded. Increased ambition is needed to ensure that next-generation geothermal technologies succeed. Funding support for next-generation geothermal demonstrations is especially important, given the high barriers for financing first-of-a-kind projects. DOE’s Liftoff report suggests \$4.5 billion will be needed to finance approximately 10 first-of-a-kind projects in various U.S. locations. This could be sourced partially from government.

¹ https://liftoff.energy.gov/wp-content/uploads/2024/03/LIFTOFF_DOE_NextGen_Geothermal_v14.pdf, p.2

To put next-generation geothermal on a path toward commercialization and large-scale deployment, we are requesting the following levels of federal support and report language in Fiscal Year 2025. These levels will serve as a starting point toward reaching the \$3.5 billion for the DOE that advocates and experts have determined is necessary to make the next-generation geothermal industry the next clean-energy growth sector in the United States.

Fiscal Year 2025 Energy and Water Development and Related Agencies Appropriations

1. **Geothermal Technologies:** \$285,000,000 (including \$115,000,000 for next-gen R&D/pilots and \$100,000,000 for next-gen demos)

Report Language: The Committee recommends not less than \$285,000,000 for research, development, demonstration, and deployment of the full spectrum of geothermal innovations, using the full suite of authority under section 3002 of the Energy Act of 2020 (Division Z of Public Law 116-260). Within available funds, the Committee recommends funding for next-generation geothermal power production technologies that are not yet commercial but that have the potential to greatly expand the scale and geographical range of geothermal power production, including enhanced geothermal systems, deep closed-loop geothermal systems, geothermal systems which harness heat from temperatures at which water becomes supercritical, and other innovative geothermal power technologies of varying technological readiness levels, including not less than \$115,000,000 to support research and development, including pilots in diverse geographical regions, and \$100,000,000 to support demonstrations. Funding for next-generation geothermal power production technologies can also be used for projects using enhanced geothermal systems or deep closed-loop geothermal systems for industrial-sector applications and large-scale heating and cooling applications. Within 180 days of enactment, the Committee directs the Department to submit a report detailing its efforts to support the full range of geothermal technologies, as authorized by the Energy Act.

2. **Office of Clean Energy Demonstrations:** \$125,000,000

Report Language: The Committee recommends the Office of Clean Energy Demonstrations to prioritize next-generation geothermal power production technologies in its demonstration portfolio, including by providing not less than \$125,000,000 for next-generation geothermal demonstration projects. Next-generation geothermal power production technologies are those that are not yet commercial but have the potential to greatly expand the scale and geographical range of geothermal power production, including enhanced geothermal systems, deep closed-loop geothermal systems, geothermal systems which harness heat from temperatures at which water becomes supercritical, and other innovative geothermal power technologies. The office is also recommended to prioritize projects using enhanced geothermal systems or deep closed-loop geothermal systems for industrial-sector applications and large-scale heating and cooling applications. The Office of Clean Energy Demonstrations is encouraged to collaborate with the Office of Energy Efficiency and Renewable Energy's Geothermal Technologies Office on demonstration projects.

Additionally, a new state-by-state geothermal resource assessment is needed to better understand where next-generation resources are located. Consistent with the geothermal resource assessments authorized under 42 U.S. Code § 17286 and 30 U.S. Code § 1028, our partner group is requesting:

Fiscal Year 2025 Interior, Environment, and Related Agencies Appropriations

1. **U.S. Geological Survey:** \$15,000,000

Report Language: The Committee provides \$15,000,000 for a new state-by-state assessment to quantify the full range of prospective geothermal resources across all 50 states, prioritizing regions with less data availability, and including resources that could be used for enhanced geothermal systems, deep closed-loop geothermal systems, geothermal systems which harness heat from temperatures at which water becomes supercritical, and other innovative geothermal systems, consistent with 42 U.S. Code § 17286 and 30 U.S. Code § 1028. The assessment shall model varying depths, including depths of at least 9 kilometers.