

Geothermal Energy

Exploration and development of geothermal resources on public lands is regulated under the 43 Code of Federal Regulations pt. 3200 and involves four phases: leasing/exploration, drilling, development/utilization, and decommissioning/reclamation. The Bureau of Land Management (BLM) requires project and site-specific National Environmental Policy Act (NEPA) analysis for each proposed phase. Public input is welcomed on the [National NEPA Register](#) during open comment periods.



The cycle of geothermal development

Exploration

Drilling

Utilization

Reclamation

Exploration

The first step is to conduct an initial NEPA analysis of nominated parcels prior to issuing a geothermal lease. The lease will allow a lessee the right to explore and confirm the presence of geothermal resources potentially capable of supporting commercial use. This process consists of minimal ground disturbing activities including surveying, data collection/analysis, and probe shallow, small diameter temperature gradient wells. Exploration typically takes between one to five years.

Drilling

Prior to drilling of production wells, potential ground disturbing activities will be analyzed through a second NEPA process. This phase may consist of activities such as transportation of large equipment and workers to and from the site, drilling of test wells, flow testing, and producing geothermal fluids for chemical evaluation, or injecting fluids into a geothermal reservoir.

Utilization

If geothermal resources have been determined to be adequate for commercial development, the lessee may submit their plans for development, which will undergo another NEPA process. Development plans consist of operation and maintenance of geothermal fields and the generation of electricity; development of infrastructure needed for commercial operations such as access roads, buildings, electrical generation facilities, well fields, pipelines, meters, substations, and transmission lines. Utilization typically lasts from 10 to 50 years.

Reclamation

Phase four, decommissioning and final reclamation, involves removing facilities and returning the site to its original or equivalent use. Wells will be plugged, capped, and sites reclaimed. Native or appropriate vegetation will be replanted and surface recontoured to facilitate natural restoration.

Geothermal Leasing Frequently Asked Questions

Question:	What is geothermal leasing on public lands?
Answer:	Leasing Federal geothermal resources allows a lessee a right to future exploration and development of geothermal resources within the lease area. It does not confer the right to conduct any ground-disturbing activities. The BLM must complete additional NEPA analysis prior to drilling or further development.
Question:	Does a geothermal lease automatically allow for development?
Answer:	No. If the resource is confirmed, the lessee must submit a plan of development and a separate NEPA analysis will be completed to assess potential impacts to resources and the environment prior to development. Geothermal is not readily available everywhere and projects have long development timelines and high up-front costs compared to other energy technologies. Resource uncertainty in early phases means that investors must spend millions before a resource is confirmed. Because of this, limited ground disturbing activities can be used to explore areas prior to a lease being issued. However, a lease must be obtained prior to drilling or development.
Question:	Does geothermal leasing impact access to public lands?
Answer:	During the leasing phase, there is no impact to public access. Typical public use and recreation is not affected during this phase. After a lease is permitted for production, an area as large as 50 acres may be fenced off from the public.

Geothermal Development Frequently Asked Questions

Question:	How does a geothermal resource create energy?
Answer:	Geothermal energy harnesses steam or hot water from the earth to drive turbines connected to generators to produce electricity.
Question	What protections are in place to ensure that geothermal development doesn't harm wildlife or ecosystems?
Answer:	In addition to multiple NEPA analyses to assess potential impacts, stipulations and mitigation strategies may be required such closed-loop systems and fluid management, emission controls, seismic risk reduction, and noise mitigation. The BLM is responsible for monitoring and compliance checks on these permits.
Question	Does geothermal development contribute to the economy?
Answer:	Energy produced on public lands totaled \$9.9 billion in revenue nationally in 2023. Locally, the state receives 50% of the revenue and local communities (counties) with active geothermal developments receive 25%. Only the remaining 25% is retained by the U.S. Treasury.
Question	How does geothermal energy compare to oil, gas, and coal in terms of land use and extraction?
Answer:	Geothermal energy has the lowest impact energy generation model, typically taking only 50 acres. Overall, it has a much smaller footprint extracting less resources than oil, gas, and coal production. Additionally, the production can go on 24-hours a day.