

Andrea Driggs

Partner
602.507.9703
Phoenix, Anchorage
ajdriggs@hollandhart.com



Chris Chrisman

Partner
303.295.8013
Denver, Phoenix
cachrisman@hollandhart.com

State, Federal Incentives Heat Up Geothermal Projects

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The geothermal energy sector is experiencing a renaissance, driven by dramatically accelerated permitting procedures for projects on federal land, as well as state-level incentives that position geothermal as a critical component of U.S. energy independence strategy.

It is also seeing increased investment because it can provide uninterrupted baseload electricity, which makes it uniquely valuable for meeting the clean energy quotas set by state-level renewable portfolio standards.

Once considered a relatively niche resource, geothermal energy generation is emerging as a linchpin of clean energy policy, investment and infrastructure. A September report from the Clean Air Task Force found that breakthroughs in enhanced geothermal systems have brought them to "the cusp of large-scale deployment."[1]

This article summarizes the best practices for operating in the complex legal framework surrounding geothermal energy.

Background

The International Energy Agency has estimated that geothermal energy presently meets less than 1% of global energy demand—but it could meet up to 15% of the demand growth in electricity by 2050.[2]

Despite possessing the world's highest installed capacity, the U.S. still derives only about 0.4% of its electricity from geothermal sources.[3]

Data centers, especially those handling artificial intelligence workloads, are considering geothermal power due to geothermal's reliable baseload and cooling capabilities.

Enhanced Geothermal Systems (EGS) and hybrid systems are further expanding deployment possibilities. Geothermal brines are also being explored for lithium and other critical minerals, creating both opportunities and new permitting complexities.

Federal Initiatives

In May, the U.S. Department of the Interior recently adopted emergency

permitting procedures for geothermal development, marking a significant shift in the federal approach.[4]

Under these new procedures, it proposes to conduct National Environmental Policy Act (NEPA) environmental assessments within a shockingly fast 14 days for strategically important projects, dramatically reducing the typical multi-year review process.[5]

The department has proposed to complete full environmental impact statement for projects that require them in a similarly speedy 28 days.

For the sake of comparison, Congress amended NEPA in 2023 to establish soft deadlines of one year for completing environmental assessments and two years for completing environmental impact statements, and those time frames are roughly half the time actually taken previously.[6]

The Interior Department has also called for expedited Section 7 consultations under the Endangered Species Act (ESA).[7] Similarly, agencies have been instructed to follow alternative procedures to comply with Section 106 of the National Historic Preservation Act (NHPA).[8]

While emergency procedures can expedite timelines, they do not eliminate NEPA obligations or duties under statutes such as the ESA or NHPA.

And they do not eliminate—and in fact may exacerbate—the risk of challenging agency decisions under relevant statutes via the Administrative Procedures Act. Indeed, the Trump administration's declaration of an energy emergency is the subject of Washington v. Trump, a suit filed on May 9 in the U.S. District Court for the Western District of Washington. [9]

The mandate for more timely NEPA reviews has already produced results for geothermal project developers. Three geothermal projects, all in Nevada, have already been evaluated and approved using the improved permitting procedures.[10]

State-Level Landscape

While federal permitting acceleration provides the regulatory foundation, state tax incentives are helping to create an economic framework for geothermal expansion. Geothermal projects also benefit from various state-level support mechanisms across multiple jurisdictions.

Several states offer specific geothermal tax credits and exemptions. Idaho, for example, provides a deduction for alternative energy device installation, including geothermal systems, and exempts geothermal energy producers from certain property taxes.[11]

North Dakota offers tax exemptions for geothermal energy devices,[12] while New Mexico provides both individual and corporate income tax credits for geothermal ground-coupled heat pump systems.[13] The breadth of these incentives reflects growing recognition that geothermal energy offers unique advantages, providing consistent baseload power that can support

grid stability.

States with robust oil and gas regulatory structures (e.g., Texas and California) often adapt those frameworks to geothermal, while others rely on water law or mining statutes, creating regulatory patchworks. This can also create difficulties in developing these resources, since some state laws have not kept pace with industry advances.

Regulatory Challenges and Opportunities

Despite federal support and state incentives, geothermal development continues to face regulatory hurdles. The prevalence of federal, tribal, and state trust lands in Western states means most geothermal projects must navigate multiple agency jurisdictions and comply with various environmental statutes.

State trust lands are lands given to states by the federal government at the time the state was admitted to the union. Western states maintain complex sale and lease policies to benefit trust beneficiaries, frequently public education.

The National Environmental Policy Act remains a significant consideration, even with emergency procedures in place. Projects crossing federal or tribal lands typically trigger comprehensive environmental reviews that can examine impacts on habitat, wildlife, archaeological resources, and natural resource availability.

The ESA presents additional challenges, particularly in biodiverse Western states. Section 7 consultations with the U.S. Fish and Wildlife Service are required for federal agency actions, while Section 9 prohibitions against the unauthorized “taking” of listed species apply universally to both government and private actors.

Further, because geothermal projects are location-constrained, new projects may require transmission upgrades or interconnection studies, which can also be a significant barrier to project development.

Other Considerations

Geothermal development faces complex water rights issues that vary significantly by state. Unlike solar or wind projects, geothermal facilities often require substantial amounts of water for cooling and operational purposes, making water rights a critical consideration.

In Western states where geothermal resources are most abundant, developers must navigate prior appropriation systems that allocate water rights based on “first in time, first in right” principles. Arizona, for instance, requires permits for water appropriation and maintains separate regulatory schemes for surface water and groundwater.[14]

The interaction between geothermal development and water rights becomes particularly complex in areas with existing agricultural or municipal water demands. Developers must often demonstrate that their proposed use will not impair existing water rights or interfere with other

beneficial uses.

Reinjection of geothermal fluids can also trigger permitting under state water quality statutes and the federal Underground Injection Control (UIC) program under the Safe Drinking Water Act. While reinjection permits may be routine in some jurisdictions, they add both cost and increase the timelines for obtaining necessary permits.

Some states have begun addressing these challenges through specialized permitting frameworks. Nevada is working to streamline some processes for renewable energy projects,[15] while Utah provides specific provisions for geothermal water use in its comprehensive water rights statutes.[16]

Practical Suggestions for Developers

Early Stakeholder Engagement

Initiate consultations with government agencies, tribes, local communities and environmental groups before filing applications. This can prevent costly delays later.

Comprehensive Resource Assessment

Conduct thorough geological, environmental and cultural surveys early. The up-front investment pays dividends in smoother permitting.

Water Rights Strategy

Secure water rights or agreements before significant capital investment. In prior appropriation states, this often requires years of lead time.

Transmission Planning

Engage with transmission operators and utilities during early development phases. Interconnection studies can take years and significantly affect project economics.

Manage Litigation Risk

Maintain detailed administrative records and ensure robust public participation processes, even under expedited procedures.

Looking Forward

The convergence of federal emergency permitting procedures, expanding state tax incentives, and evolving regulatory frameworks creates a more favorable environment for geothermal development.

The technology's ability to provide reliable baseload power makes it particularly attractive as utilities and policymakers seek to balance renewable energy goals with grid stability requirements.

Since the Fiscal Responsibility Act of 2023 imposed new time limits on environmental reviews—one year for Environmental Assessments and two

years for Environmental Impact Statements—developers may expect more predictable permitting schedules.

Litigation, however, is expected to test the enforceability of these timelines (and also lengthen the time required for project development).

The geothermal sector's growth trajectory will likely depend on continued federal support, state-level incentive programs, and successful navigation of complex water rights and environmental regulatory frameworks.

For developers willing to engage early with regulators and invest in comprehensive environmental and cultural resource studies, the current regulatory environment presents significant opportunities for project advancement.

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[1] Clean Air Task Force, Fifty years of technological progress bring Enhanced Geothermal Systems to the cusp of large-scale deployment, finds new CATF report, https://www.catf.us/2025/09/fifty-years-of-technological-progress-bring-enhanced-geothermal-systems-to-the-cusp-of-large-scale-deployment-finds-new-catf-report/

[2] International Energy Agency, The Future of Geothermal Energy, https://iea.blob.core.windows.net/assets/cbe6ad3a-eb3e-463f-8b2a-5d1fa4ce39bf/TheFutureofGeothermal.pdf.

[3] U.S. Energy Information Administration, Geothermal Explained, https://www.eia.gov/energyexplained/geothermal/use-of-geothermal-energy.php#:~:text=In%202023%2C%20the%20United%20States,megawatt)%20of%20electricity%20generation%20capacity.

[4] U.S. Department of the Interior, Department of the Interior Implements Emergency Permitting Procedures to Accelerate Geothermal Energy Development for National Security and Energy Independence (May 30, 2025), https://www.doi.gov/pressreleases/department-interior-implements-emergency-permitting-procedures-accelerate-geothermal.

[5] U.S. Department of the Interior, Department of the Interior Implements Emergency Permitting Procedures to Strengthen Domestic Energy Supply (April 23, 2025), https://www.doi.gov/pressreleases/department-interior-implements-emergency-permitting-procedures-strengthen-domestic.

[6] 42 U.S.C. § 4336a (g).

[7] *Id.*

[8] *Id.* Geothermal projects often occur on or near tribal lands. Tribes may assert water and cultural resources interests that can materially affect project development timelines and litigation risks.

[9] *See* Compl., *Washington v. Trump*, No. 2:25-cv-00869, (W.D. Wash. May 9., 2025).

[10]These include the Diamond Flat Geothermal Project, the McGinness Hills Geothermal Optimization Project, and the Pinto Geothermal Project. https://www.blm.gov/press-release/doi-implements-emergency-permitting-procedures-accelerate-geothermal-energy

[11]oemr.idaho.gov/financial-information/incentives/

[12]N.D. Cent. Code § 57-02-08(27).

[13] https://www.emnrd.nm.gov/ecmd/faq/geothermal-ground-coupled-heat-pump-income-tax-credit-7-2-18-24/

[14] Arizona's water law exempts geothermal resource development, but this exemption is voided if the geothermal resource is commingled with surface or groundwater, or if the development impairs or damages the state's groundwater supply. A.R.S. § 27-667(A). Consequently, the exemption is likely to be of little use to most projects. Further, “any well drilled to obtain and use groundwater … shall be subject to the water laws” of Arizona. *Id.*(B).

[15] https://ndep.nv.gov/water/water-pollution-control/resources/streamlined-permitting-process

[16] *See* Chapter 22 of the Utah Geothermal Resource Conservation Act.

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