



THE NEXT GENERATION GEOTHERMAL RESEARCH AND
DEVELOPMENT ACT
(S. 4406/H.R. 8790)

DATE INTRODUCED:

S. 4406 - 04/28/2026

H.R. 8790 - 05/13/2026

WHAT:

S. 4406 – The Next-Generation Geothermal Research and Development Act and its House companion H.R. 8790 would authorize a comprehensive next-generation geothermal program within the U.S. Department of Energy (DOE) to accelerate research, development, demonstration and commercial deployment over a range of technology focus areas, including enhanced geothermal systems, closed-loop systems, and supercritical geothermal technologies. The legislation requires at least one Frontier Observatory for Research in Geothermal Energy (FORGE) site to be capable of testing next-generation systems in supercritical conditions within one year of enactment, and establishes new commercialization-focused grant programs for in-field innovation and surface system improvements.

The bill also establishes a Next-Generation Geothermal Center of Excellence and strengthens DOE’s role in reducing subsurface risk by expanding geothermal data collection, requiring a publicly accessible data repository, and supporting deep exploration drilling to improve heat mapping across the United States.

WHY IT MATTERS:

Next-generation geothermal is emerging as one of the most promising sources of firm American power. DOE estimates these technologies could provide at least 90 GW of electricity by 2050, offering a scalable solution to meet rising demand from AI, manufacturing and industrial growth.

The market is already moving. Since 2021, developers have raised billions in private capital, signed 26 new power purchase agreements representing roughly 1 to 1.6 gigawatts of future capacity and advanced multiple projects toward commercial operation in 2026 and 2027.

Despite this progress, upfront costs remain a key barrier. Geothermal projects are highly capital-intensive, with drilling costs accounting for up to 80% of total project costs. Subsurface uncertainty further increases risk, limiting private investment at scale.

This legislation directly targets those challenges. Supporting milestone-based demonstration projects, advancing drilling technologies and improving access to subsurface data help de-risk

development and unlock private capital. It also aligns federal research efforts with the needs of commercial deployment, ensuring technologies can move from pilot to full-scale operation.

Geothermal also builds on existing American strengths. Leveraging decades of expertise in oil and gas drilling, subsurface characterization and advanced engineering, next-generation geothermal can expand domestic energy production across a much broader geographic footprint, including regions without traditional hydrothermal resources.

At a strategic level, this bill supports U.S. energy dominance by advancing a domestic, always-available power source that strengthens grid reliability, reduces dependence on foreign energy inputs, and enhances American competitiveness.

WHAT'S NEXT:

H.R. 8790 passed the House Science Committee by voice vote on May 20, 2026 and awaits consideration by the House Natural Resources Committee. S. 4406 awaits consideration by the Senate Energy and Natural Resources Committee.

If enacted, the bill would authorize a coordinated federal program to accelerate next-generation geothermal from demonstration to commercial scale. DOE would be directed to deploy milestone-based grants, expand testing capabilities, and support industry-led innovation to reduce costs and improve performance.

By pairing targeted federal support with growing private-sector investment, this legislation would help ensure geothermal becomes a core component of the U.S. energy system in the coming decades.

ORIGINAL SPONSOR:

Senators Lisa Murkowski (R-AK) and Catherine Cortez Masto (D-NV)

Reps. Pat Harrigan (R-NC) and Andrea Salinas (D-OR)

SUPPORT:

ClearPath Action, Clean Air Task Force, Climate Innovation Action, Eavor, Fervo Energy, Geothermal Rising Action, National Wildlife Federation, and the World Resources Institute.

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[S.4406](#)

[H.R.8790](#)