Chapter 7

Policy and Regulatory Pathways to Catalyze Geothermal in New Mexico

Bruno Carrara

Fifteen policies across five categories of action, if enacted, could catalyze geothermal development, create jobs, increase economic development, and secure New Mexico's energy future.

Geothermal energy is not a new concept in New Mexico. Residents in the state have a long history of enjoying the state's numerous geothermal hot springs and baths. Native people in New Mexico were using the springs long before the Spanish arrived.[1] It is no surprise, then, that geothermal energy is listed as a valuable mineral resource in New Mexico's constitution.[2] In fact, New Mexico is the only state that explicitly mentions geothermal development in its constitution. And yet, New Mexico has significant untapped geothermal resources, including the potential of 163 gigawatts for electricity generation.[3]

Because geothermal energy is in use in the state today, New Mexico has established basic regulatory frameworks and policies to govern its use. The state also passed legislation in 2024 and 2025 to create more geothermal opportunities. But more work needs to be done so New Mexico can expand its resources—bolstering its skilled workforce in the process—and solidify geothermal as a cornerstone of its energy mix.

This chapter identifies 15 policies across five categories that, if enacted, would catalyze the expansion of New Mexico's clean and abundant geothermal resources. Collectively, these policies can help New Mexico create jobs, increase economic development, and meet its climate targets. Many of these policies would build parity for geothermal compared with other energy sources in current New Mexico law. Some are based on actions that other states have successfully implemented—in other words, the geothermal wheel does not need to be reinvented. Acting on these 15 policies will help New Mexico deliver on the promise it set up when it included "for the development and operation of geothermal" in its constitution in 1967.[4]

GEOTHERMAL POLICY RECOMMENDATIONS FOR NEW MEXICO

Create clear pathways and legal and regulatory certainty for industry

- Clarify heat ownership
- Streamline and simplify legal definitions of *geothermal energy*
- Further enable geothermal reuse of depleted or abandoned oil and gas wells
- Identify priority leasing areas and create geothermal Special Economic Zones at the State Land Office
- Proactively plan for and prepare transmission for geothermal electricity projects
- Produce and maintain a "developer tool kit," a one-stop shop for geothermal project development

Create the conditions that will accelerate geothermal production in New Mexico

- Set a regulatory goal of 5 gigawatts of geothermal energy on the New Mexico grid by 2035
- Work with the federal government to catalyze geothermal deployment on federal lands

Expand state geothermal incentives

- Expand the grant and revolving fund to include commercial and private sector projects on state lands
- Establish targeted grants and loans for geothermal power and industrial process heat
- Incentivize geothermal-powered data centers

Catalyze the development of geothermal heating and cooling

- Allow utilities to build, own, and operate Thermal Energy Networks (TENs)
- Improve utility efficiency with expanded geothermal heating and cooling (GSHP)

Expand educational programs for energy workers and the public

- Expand geothermal-specific apprenticeships and workforce trainings
- Update public education materials and improve outreach for funding opportunities

15 RECOMMENDATIONS TO IMPROVE GEOTHERMAL DEVELOPMENT IN NEW MEXICO

Create Clear Pathways and Legal and Regulatory Certainty for Industry.

1. Clarify heat ownership in the state's legal and regulatory language.
2. Streamline and simplify legal definitions of *geothermal energy*.
3. Further enable geothermal reuse of depleted or abandoned oil and gas wells.
4. Identify priority leasing areas and create geothermal Special Economic Zones at the State Land Office.
5. Proactively plan for and prepare transmission for geothermal electricity projects.
6. Produce and maintain a "developer tool kit," a one-stop shop for geothermal project development.

Create the Conditions That Will Accelerate Geothermal Production in New Mexico.

7. Set a regulatory goal of 5 gigawatts of geothermal energy on the New Mexico grid by 2035.
8. Work with the federal government to catalyze geothermal deployment on federal lands.

Expand State Geothermal Incentives.

9. Expand the grant and revolving fund to include commercial and private sector projects on state lands.
10. Establish targeted grants and loans for geothermal power and industrial process heat.
11. Incentivize geothermal-powered data centers.

Catalyze the Development of Geothermal Heating and Cooling.

12. Allow utilities to build, own, and operate thermal energy networks.
13. Improve utility efficiency with expanded geothermal heating and cooling.

Expand Educational Programs for Energy Workers and the Public.

14. Expand geothermal-specific apprenticeships and workforce training.
15. Update public education materials and improve outreach for funding opportunities.

Some of the recommendations can be undertaken quickly (indeed, two of them dovetail with laws that have recently been passed) by the state or other private entities without waiting for statutory or regulatory processes. Others require government-initiated changes and will take time. All of the recommendations are, nonetheless, important steps to help expand an efficient, productive geothermal industry while also advancing new projects in New Mexico that are clean, always on, and responsive for the benefit of all New Mexicans.

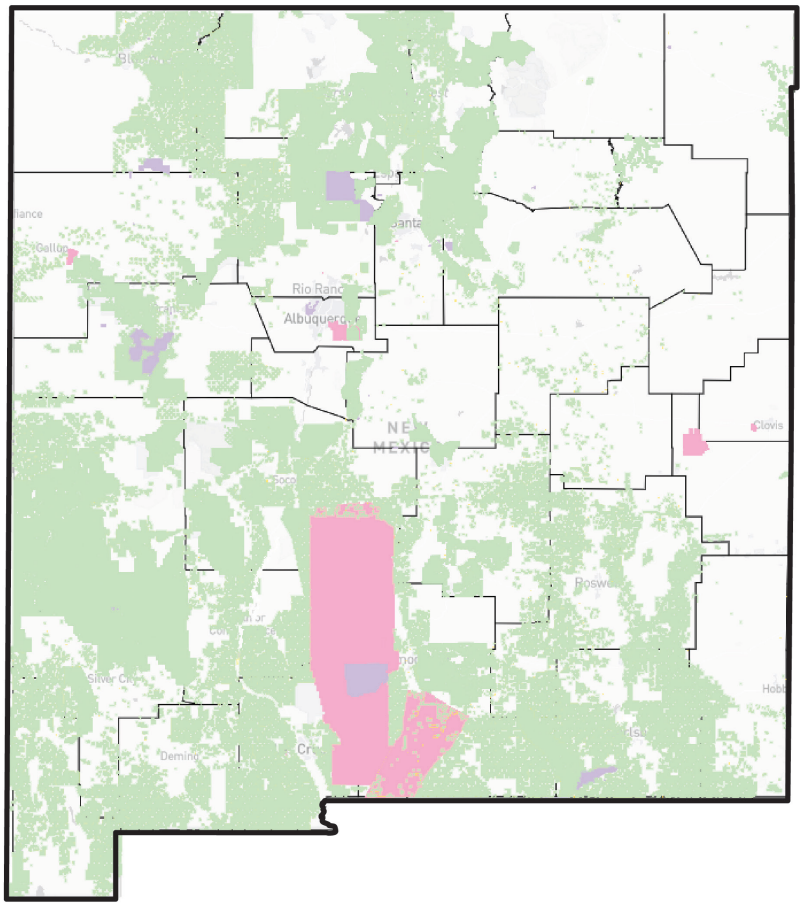
A HISTORY OF GEOTHERMAL ENERGY POLICIES IN NEW MEXICO

As explained in Chapter 6, "Who Owns Heat?" land ownership in New Mexico is mixed, with about 35% owned by the federal government; 12% owned by the 23 sovereign Tribes, Pueblos, and Tribal Nations present in the state; 8% owned by the state itself; and the rest (45%) owned by municipal governments and private individuals.[5] All resource development—whether fossil fuels, water, minerals, or geothermal—is subject to the regulations affiliated with the underlying plot of land. (See **Figure 7.1**.)

The policies discussed in this section include the laws and procedures affecting geothermal development on state and private lands. That said, New Mexico is home to a vast swath of federal land that has some of the state's highest potential geothermal resources. A number of federal facilities, including military bases and research centers, are also located in the state, and these facilities are large and energy intensive. In the first few months of its second term, the Trump administration has made it clear that next-generation geothermal is a priority.[6]

This commitment to next-generation geothermal gives the state the opportunity to partner with the administration to catalyze geothermal on federal lands in New Mexico, including on military bases. In fact, the U.S. Department of Defense (DOD) is currently pursuing geothermal on

FEDERAL LAND OWNERSHIP IN NEW MEXICO



- **Bureau of Land Management, Fish and Wildlife Service, and Forest Service**
- **Department of Defense**
- **National Park Service**

Figure 7.1: Map of federal land ownership in New Mexico. Source: Project InnerSpace. (n.d.). USA Federal Lands (2025) [Data layer]. North America Module. GeoMap. https://geomap.projectinnerspace.org/geomap/

military installations to improve the security, reliability, and resilience of energy consumed on some of the agency's properties.[7] Several of New Mexico's DOD bases have some of the best geothermal potential in the country, including Fort Bliss, White Sands Missile Range, and Kirtland and Holloman Air Force Bases.[8] Additionally, Chapter 8, "New Mexican Stakeholders," explores geothermal development on the vast lands in New Mexico's state borders that belong to Tribes and Pueblos.

CONSTITUTIONAL BACKDROP

In 1978, the New Mexico Legislature passed the Geothermal Resources Development Act. The law has been amended and updated on multiple occasions, including most recently during the 2024 legislative session (House Bill 91).[9] Currently, that act and related New Mexico law define geothermal as "the natural heat of the Earth in excess of 250 degrees Fahrenheit, or the energy, in whatever forms" produced as a result of the Earth's heat.[10] The Energy, Minerals, and Natural Resources Department's (EMNRD's) Energy Conservation and Management Division (ECAM) is tasked with the responsibility to regulate the state's geothermal resources.

Although it is somewhat arbitrary, this 250°F (121°C) threshold is intended to distinguish and establish different regulatory regimes between geothermal for electricity generation (which typically uses subsurface resources above the boiling point of water, 212°F [100°C] at sea level)[11] and geothermal for heating and cooling applications (district heating and ground source heat pumps). See Chapter 1, "Geothermal 101," for more detail

on types and temperatures of geothermal electricity generation. Management of New Mexico's geothermal resources at temperatures lower than 250°F (121°C) currently falls under the jurisdiction of several agencies, but primary responsibility falls to the Water Rights division in the Office of the State Engineer.

GEOTHERMAL INCENTIVES AND THE NEW MEXICO RENEWABLE PORTFOLIO STANDARD: HB 252 AND HB 2

HB 252

In 2024, New Mexico passed House Bill (HB) 252 into law, which created and expanded a number of financial incentives for geothermal energy projects. These incentives have the potential to have an impact, but work is needed to improve them.

The bill created a fully refundable tax credit for individuals and businesses that install new ground source heat pumps (GSHPs) to heat and cool their buildings. The credit covers up to 30% of the purchase and installation cost of a system, up to a maximum of $9,000.[12] Although the recipient must still pay for the system up front, the size of the credit goes a long way toward bringing the ultimate capital cost of GSHPs into parity with conventional heating and cooling. In addition, the energy efficiency of GSHPs means that the operating costs and lifetime costs are well below the costs for conventional HVAC systems, with one study estimating that the average New Mexican could save nearly $500 per year with a GSHP.[13] The federal government also currently offers incentives for GSHPs, further reducing costs for homeowners.[14] In 2015, New Mexico also passed HB 263, which allows rural electric co-ops to count energy savings from GSHPs toward their renewable portfolio standard requirements.[15]

HB 252 established a production tax credit of $0.015 per kilowatt-hour for geothermal electricity generation.[16] The sum of the tax credits to all New Mexican geothermal electricity producers available is $5 million per year.[17] Site-specific analysis is required to calculate the potential savings that this credit would provide to a geothermal electricity project developer, but we calculate that the credit could reduce the purchase price of electricity from a hypothetical 130 megawatts at a geothermal power plant near Albuquerque by 15%.[18] If the Federal Production Tax Credit created by the Inflation Reduction Act remains in place, this could also reduce prices up to an additional 18%.[19,20] Recommendation #10 in this chapter highlights how the state tax credit could be improved.

HB 2

In 2024, HB 2 created and appropriated $5 million to the Geothermal Projects Development Fund (GPDF).[21] The GPDF has two pathways to help expedite geothermal development, each of which was originally allocated $2.5 million:

- The first pathway is a grant that provides up to $250,000 to study a proposed geothermal project or to help finance the development of a geothermal project. These grants are limited to public entities (e.g., city, county, or municipal governments; state universities; Nations, Tribes, or Pueblos).[22]

- The second pathway is the Geothermal Projects Revolving Loan Fund (GPRLF), which provides low-interest loans to public, nonprofit, and Tribal entities to apply for financing for a geothermal development project.[23] (As of this writing, staffing constraints and the newness of the grant and loan programs meant EMNRD had not yet released details on these application processes.)

In March 2025, New Mexico passed an updated HB 2 from the House Appropriations and Finance Committee. This bill increased the total funding available for the GPDF program from $5 to $15 million.[24] Increased funding for feasibility studies and for project finance removes much of the initial risk for a project, which should have a positive impact on the number of projects being developed in New Mexico. HB 2 did not specify how the $10 million increase will be divided within the GPDF. Recommendation #9 in this chapter provides suggestions for next steps for this funding.

Along with these policy carrots, New Mexico's renewable portfolio standard (RPS) also provides a stick: It requires a certain amount of the electricity consumed by utility customers to come from renewable energy resources.[25] Investor-owned utilities are required to increase the

POWER GENERATION AND NEW MEXICO'S GRID: ELECTRICITY AND NATURAL GAS UTILITIES

New Mexico's electric grid is powered by a variety of utility providers.

Three main investor-owned electric utilities operate in the state: Public Service Company of New Mexico (PNM), which is part of TXNM Energy; Southwestern Public Service Company (SPS), which is part of Xcel Energy and serves 14 communities and many large industrial consumers in southeastern New Mexico; and El Paso Electric, which is part of the Infrastructure Investments Fund and serves Las Cruces, New Mexico, and surrounding areas. PNM also owns and maintains most of the high-voltage transmission lines in the state.

There are also 16 rural electric cooperatives (co-ops), a number of localities served by municipally owned utilities, and the Navajo Tribal Utility Authority.

As for gas, there are two investor-owned natural gas utilities in New Mexico, New Mexico Gas Company (NMGC) and Zia Natural Gas Company. As this report was being written, NMGC had filed with the New Mexico Public Regulation Commission (NMPRC) to be acquired by Southern Holding Company of Bernhard Capital Partners. Many consumers in New Mexico rely on butane and propane.

With regard to utility oversight, the NMPRC oversees all gas and electric utility matters, including cost of service, service quality and reliability, requirements for interconnection, intrastate transmission and distribution, utility energy efficiency requirements, and net-metering. In addition, SPS and Western Farmers Electric participants are also members of the Southwest Power Pool (a regional transmission organization), connecting them to the eastern interconnection grid of the United States.

Because of the variable nature of electricity consumption patterns, utilities assign a premium to generation resources that can modulate their output to follow the load and resources that can operate on a 24/7 basis, providing always-on power.

In 2007, New Mexico passed the Renewable Energy Transmission Act, which created the New Mexico Renewable Energy Transmission Authority (RETA). RETA facilitates the development of electric transmission projects that can unlock and harvest New Mexico's renewable energy resources in the state—and it isn't subject to NMPRC oversight. RETA's goal is to provide focus and partnership opportunities for transmission projects that carry a minimum 30% of capacity from renewable energy–generating facilities. Although RETA focuses on transmission, its charter includes lower-voltage distribution and battery storage programs.

Sources: New Mexico Gas Company. (n.d.). *Regulatory information*. https://www.nmgco.com/en/Regulatory_Filings; Zia Natural Gas Company. https://www.zngc.com/; New Mexico Legislature. (2021). *Section 62-16-4: Renewable Portfolio Standard*. In *2021 New Mexico Statutes: Chapter 62–Electric, Gas and Water Utilities, Article 16–Renewable Energy Act*. https://www.nmlegis.gov/Sessions/21%20Regular/bills/house/HB0176.HTML; Southwest Power Pool. (2025, March 20). *SPP first RTO to operate in both interconnections with tariff approval*. https://www.spp.org/news-list/spp-first-rto-to-operate-in-both-interconnections-with-tariff-approval/; New Mexico Renewable Energy Transmission Authority. (2024, October 25). *Partnering to make renewable energy a reality: Landowners, developers, and communities working together*. https://www.nmlegis.gov/handouts/WNR%20102824%20Item%2010%20RETA%20Transmission%20Overview.pdf; New Mexico Legislature. (2024). *New Mexico Renewable Energy Transmission Authority Act*, N.M. Stat. Ann. § 62-16A-1 to 62-16A-16. https://law.justia.com/codes/new-mexico/chapter-62/article-16a/

NEW MEXICO RENEWABLE PORTFOLIO STANDARD AND ZERO-CARBON TARGETS

Year	Investor-Owned Utilities (IOUs)	Rural Electric Cooperatives (RECs)
2020	20% renewable energy	10% renewable energy
2025	40% renewable energy	40% renewable energy
2030	50% renewable energy	50% renewable energy
2040	80% renewable energy	
2045	100% renewable energy	
2050		100% zero-carbon resources (80% renewable minimum)

Figure 7.2: Chart summarizing New Mexico's renewable portfolio standard (RPS) and zero-carbon resource standard targets for both investor-owned utilities (IOUs) and rural electric cooperatives (RECs). Source: New Mexico Economic Development Department. *Energy Transition Act awards,* https://edd.newmexico.gov/wp-content/uploads/2024/04/Energy-Transition-Act-Awards-1.pdf

fraction of energy from renewable sources gradually, in steps over time, reaching 100% by 2045. Geothermally produced electricity is an eligible renewable resource. As explained in this report, geothermal only contributes 0.1% of New Mexico's electricity today, whereas wind and solar contribute 41% and 11%, respectively.[26]

Some states have even included mandates for certain technologies in their renewables goals. Having a specific geothermal mandate, as explained in Recommendation #7, would help catalyze the industry in New Mexico. Chapter 3, "Where Is Geothermal in New Mexico?" outlines the massive geothermal potential in New Mexico; expanding the industry could go a long way toward helping the state meet its 100% renewable energy target.

POLICY RECOMMENDATIONS

The current policy environment in New Mexico gives it a foundation for deploying geothermal energy in the state. But more can be done to rapidly accelerate geothermal development—from conventional hydrothermal to next-generation electricity, direct use in manufacturing and industrial processes, and geothermal heating and cooling. The policy actions outlined in this section can position New Mexico to lead a transformative era for geothermal growth across the country.

CREATE CLEAR PATHWAYS AND LEGAL AND REGULATORY CERTAINTY FOR INDUSTRY.

Recommendation #1: Clarify Heat Ownership in the State's Legal and Regulatory Language.

Who Takes Action: State Legislature

One of the most significant legal and regulatory hurdles to advancing geothermal in New Mexico is the lack of clarity about who owns subsurface heat. Unlike for other energy resources such as oil, gas, or minerals, rights to geothermal heat are not clearly defined in state law, which can create uncertainty for landowners, developers, and regulators alike. This lack of definition can also affect lease negotiations, permitting, and investment decisions—particularly when surface and mineral estates have been severed.

To resolve this issue, the Geothermal Resources Development Act would need to be amended to remove or clarify the phrase "minerals in solution"[27] from the statutory definition of *geothermal resources*. This ambiguous language risks conflating geothermal heat with mineral extraction, which can complicate ownership determinations and regulatory processes. Following the model of Texas SB 785, which explicitly excluded minerals from the definition of *geothermal resources*,[28] New Mexico should revise its legal definitions to eliminate confusion and reinforce that geothermal heat is a distinct and nonmineral resource. Such clarification would support a more coherent legal framework and reduce barriers to geothermal leasing and development on both state and private lands.

Additionally, New Mexico should consider adopting a statutory presumption that geothermal heat belongs to the surface estate unless a deed or legal document explicitly states otherwise. This would align with judicial precedent in other western states that apply the "ordinary and natural meaning" test—and it would bring clarity to surface-mineral estate disputes without requiring judicial interpretation in each case. Embedding this presumption into statute would empower surface owners, reduce legal uncertainty, and promote investment in geothermal development by clearly identifying who holds leasing authority in the absence of severed rights. Such a measure would complement existing statutes while addressing one of the core ambiguities slowing geothermal project initiation across New Mexico.

Recommendation #2: Streamline and Simplify Legal Definitions of *Geothermal Energy*.

Who Takes Action: State Legislature and Energy, Minerals, and Natural Resources Department

In the strictest interpretation, the current language in the Geothermal Resources Development Act prohibits new commercial geothermal power plant construction. As written, the act says, "Geothermal resources may be administered as a renewable energy resource, in which case any leases for and regulations of a geothermal resource as a renewable energy resource shall require that the geothermal resource not be diminished beneath applicable natural seasonal fluctuations in the measurable quantity, quality or temperature of any area classified as a known geothermal resources field."[29] Although geothermal heat is renewable and is continually replenished over time, standard operating conditions of commercial geothermal power plants do typically result in small incremental reductions in reservoir temperature over the lifespan of a plant, often approximately 1°C (34°F) per year.[30,31] Thus, the language effectively prohibits commercial-scale geothermal development on New Mexico state land. But geothermal laws in neighboring states do not contain this statutory prohibition, so it is easier to design and develop commercial geothermal projects outside of New Mexico. The law could be amended to simply read, "Geothermal resources may be administered as a renewable energy resource."

State offices are currently attempting to develop work-arounds for this issue; nonetheless, this language should be removed from the statute because it is inconsistent with how renewable geothermal resources are developed—and it puts New Mexico at a disadvantage.

Recommendation #3: Further Enable Geothermal Reuse of Depleted or Abandoned Oil and Gas Wells.

Who Takes Action: Energy, Minerals, and Natural Resources Department

Before the publication of this report, in March 2025, New Mexico passed HB 361, EMNRD Conversion of Certain Wells. This law authorizes the conversion of depleted oil or gas wells into facilities that provide energy storage or develop geothermal energy.[32] Similar legislation passed in Texas in 2023 permits an operator to claim ownership of an otherwise abandoned oil and gas well for the purposes of generating geothermal electricity.[33] Currently, the Oil Conservation Division of EMNRD is in the process of developing rules for HB 361 and will transfer the management of the program to ECAM.

Here is some background for this recommendation: New Mexico is a significant producer of oil and natural gas, which means the number of wells has proliferated over the years. It is estimated that New Mexico has drilled more than 110,000 wells since 1973.[34] Nearly 53,000

of these wells are still producing,[35] which leaves more than 74,000 wells depleted and or abandoned.[36] When an oil or gas well ceases to produce in economically beneficial quantities, state law requires operators to plug it.[37] Today, a number of studies and pilot projects are exploring the possibility and benefits of reusing hot, depleted oil and gas wells for geothermal uses, including direct-use, power generation, or energy storage, turning these wells into a new asset for the state.

Now that a law has passed in New Mexico to help operators potentially use thermal waste via these wells, the next recommendation is for EMNRD to rapidly adopt regulations implementing the law to ensure safe operations of converted or coproducing wells for geothermal applications.

Recommendation #4: Identify Priority Leasing Areas and Create Geothermal Special Economic Zones at the State Land Office.

Who Takes Action: State Land Office and Economic Development Department

The State Land Office (SLO) should focus on geothermal possibilities by identifying priority lease sites and Special Economic Zones on state-owned land and accelerating the issuance of lease bids, among other actions. If necessary, the SLO should receive additional appropriated funding to do this work.

First, the SLO should create Special Economic Zones geared toward accelerating geothermal growth. Chapter 3, "Where Is Geothermal in New Mexico?" outlines areas in New Mexico that have significant potential for geothermal development. The SLO should refine and prioritize these areas based on criteria such as the quality of the heat resource, proximity to transmission lines, proximity to heat or electricity demand, and any appropriate fiscal incentives (e.g., Inflation Reduction Act tax credits) to create these special zones. These zones should also be chosen with the aim of ensuring minimal environmental impact. The SLO should also create zones for geothermal-powered data centers (see Recommendation #11) and avenues for former coal power plants to transition to geothermal. According to GeoMap, New Mexico is home to two of the nation's four coal plants with the highest subsurface heat potential.[38]

The potential to convert coal plants to geothermal facilities has been investigated around the world, even in regions where geothermal potential is minimal.[39,40,41]

Beyond converting coal plants, the Energy Transition Act (SB 489) mandates that New Mexico's gas plants must take action to decarbonize by 2045.[42] Undertaking these conversion projects in New Mexico would provide an easier connection to the grid, as six of the existing 18 gas plants overlap with areas that have high geothermal potential (see Chapter 3, "Where Is Geothermal in New Mexico?"). Investing in geothermal power generation has the potential to help the state avoid—or at least defer—huge expenditures in building transmission lines for wind from the eastern New Mexico plains to load centers.

The state could accelerate geothermal development in Special Economic Zones through different mechanisms. For instance, permitting and leasing in these zones could be expedited, and wait times to connect to transmission lines could be shortened. Additionally, SLO could streamline right of entry, optioning, and leasing processes. Any of these actions would create incentives for developers. Projects in the zones could also be fast-tracked for financial support from the Geothermal Projects Development Fund. To create additional fiscal incentives, the Economic Development Department could help underwrite the costs of initial exploratory wells in each zone and ensure developers and financial backers have access to that data so they have a better sense of the subsurface heat resource. As needed, the Economic Development Department could also work with other state entities to prioritize these zones for interconnection to the grid (see Recommendation #5).

In fact, geothermal zones could be developed under a similar framework as SB 169, the Strategic Economic Development Site Readiness Act,[43] which helps ready areas in New Mexico for businesses and which the Economic Development Department currently oversees. The state could also create fiscal incentives if certain job or performance thresholds are met, similar to the Inflation Reduction Act's prevailing wage and apprenticeship requirements.[44]

In addition, the website for New Mexico's Office of Renewable Energy (at the SLO) lists geothermal among the state's "abundant renewable resources" that can be developed on state-owned land, but there is no additional information.[45] Building a web page that includes information such as potential geothermal sites, downloadable data for prospective developers, leasing opportunities, and simple instructions on how to apply to the Geothermal Projects Development Fund and the Geothermal Projects Revolving Loan Fund should be a priority (see Recommendation #15). The New Mexico Institute of Mining and Technology would be an excellent in-state partner for developing such a website and to help link technical information to the SLO site.

Recommendation #5: Proactively Plan for and Prepare Transmission for Geothermal Electricity Projects.

Who Takes Action: New Mexico Renewable Energy Transmission Authority

The governor's office, EMNRD, and private developers should engage the New Mexico Renewable Energy Transmission Authority (RETA) to support geothermal electricity production projects. As mentioned earlier, RETA was created to support the transmission of renewable energy in New Mexico. RETA's main focus has been on high-voltage transmission of electrical power produced by wind, solar, and battery storage. Its mission, however, includes lower-voltage transmission, which may be more directly applicable for geothermal power projects because of next-generation geothermal's ability to be located close to the point of demand (enabling local distribution).[46]

As part of its mission, RETA conducts a well-attended energy storage workshop.[47] Geothermal energy storage (see Chapter 1, "Geothermal 101") has advanced significantly over the past few years, and the passage of HB 361, which advances the possibility to reuse abandoned and decommissioned oil and gas wells for geothermal storage and energy, has accelerated these projects.[48] New Mexico could benefit from the potential of pairing longer-term geothermal storage with intermittent renewables. RETA could promote these opportunities at its annual workshop and seek out projects that are baseload and dispatchable and, as appropriate, could advance them to the front of the line for interconnection.

Finally, RETA should play an active role in the creation of geothermal Special Economic Zones. RETA can explore regions of geothermal abundance within the state and map the places where they overlap with transmission development. This approach would create a priority list of service areas where geothermal can quickly and efficiently be added to the grid.

Recommendation #6: Produce and Maintain a "Developer Tool Kit," a One-Stop Shop for Geothermal Project Development.

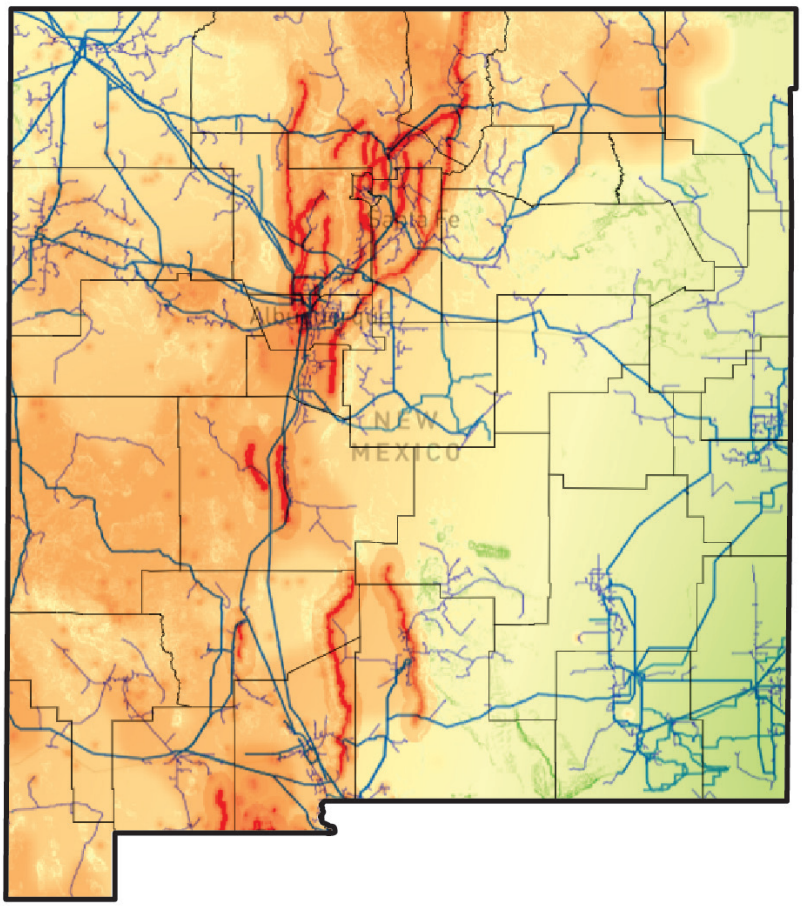
Who Takes Action: Energy, Minerals, and Natural Resources Department

According to the U.S. Department of Energy (DOE), navigating the web of state and federal regulations is a major hurdle for renewable energy developers.[49] Many of the recommendations in this report aim to streamline and reduce the complexity of geothermal development, but a "developer tool kit" could further accelerate the implementation of geothermal projects. New Mexico already has such a tool kit for oil and gas permitting through an e-permitting process[50] via the Oil Conservation Division of EMNRD, and the SLO has its *Oil and Gas Manual*.[51]

Permitting for geothermal should be just as easy as permitting for oil and gas. EMNRD, or any appropriate agency, should develop this "tool kit," which should explain the regulatory processes for all land jurisdictions—federal, state, private, municipal and county, federal, and Native American. The tool kit should also identify the agencies and applicable rules associated with the development of different kinds of geothermal projects (e.g., electricity generation, direct use, heating and cooling) and distinguish whether processes differ for hydrothermal and next-generation projects. The tool kit should be periodically updated as laws, rules, and regulations change.

A model for this idea is the Regulatory and Permitting Information Desktop (RAPID) Toolkit,[52] which was developed by the National Renewable Energy Laboratory (NREL) for Open Energy Information. This NREL tool kit could even serve as a supplement to a New Mexico tool kit.

GEOTHERMAL AND TRANSMISSION IN NEW MEXICO



MV Line

HV Line

Figure 7.3: Geothermal and transmission in New Mexico. Source: OpenStreetMap.(n.d.). *Overlay of transmission lines on geothermal resource map*. Retrieved May 27, 2025, from https://www.openstreetmap.org/#map=7/34.457/-103.151

There also may be funding available for a tool kit through the Geothermal Resources Development Act (see Section 4 of the amended act for more information on funding.)[53]

One critical element in the development of a kit is the potential for the consolidation of permitting rules under a single regulatory authority. A precedent can be found in Texas, which passed legislation in 2023 that expanded the jurisdiction of the Railroad Commission of Texas to include geothermal wells.[54] In New Mexico, the existing oil and gas regulator could also cover geothermal energy production. Of course, adapting the existing requisite oil and gas forms for geothermal projects can be challenging. Care will need to be given to ensure the forms are streamlined, simple, and tailored to focus on risks associated with geothermal versus assuming risks associated with oil and gas apply by default.

CREATE THE CONDITIONS THAT WILL ACCELERATE GEOTHERMAL PRODUCTION IN NEW MEXICO.

Recommendation #7: Set a Regulatory Goal of 5 Gigawatts of Geothermal Energy on the New Mexico Grid by 2035.

Who Takes Action: Energy, Minerals, and Natural Resources Department and State Legislature

New Mexico's renewable portfolio standards require the state to get 80% of its electricity from renewable sources by 2040 and 100% of its electricity from carbon-free power by 2045. Despite these standards, New Mexico's own data shows that it is not currently on track to meet

its greenhouse gas reduction targets.[55] Developing 5 gigawatts of geothermal capacity by 2035 would provide clean, firm, dispatchable power—and could help ensure New Mexico meets its greenhouse gas reduction goals. The state is in a position to leverage its massive geothermal potential by using local oil and gas expertise to make those targets real.

Other geothermal producers around the world have developed similar targets and can serve as examples for New Mexico. Kenya set a national target to reach 5 gigawatts of geothermal electricity by 2030.[56] Indonesia established a road map to reach more than 9 gigawatts via geothermal by 2035.[57] In 2023, California passed a law requiring 10.6 gigawatts of energy from generation resources with an 80% capacity factor by 2026,[58] including up to 1 gigawatt of geothermal.

Achieving 5 gigawatts is well within New Mexico's capabilities, given that there are more than 160 gigawatts

TACKLING INCONSISTENT DEFINITIONS

The Geothermal Resources Development Act includes at least three definitions that describe geothermal in slightly different and contradictory ways: *geothermal development project*, *geothermal reservoir*, and *geothermal resource*. The text says the following:

- *Geothermal development project* means "a project using the heat of the Earth above one hundred degrees Fahrenheit to generate electricity or otherwise support industrial, commercial or residential uses." (Note: *Above* as used here means "in excess of.")

- *Geothermal reservoir* means an "underground reservoir containing geothermal resources, whether the fluids in the reservoir are native to the reservoir or flow into or are injected into the reservoir."

- *Geothermal resource* means "the natural heat of the earth in excess of two hundred fifty degrees Fahrenheit, or the energy, in whatever form, below the surface of the earth present in, resulting from, created by or that may be extracted from this natural heat in excess of two hundred fifty degrees Fahrenheit, and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases and steam, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas and other hydrocarbon substances and excluding the heating and cooling capacity of the earth not resulting from the natural heat of the earth in excess of two hundred fifty degrees Fahrenheit, as may be used for the heating and cooling of buildings through an on-site geo-exchange heat pump or similar on-site system."

For example, in the definition of *geothermal development project*, a project can use geothermal heat in excess of 100°F (38°C) in whatever form it is manifested. On the other hand, the definition of *geothermal resource* goes into detail and is limited to only geothermal heat in excess of 250°F (121°C). This means that using subsurface heat in excess of 100°F (38°C) but lower than 250°F (121°C) is a geothermal development project but does not technically come from a geothermal resource.

Reducing the ambiguity would help developers more quickly and straightforwardly deploy capital to advance the use of geothermal energy in New Mexico. The Energy, Minerals, and Natural Resources Department should revise these definitions to minimize confusion and potential future litigation. The conflicting legal and regulatory language is explored in more detail in Chapter 6, "Who Owns the Heat?"

Source: New Mexico Legislature. (2024). *House Bill 91: Geothermal Resources Project Funds* [HB 91, 2024 Regular Session]. https://www.nmlegis.gov/Sessions/24%20Regular/bills/house/HB0091.pdf

of potential in the state. The state could achieve this goal through several avenues: The EMNRD could petition the New Mexico Public Regulation Commission (NMPRC) to include a target of 5 gigawatts of power produced by geothermal in the renewable portfolio standards by 2035; the legislature can take action to have the NMPRC create this target; or the NMPRC could potentially adopt this goal on its own.

Adopting a goal of 5 gigawatts will yield substantial benefits for New Mexico. Besides generating firm dispatchable electricity, creating geothermal projects, and offering a long-term and sustainable heat supply to agricultural regions and industrial hubs, this approach will help boost both high-skilled and vocational employment. As explained in Chapter 5, a 5 gigawatt goal for New Mexico could create nearly 2,000 construction jobs, 750 indirect jobs, and more than 125 permanent operations and maintenance jobs.

Recommendation #8: Work With the Federal Government to Catalyze Geothermal Deployment on Federal Lands.

Who Takes Action: Governor's Office and Energy, Minerals, and Natural Resources Department

Recent actions by the current administration have elevated geothermal energy as a strategic national priority. The administration has also taken action on expediting permitting processes and expanded leasing opportunities.[59] This shift presents New Mexico with a timely opportunity to unlock its substantial geothermal potential in coordination with federal agencies.

Thirty-five percent of New Mexico's land is federal land, including regions with some of the state's highest geothermal potential. In December 2024, the Bureau of Land Management leased more than 4,000 acres for geothermal development in Doña Ana County, and there is additional interest in areas such as the Santa Fe National Forest.[60] In April 2025, the Department of the Interior announced emergency permitting procedures to accelerate the development of domestic energy resources, including geothermal energy, by reducing approval timelines from years to as little as 28 days.[61] This permitting reform has been a legislative aim of the geothermal industry for years; with one executive order, major barriers to exploration have been removed.

Additionally, in April 2025, DOE announced an effort to co-locate data centers and new energy infrastructure on DOE land.[62] Their list of sites includes two areas in New Mexico that could offer opportunities for geothermal development. If New Mexico adopts Recommendation #4 and develops Special Economic Zones for geothermal energy, developers could work closely with the Bureau of Land Management and the U.S. Forest Service to identify additional leasable acreage, align exploration activities, and streamline the regulatory interface between state and federal agencies.

In many cases there are overlapping regulatory requirements between federal lands and land regulated by New Mexico. EMNRD could eliminate redundant regulatory requirements by coordinating with federal agencies to either assume oversight responsibilities or avoid duplicative regulation of the same processes.

By proactively aligning with federal priorities, New Mexico can position itself as a national leader in next-generation geothermal development. The state should formalize a strategic framework with the Department of the Interior, DOE, and potentially the Department of Defense to coordinate leasing, permitting, and investment efforts.

EXPAND STATE GEOTHERMAL INCENTIVES.

Recommendation #9: Expand the Grant and Revolving Fund to Include Commercial and Private Sector Projects on State Lands.

Who Takes Action: State Legislature

As explained earlier, in its 2025 session—in part due to an early draft of this report—the New Mexico Legislature approved an increase in the Geothermal Projects Development Fund's grant and loan funding for geothermal projects from $5 million to $15 million, which is a great outcome.[63] That said, the GPDF grant funding is currently limited to only supporting public entity projects. If geothermal developers and companies were able to access these funds, it would very likely lead to more projects. Legislation allowing private entities to apply for these funds passed the New Mexico House and

received "Do Pass" recommendations from the state's Senate Conservation and Senate Finance Committees, but the proposed bill expired due to lack of time on the last day of the 2025 legislative session. Clarifying that commercial entities could access these funds could help ensure they are used—and help create more geothermal projects in New Mexico.

Additionally, EMNRD should also quickly develop and finalize regulations detailing how entities can tap into that $15 million fund—and work to ensure the funding is spent on projects that will help catalyze geothermal in New Mexico.

Recommendation #10: Establish Targeted Grants and Loans for Geothermal Power and Industrial Process Heat.

Who Takes Action: Energy, Minerals, and Natural Resources Department and State Legislature

Currently, New Mexico offers a utility solar tax credit of between 1.5 cents and 4 cents per kilowatt-hour. The amount changes each year for up to 10 years (it goes up by half a cent for the first six years, then decreases by the same amount). The credit is "limited to the first two hundred thousand megawatt-hours of electricity produced by the qualified energy generator in the taxable year."[64] In other words, a utility-scale solar project can receive a maximum production tax credit of $8 million per year per project. According to data from the U.S. Energy Information Administration, in 2017 (the year before this tax incentive took effect), New Mexico had about 1 million megawatt-hours of utility-scale solar production. By 2024, the figure had grown to 4.3 million megawatt-hours, an increase of more than 200%.[65] Many factors contributed to this growth, but the incentives had their intended impact: A lot of new solar generation came online. In 2024, the New Mexico Legislature created a production tax credit for geothermal electricity generation at a rate of 1.5 cents per kilowatt-hour. That funding is capped at $5 million per year for *all* projects.[66]

A solar project can get more than 1.5 cents per kilowatt-hour in every year except the first year of the solar credit. With such limits in place, the total project credit for *just one* solar project could be higher than the cap for *all* geothermal projects. Increasing the credits available for geothermal power so they could match the available credits for solar could help tap into one of New Mexico's most abundant energy resources—and allow geothermal to scale at a rate similar to solar.

Additionally, by allowing the tax credit to apply to both geothermal power and heat, the state would give parity to direct-use geothermal and vastly increase the chance that direct-use process heat projects are catalyzed throughout the state.

Other incentives in New Mexico should apply to direct-use heat. As outlined in Chapter 4, "Geothermal Heating and Cooling," New Mexico is home to a variety of industries that consume thermal energy, including agriculture, oil and gas refining, dairy processing, and more. Specifically naming some of New Mexico's geothermal grants and loan funding for industrial processes—or creating new funding earmarked for direct-use geothermal heat—will also help incentivize the development of clean industrial process heat. As currently drafted, New Mexico's grant and loan programs (GPDF and GPRLF) are permitted to go toward geothermal for electricity or geothermal used in "support [of] industrial, commercial or residential uses." EMNRD should ensure that a portion of the new funding for GPDF and GPRLF is allotted for direct-use geothermal heat projects.

Recommendation #11: Incentivize Geothermal-Powered Data Centers.

Who Takes Action: New Mexico Public Regulation Commission and Energy, Minerals, and Natural Resources Department

Despite New Mexico's abundant oil and gas supply and predictions that natural gas-fired electricity will supply most of the demand for data centers,[67] the state may prove to be an exception to such predictions. In March 2025, the Rhodium Group published a report pointing out that New Mexico's potential for deploying geothermal-powered data centers is one of the highest in the country.[68] New Mexico should use its firm, clean geothermal potential to attract data center development to the state.

As indicated in **Figure 7.3**, there are several hot spots where geothermal potential and fiber nodes overlap,

including close to Albuquerque, Santa Fe, Raton, and Las Cruces. Geothermal resources can be used to both generate electricity and provide cooling for data center infrastructure.[69] A targeted business development approach led by the NMPRC, EMNRD, and public utilities for developing these regions for geothermal-powered data centers could result in a significant number of new jobs and revenue for the state.[70] Enabling this development through expedited leasing and permitting can support a strategic New Mexico industry—data centers—while accelerating the development of the state's geothermal energy industry. If Recommendation #10—which would include making tax incentives for geothermal comparable with incentives for solar—moves forward, it could be worth considering whether tax credits could also be eligible for behind-the-meter geothermal projects like data centers.

New Mexico also has a unique incentive that could have an outsize impact in propelling the state into national leadership in geothermal innovation, research, and development. The New Mexico State Investment Council (SIC) currently manages an estimated $32 billion in assets associated with the New Mexico Land Grant Permanent Fund. The state could leverage these funds to provide funding for a portfolio of first-of-their-kind geothermal developments across a variety of applications and use cases, including data centers. See the following page for more information.

CATALYZE THE DEVELOPMENT OF GEOTHERMAL HEATING AND COOLING.

Recommendation #12: Allow Utilities to Build, Own, and Operate Thermal Energy Networks.

Who Takes Action: New Mexico Public Regulation Commission and State Legislature

Geothermal is ideal for climate control in buildings. Relative to the neighboring states of Texas and Arizona, New Mexico's high desert topography means winters—and many nights throughout the year—require far more heating. Thermal energy networks (TENs) provide an efficient and effective way to provide that heating and cooling across city blocks and neighborhoods. Right now, however, it isn't clear whether local utilities can even create these networks. Several states—including California, Colorado, Maryland, Massachusetts, New York, Vermont, and Washington—have already passed legislation allowing gas and, in some cases, other utilities to develop and operate TENs and sell heat as well as gas.[71] In Massachusetts, for example, lawmakers amended statutory definitions to make it clear that gas utilities may distribute "heat" directly to customers—rather than the gas itself—enabling the creation of utility-owned TENs.

New Mexico should adopt statutory or regulatory changes enabling utilities to build, own, and operate TENs, as this approach would create clean, geothermal-based networks across the state, though any TEN should continue to meet service quality standards to protect consumers. In addition, states such as Colorado have gone further by requiring gas utilities to *implement* TEN pilot projects[72]—a model New Mexico could also consider as it works to scale up low-carbon energy solutions.

Additionally, legislators and regulators could consider financial and regulatory streamlining or establishing NMPRC criteria around what constitutes a TEN (e.g., a minimum number of service subscribers). A coalition of communities that want geothermal district heating systems could also craft a community district heating proposal for the state's GPDF and GPRLF programs (see Chapter 4, "Geothermal Heating and Cooling," for more information on geothermal heating and cooling opportunities).

Recommendation #13: Improve Utility Efficiency With Expanded Geothermal Heating and Cooling.

Who Takes Action: Public Regulation Commission

New Mexico recognizes the importance of energy efficiency. The state has set, and updated, goals for energy efficiency that utilities must meet. The current goal states that by 2025, the cumulative amount of electricity saved through energy efficiency measures must equal 5% of the total electricity sold to retail customers.[73]

New targets will be set for 2026 through 2030.[74] As noted previously, New Mexico law allows co-ops to count savings from geothermal heat pumps in their renewable portfolio standards, but that allowance doesn't apply to

THE NEW MEXICO LAND GRANT PERMANENT FUND: A GEOTHERMAL OPPORTUNITY

New Mexico has a unique opportunity to become a national leader in geothermal innovation and development.

The New Mexico State Investment Council currently manages an estimated $58 billion in assets, including $32.6 billion in the New Mexico Land Grant Permanent Fund.[1] This capital could help the state build a portfolio of first-of-a-kind geothermal projects—and therefore create a robust industry—in the Land of Enchantment.

The Land Grant Permanent Fund was established back in 1912, designed to generate revenue from state-owned lands primarily for the benefit of public schools, universities, and other state agencies.[2] Over the decades, especially after the discovery of oil and gas, the fund's assets grew significantly.

Today, despite all the potential of geothermal energy, there's a lack of financial support for infrastructure-level capital needs and risk mitigation for first-of-a-kind projects. This absence of support poses a significant barrier to commercial geothermal development—particularly for next-generation geothermal projects.

The Land Grant Permanent Fund could help fill these funding gaps, possibly through direct funding, public-private partnerships, and partnerships with the federal government to pursue development on federal land in the state. In recent years, the New Mexico State Investment Council has increased its investments in venture capital funds by actively sourcing new technologies, creating new companies, and targeting hard science and emerging technological opportunities often found in the state. Since November 2022, the council has dedicated $774 million across more than 20 venture capital funds.[3]

What's more, in recent years the Investment Council has kept a focus on sustainability. Five years ago, the council developed a strategic plan for renewables, but the plan didn't specifically mention geothermal. In early 2025, the council's board approved changes so that investments in infrastructure now account for between 75% and 95% of the real return portfolio.[4] This structural change gives the council multiple avenues to pursue expansion of New Mexico's geothermal industry, including the following:

- Revise the renewables strategic plan to include a focus on geothermal energy development.
- Develop a geothermal-specific plan leveraging the state's oil and gas industry to support geothermal in New Mexico.
- Establish low-interest loans or bonus payments for geothermal projects that meet certain thresholds in terms of output, performance, and/or jobs.

The Texas House, with only 2 "no" votes, recently approved legislation supporting geothermal deployment in the Texas Energy Fund.[5]

REFERENCES

1 Gleason, M. (2025, January 3). New Mexico kicks off 2025 with $58 billion in assets. *Albuquerque Journal.* https://www.abqjournal.com/business/article_d0c15bc6-c7d3-11ef-8cd3-cf84c65b34ad.html

2 New Mexico State Investment Council. (n.d.). *Land Grant Permanent Fund.* Retrieved May 24, 2025, from https://www.sic.state.nm.us/investments/permanent-funds/land-grant-permanent-fund/

3 New Mexico State Investment Council. (2025, January 8). *New Mexico State Investment Council marks record-setting year of support for New Mexico entrepreneurs.* https://www.sic.state.nm.us/wp-content/uploads/2025/01/SIC-VC-Investments-2023-2024-PR-FINAL-1.8.25.pdf

4 Peterson, J. (2025, March 27). *New Mexico SIC increases infrastructure in real return portfolio.* IPE Real Assets. https://realassets.ipe.com/news/new-mexico-sic-increases-infrastructure-in-real-return-portfolio/10129699.article

5 Elbein, S. (2025, May 2). Texas lawmakers weigh opening $5B energy fund to geothermal amid attacks on renewables. The Hill. https://thehill.com/policy/energy-environment/5265639-texas-legislature-geothermal-energy-fund/

other electricity providers. Ground source heat pumps (GSHPs) could be an important asset to increase the efficiency of the grid, given that GSHPs can be more than two to four times more efficient than traditional HVAC systems.[75] As highlighted in Chapter 2, New Mexico could achieve a 2.96 terawatt-hour (TWh) reduction in primary energy consumption annually by 2050 by increasing its usage of GSHPs.[76]

Encouraging the expanded use of GSHPs would provide significant cost and emissions savings for the grid, including reducing the need for peaker plants, transmission upgrades, and infrastructure upgrades. Those savings could then be used to help consumers adopt more GSHPs or for incentives for gas utilities to develop TENs. The town hall in Española, New Mexico, provides an example. The town hall has had GSHPs in use since 2010, and heating and cooling costs have been reduced by 50% since the pivot to geothermal, saving the city, on average, a reported $42,000 per year.[77]

Stakeholders who could rapidly implement these technologies at scale include hospitals, food sales and service facilities (e.g., restaurants, grocery stores), office buildings (such as other city halls), and educational complexes (e.g., universities, colleges, schools). These four sectors represent the highest energy-intensity consumers for heating and cooling of buildings in the United States.[78] Analysis shows that with current tax credits, GSHPs are cheaper for schools than traditional HVAC systems.[79] Incentivizing the transition from current HVAC systems to GSHPs

NEW MEXICO DATA CENTER FAVORABILITY MAP AT 5,000 METERS

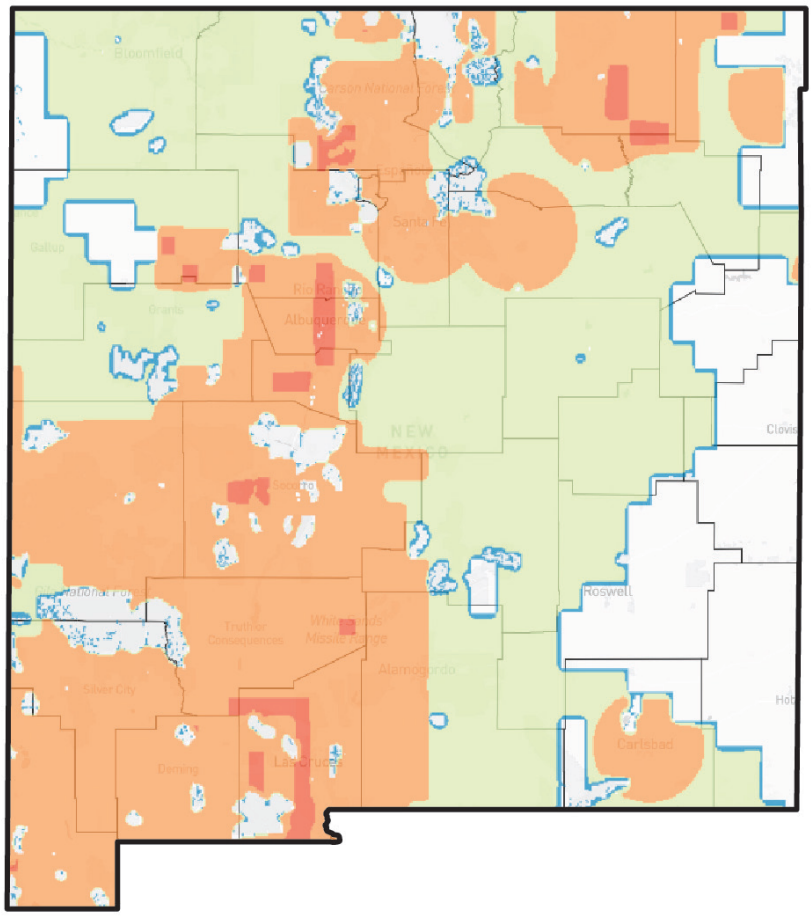


Figure 7.4: Map showing the cumulative geothermal potential between 0 meters and 5,000 meters across New Mexico, with a 302°F (150°C) temperature cutoff, representing the minimum threshold for power generation. This version of the map excludes areas with slopes exceeding 12 degrees and all globally protected areas to focus on geologically and environmentally viable locations for geothermal development. Additionally, GAP status 1 lands have been screened out, as these areas are designated for strict conservation and typically prohibit industrial activities, including geothermal exploration and drilling. Source: Project InnerSpace. (n.d.). Todays Global Data Center Favorability Map at 5000m [Data layer]. Data Centers Module. GeoMap. https://geomap.projectinnerspace.org/geomap/

in these building sectors could result in a massive decrease in the energy demand on New Mexico's grid.

Additionally, individual homeowners could save money with GSHPs. As mentioned previously, in 2024, HB 252 created a tax credit of up to $9,000 per system for newly installed GSHPs, with a maximum yearly aggregate credit of $4 million. This tax credit lasts until 2034. According to EMNRD, however, very few residents or entities have applied for the credit in the past year.

New Mexico gas and power utilities should analyze the potential benefits they could achieve by broadening the efficiency credit that co-ops receive for GSHPs. NMPRC should also consider how savings to the grid as a result of the increased deployment of geothermal heating and cooling—whether through TENs or GSHPs—could be passed on to consumers (both individuals and companies) to further incentivize the adoption of these solutions. This effort should identify any beneficial legislation, methods for examining and monetizing estimated energy savings, and other possible issues in order to maximize the impact of this approach. NMPRC could also use additional single-purpose funding to carry out this initiative.

EXPAND EDUCATIONAL PROGRAMS FOR ENERGY WORKERS AND THE PUBLIC.

Recommendation #14: Expand Geothermal-Specific Apprenticeships and Workforce Training.

Who Takes Action: Department of Workforce Solutions

New Mexico's Department of Workforce Solutions should develop a geothermal-specific apprenticeship program. A skilled, qualified, and trained workforce

is a prerequisite for effective development and will improve project economics because having skilled workers reduces mistakes. Deploying a geothermal apprenticeship program will give New Mexico an edge in the geothermal development ecosystem, making it more cost-competitive for developers to establish projects within the state.

New Mexico has an experienced workforce that is well trained in oil and gas engineering, drilling, and operations (see Chapter 5, "Leveraging Oil and Gas Technologies, Labor, and Workforce to Advance Geothermal in New Mexico"). Several institutions offer degrees and educational courses in oil and gas resources extractions and business management, and these could be quickly expanded for geothermal. In fact, the New Mexico Institute of Mining and Technology (NM Tech) has already launched one of the first graduate certificates for geothermal in the country. The program offers two separate tracks for energy professionals: One targets GSHPs, direct use, and thermal storage, and the second is focused on hydrothermal and enhanced geothermal systems.[80] Similar initiatives should be expanded across the state for both the technical and vocational workforce.

NM Tech recently received an award from DOE for up to $300,000 to advance education and workforce development through immersive virtual reality training in geothermal energy and decarbonization technologies.[81] All of New Mexico's educational institutions should be encouraged and financially supported in their expansion or development of geothermal-specific education programs for power, heat, and residential and commercial heating and cooling. This approach is especially important because the state now provides free education to students enrolled in a postsecondary education institution.[82]

Given New Mexico's significant oil and gas experience, adapting this knowledge to geothermal resources development should not create a significant challenge or financial burden, but rather a golden opportunity to become a pioneer in the cultivation of a workforce for next-generation geothermal.

Additionally, it is worth noting that if geothermal expands as suggested in this report, new regulatory capacity will be needed. New Mexico should ensure that this capacity is met and that newly hired geothermal regulators understand the different risks between oil and gas and geothermal. Initial trainings followed by regular refresher courses for regulators (e.g., perhaps interstate trainings with other state regulators?), would help ensure consistent regulation.

Recommendation #15: Update Public Education Materials and Improve Outreach for Funding Opportunities.

Who Takes Action: Energy, Minerals, and Natural Resources Department

EMNRD should develop an online program outlining New Mexico's geothermal story—one that can be used as an educational tool and for general information. The New Mexico Bureau of Geology and Mineral Resources has a geothermal resources page,[83] but the site needs to be updated and modernized with more contemporary subsurface assessments. The page should also incorporate much of the "developer tool kit" discussed in Recommendation #6 and educate the public on financial mechanisms available to help fund geothermal development, including federal, state, and private grant and tax incentive opportunities for all geothermal applications in New Mexico.

Neither the $9,000 for GSHPs nor the GPDF and GPRLF have received much interest, in part because many people are not aware of these incentives. Increasing public outreach about these funding opportunities at both the community and industry levels, as well as to HVAC installers, would help ensure the funds are used on projects that support the deployment of geothermal. If that outreach is successful and more GSHP projects are implemented, the state should consider increasing the cap beyond the current cap of $4 million per year.

DISCLAIMER

Every attempt was made by the author and contributors to this section to be accurate and current as of early 2025. The author has used public information. The most current information may not be readily available at the time this document was compiled. The author wishes to thank the many people in the New Mexico state government and the private sector who provided guidance and information.

CHAPTER REFERENCES

1 Jemez Springs. (n.d.). *History*. https://jemezsprings.org/about/history

2 New Mexico Constit., art. XXIV, § 1. *Contracts for the development and production of minerals or development and operation of geothermal steam and waters on state lands.* https://law.justia.com/constitution/new-mexico/article-xxiv/section-1/

3 Project InnerSpace. (n.d.). *USA states ranked by potential for data center builds* [Data layer]. Data Centers Module. GeoMap. https://geomap.projectinnerspace.org/geomap/

4 New Mexico Constit., art. XXIV, § 1. *Contracts for the development and production of minerals or development and operation of geothermal steam and waters on state lands.* https://law.justia.com/constitution/new-mexico/article-xxiv/section-1/

5 New Mexico Energy, Minerals and Natural Resources Department. (2023). *30x30 New Mexico: Protecting New Mexico's lands, watersheds, wildlife, and natural heritage.* https://www.emnrd.nm.gov/wp-content/uploads/30x30-NM-Report-2023.pdf

6 U.S. Department of Energy. (2025, February 5). *Secretary Wright acts to "unleash golden era of American energy dominance"*[Press release]. https://www.energy.gov/articles/secretary-wright-acts-unleash-golden-era-american-energy-dominance

7 Staff Writer. (2025, March 5). *Geothermal energy gains momentum in national security.* E+E Leader. https://www.environmentenergyleader.com/stories/geothermal-energy-gains-momentum-in-national-security,66883

8 Project InnerSpace. (n.d.). *Military base weighted overlay analysis (WOA)* [Data layer]. MAGMA Module. GeoMap. https://geomap.projectinnerspace.org/geomap/

9 New Mexico Legislature. (2024). *House Bill 91: Geothermal Resources Project Funds* [HB 91, 2024 Regular Session]. https://www.nmlegis.gov/Sessions/24%20Regular/bills/house/HB0091.pdf

10 Geothermal Resources Development Act, N.M. Stat. Ann. § 71-9-3 (1978 & rev. 2016 and 2024). https://www.nmlegis.gov/Sessions/24%20Regular/final/HB0091.pdf

11 N.M. Admin. Code. *Title 19 – Natural Resources and Wildlife, Chapter 15–Oil and Gas, Part 25–Plugging and Abandonment of Wells.* New Mexico Commission of Public Records. https://www.srca.nm.gov/parts/title19/19.015.0025.html

12 New Mexico Energy, Minerals and Natural Resources Department. (n.d.). *Geothermal ground-coupled heat pump income tax credit (7-2-18.24).* https://www.emnrd.nm.gov/ecmd/faq/geothermal-ground-coupled-heat-pump-income-tax-credit-7-2-18-24/

13 350NewMexico.org. (n.d.) Heating and Cooling: Heat Pumps. 350newmexico.org. *Heating and Cooling Heat Pumps*. https://dep.nj.gov/cleanenergy/technologies/gshp/

14 U.S. Department of Energy. (n.d). *Tax credits, incentives, and technical assistance for geothermal heat pumps.* https://www.energy.gov/eere/geothermal/tax-credits-incentives-and-technical-assistance-geothermal-heat-pumps#:~:text=Residential%20Tax%20Credits%20for%20Geothermal,at%20the%20end%20of%202034. Section 25D of the Inflation Reduction Act (IRA) provides a 30% tax credit for geothermal heat pumps until 2033. However, whether this and other provisions of the IRA continue remains unclear at the time of this report's publication.

15 New Mexico Legislature. (2015). *House Bill 263: Geothermal Resources Development Act* [HB 263, 2015 Regular Session]. https://www.nmlegis.gov/Sessions/15%20Regular/final/HB0263.pdf

16 New Mexico Legislature. (2024). *House Bill 252: Energy and Conservation Code amendments* [HB 252, 2024 Regular Session]. https://www.nmlegis.gov/Sessions/24%20Regular/final/HB0252.pdf#page=102

17 New Mexico Legislature. (2024). *House Bill 252: Tax changes.* https://www.nmlegis.gov/Sessions/24%20Regular/final/HB0252.pdf

18 Project InnerSpace. (n.d.). *TechnoEconomic sensitivity tool* [Data layer]. GeoMap. https://geomap.projectinnerspace.org/test/

19 Internal Revenue Service. (2025). *Clean Electricity Production Credit*. https://www.irs.gov/credits-deductions/clean-electricity-production-credit

20 U.S. Department of Energy. (n.d.). *Title 17 Clean Energy Financing.* Loan Programs Office. https://energy.gov/lpo/title-17-clean-energy-financing

21 NMOneSource. (2025). 71-9-12. *Geothermal projects development fund created; study grants; project grants; annual report*. New Mexico Statutes Annotated. https://www.nmonesource.com/nmos/nmsa/en/item/4398/index.do#!fragment/zoupio-_Toc170718993/BQCwhgziBcwMYgK4DsDWszIQewE4BUBTADwBdoAvbRABwEtsBaAfX2zgEYB2ABi44AcATiEBmAJQAaZNIKEIARUSFcAT2gByDZIiEwuBEpXqtOvQZABIPKQBC6gEoBRADJOAagEEAcgGEnkqRgAEbQpOzi4kA

22 NMOneSource. (2025). *71-9-12. Geothermal projects development fund created; study grants; project grants; annual report*. New Mexico Statutes Annotated. https://www.nmonesource.com/nmos/nmsa/en/item/4398/index.do#!fragment/zoupio-_Toc170718993/BQCwhgziBcwMYgK4DsDWszIQewE4BUBTADwBdoAvbRABwEtsBaAfX2zgEYB2ABi44AcATiEBmAJQAaZNIKEIARUSFcAT2gByDZIiEwuBEpXqtOvQZABIPKQBC6gEoBRADJOAagEEAcgGEnkqRgAEbQpOzi4kA.

23 NMOneSource. (2025). 71-9-12. *Geothermal projects development fund created; study grants; project grants; annual report*. New Mexico Statutes Annotated. https://www.nmonesource.com/nmos/nmsa/en/item/4398/index.do#!fragment/zoupio-_Toc170718993/BQCwhgziBcwMYgK4DsDWszIQewE4BUBTADwBdoAvbRABwEtsBaAfX2zgEYB2ABi44AcATiEBmAJQAaZNIKEIARUSFcAT2gByDZIiEwuBEpXqtOvQZABIPKQBC6gEoBRADJOAagEEAcgGEnkqRgAEbQpOzi4kA.

24 New Mexico Legislature. (2025). *House Bill 2: General Appropriation Act of 2025* [HB 2, 2025 Regular Session].

https://www.nmlegis.gov/Sessions/25%20Regular/bills/house/HB0002FC1.pdf
25 New Mexico Statutes Annotated. (2024). Renewable Portfolio Standard, N.M. Stat. Ann. § 62-16-4. New Mexico Legislature. https://www.nmlegis.gov/Sessions/19%20Regular/bills/house/HB0015.pdf
26 U.S. Energy Information Administration. (2024). *New Mexico state energy profile.* https://www.eia.gov/state/print.php?sid=NM
27 New Mexico Legislature. (1978). *Geothermal Resources Development Act,* NMSA 1978, §§ 71-9-1 to 71-9-11. https://www.emnrd.nm.gov/ecmd/wp-content/uploads/sites/3/GeothermalResourcesDevelopmentAct.pdf
28 Texas Legislature. (2023). *Senate Bill 785* [88th Legislature, Regular Session]. https://capitol.texas.gov/tlodocs/88R/billtext/pdf/SB00785F.pdf#navpanes=0
29 NM Stat § 19-13-3 (2024). https://law.justia.com/codes/new-mexico/chapter-19/article-13/section-19-13-3/
30 Allis, R., & Larsen, G. (2012, January 30–February 1). *Roosevelt Hot Springs geothermal field, Utah—Reservoir response after more than 25 years of power production* [Paper presentation]. 37th Workshop on Geothermal Reservoir Engineering, Stanford, CA, United States. https://pangea.stanford.edu/ERE/pdf/IGAstandard/SGW/2012/Allis.pdf
31 Beckers, K. F., Rangel-Jurado, N., Chandrasekar, H., Hawkins, A. J., Fulton, P. M., & Tester, J. W. (2022). Techno-economic performance of closed-loop geothermal systems for heat production and electricity generation. *Geothermics, 100*, 102318. https://doi.org/10.1016/j.geothermics.2021.102318
32 New Mexico Legislature. (2025). *House Bill 361* [56th Legislature, 2025, 1st Session]. https://www.nmlegis.gov/Legislation/Legislation?Chamber=H&LegType=B&LegNo=361&year=25
33 Texas Legislature. (2023). *Senate Bill 1210* [88th Regular Session, 2023]. https://www.legis.state.tx.us/tlodocs/88R/billtext/html/SB01210F.HTM
34 New Mexico Bureau of Geology and Mineral Resources. (n.d.). *Frequently asked questions about oil and gas.* https://geoinfo.nmt.edu/faq/energy/petroleum/home.html
35 New Mexico Oil Conservation Division. (n.d.). *OCD Permitting: Well search.* https://wwwapps.emnrd.nm.gov/OCD/OCDPermitting/Data/Wells.aspx
36 New Mexico Oil Conservation Division. (n.d.). *OCD Permitting: Inactive wells.* https://wwwapps.emnrd.nm.gov/OCD/OCDPermitting/Reporting/Compliance/InactiveWells.aspx
37 New Mexico Commission of Public Records. (n.d.). *Title 19, Chapter 15, Part 25: Plugging and abandonment of wells.* New Mexico Administrative Code. https://www.srca.nm.gov/parts/title19/19.015.0025.html
38 Project InnerSpace. (n.d.). *Coal plant weighted overlay analysis* [Data layer]. GeoMap. https://geomap.projectinnerspace.org/geomap/
39 Bussmann, G., Appelhans, K., Hahn, F., Jagert, F., Bracke, R., Raube, J., König, C., & Seidel, T. (2021). The reutilization of the Dannenbaum coal mine for heating and cooling of the redeveloped commercial area Mark 51.7 with mine water. *Proceedings of the World Geothermal Congress 2020+1.* https://www.worldgeothermal.org/pdf/IGAstandard/WGC/2020/41001.pdf
40 Qvist, S. A., Gładysz, P., Bartela, Ł., & Sowiżdżał, A. (2021). Retrofit decarbonization of coal power plants—A case study for Poland. *Energies, 14*(1), 120. https://doi.org/10.3390/en14010120
41 Petty, S. (2016, February 22–24). Transitioning to coal. *Proceedings of the 41st Workshop on Geothermal Reservoir Engineering.* https://pangea.stanford.edu/ERE/pdf/IGAstandard/SGW/2016//Petty.pdf
42 New Mexico Legislature. (2019). *Senate Bill 489: Energy Transition Act.* https://www.nmlegis.gov/Legislation/Legislation?Chamber=S&LegType=B&LegNo=489&year=19
43 New Mexico Legislature. (2025). *Senate Bill 169: Strategic Economic Development Site Readiness Act.* https://www.nmlegis.gov/Sessions/25%20Regular/final/SB0169.pdf
44 Internal Revenue Service. (2024). *Prevailing wage and apprenticeship requirements.* https://www.irs.gov/credits-deductions/prevailing-wage-and-apprenticeship-requirements
45 New Mexico State Land Office. (n.d.). *Renewable energy.* https://www.nmstatelands.org/divisions/commercial-resources/renewable-energy/

46 New Mexico Renewable Energy Transmission Authority. (2020). *New Mexico renewable energy transmission and storage study: Executive summary.* https://nmreta.com/wp-content/uploads/2020/07/072220-RETA-Executive-Summary-FINAL-APPROVED_online.pdf

47 New Mexico Renewable Energy Transmission Authority. (n.d.). *2025 energy storage and the energy transition* [Workshop]. https://nmreta.com/energy_storage_workshop/

48 New Mexico Legislature. (2025). *House Bill 361* [56th Legislature, 2025, 1st Session]. https://www.nmlegis.gov/Legislation/Legislation?Chamber=H&LegType=B&LegNo=361&year=25

49 National Renewable Energy Laboratory. (2015). *The RAPID toolkit: Facilitating utility-scale renewable energy development*. https://docs.nrel.gov/docs/fy15osti/63909.pdf

50 New Mexico Energy, Minerals, and Natural Resources Department. (n.d.). *OCD permitting.* https://www.emnrd.nm.gov/ocd/ocd-e-permitting/

51 New Mexico State Land Office. (n.d.). *Notices.* https://www.nmstatelands.org/divisions/oil-gas-and-minerals/oil-and-gas/notices/

52 National Renewable Energy Laboratory. (2015). *The RAPID toolkit: Facilitating utility-scale renewable energy development*. https://www.nrel.gov/docs/fy15osti/63909.pdfh

53 New Mexico Legislature. (2024). *House Bill 91: Geothermal Resources Development Act amendments* [56th Legislature, 2024, 2nd session]. https://www.nmlegis.gov/Sessions/24%20Regular/bills/house/HB0091.HTML

54 Texas Senate. (2023). *An act relating to the regulation by the Railroad Commission of Texas of closed-loop geothermal injection wells* (S.B. 786, 88th Leg., Reg. Sess.). Texas Legislature Online. https://capitol.texas.gov/tlodocs/88R/billtext/html/SB00786F.htm

55 New Mexico Environment Department. (2024). *New Mexico greenhouse gas emissions inventories (2005 oil & gas and 2021) and forecasts.* https://cloud.env.nm.gov/resources/_translator.php/Njg0YWIwNzBjMzQx-OTk4ZGIwNTdjNzEwNV8xNzczMjk~.pdf

56 Geothermal Development Company. (2018). *Geothermal Development Company strategic plan FY 2018/19-2022/23.* https://gdc.co.ke/assets/docs/reports/Strategic%20Plan%20.pdf

57 Alhusni, H., Perdana, T. S. P., Purwanto, E. H., & Setyawan, H. (2023, February 13–15). *Geothermal business outlook in Indonesia* [Paper presentation]. 48th Workshop on Geothermal Reservoir Engineering, Stanford University, Stanford, CA. https://pangea.stanford.edu/ERE/db/GeoConf/papers/SGW/2023/Habibi.pdf

58 California Public Utilities Commission. (2021, June 24). *CPUC orders historic clean energy procurement to ensure electric grid reliability and meet climate goals* [Press release]. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M389/K478/389478892.PDF

59 U.S. Department of the Interior. (2025, April 23). *Department of the Interior implements emergency permitting procedures to strengthen domestic energy supply* [Press release]. https://www.doi.gov/pressreleases/department-interior-implements-emergency-permitting-procedures-strengthen-domestic

60 U.S. Bureau of Land Management. (2024). *December 2024 Las Cruces District Office Competitive Geothermal Lease Sale.* U.S. Department of the Interior. https://eplanning.blm.gov/eplanning-ui/project/2030316/510

61 U.S. Department of the Interior. (2025, April 23). *Department of the Interior implements emergency permitting procedures to strengthen domestic energy security.* [Press release] https://www.doi.gov/pressreleases/department-interior-implements-emergency-permitting-procedures-strengthen-domestic

62 U.S. Department of Energy. (2025, April 3). *DOE identifies 16 federal sites across the country for data center and AI infrastructure development* [Press release]. https://www.energy.gov/articles/doe-identifies-16-federal-sites-across-country-data-center-and-ai-infrastructure

63 New Mexico Legislature. (2025). *House Appropriations and Finance Committee Substitute for House Bills 2 and 3* [57th Legislature, First Session, 2025] https://www.nmlegis.gov/Sessions/25%20Regular/bills/house/HB0002FC1.pdf

64 N.M. Stat. Ann. § 7-2-18.18. https://www.emnrd.nm.gov/ecmd/wp-content/uploads/sites/3/PTC-Statute-7.2.18.18NMSA.pdf

65 U.S. Energy Information Administration. (n.d.). *Electricity data browser.* https://www.eia.gov/electricity/data/browser/

66 New Mexico Legislature. (2023). *House Bill 252: Geothermal Resources Development Act amendments and tax credits (Final version).* https://www.nmlegis.gov/Sessions/24%20Regular/final/HB0252.pdf

67 S&P Global Ratings. (2024, October 22). *Data centers: More gas will be needed to feed U.S. growth.* https://www.spglobal.com/ratings/en/research/articles/241022-data-centers-more-gas-will-be-needed-to-feed-u-s-growth-13290987

68 King, B., Ricks, W., Pastorek, N., & Larsen, J. (2025, March 11). *The potential for geothermal energy to meet growing data center electricity demand.* Rhodium Group. https://rhg.com/research/geothermal-data-center-electricity-demand/

69 King, B., Ricks, W., Pastorek, N., & Larsen, J. (2025, March 11). *The potential for geothermal energy to meet growing data center electricity demand.* Rhodium Group. https://rhg.com/research/geothermal-data-center-electricity-demand/

70 Day, T., & Pham, N. D. (2017). *Data centers: Jobs and opportunities in communities nationwide.* U.S. Chamber of Commerce Technology Engagement Center. https://www.uschamber.com/assets/documents/ctec_datacenterrpt_lowres.pdf

71 Building Decarbonization Coalition & Vermont Law and Graduate School's Institute for Energy and the Environment. (2025). *Thermal energy networks legislative guidebook.* https://buildingdecarb.org/resource-library/tens-legislative-guideboo

72 Building Decarbonization Coalition & Vermont Law and Graduate School's Institute for Energy and the Environment. (2025). *Thermal energy networks legislative guidebook.* https://buildingdecarb.org/resource-library/tens-legislative-guidebook

73 National Conference of State Legislatures. (2021). *Energy Efficiency Resource Standards (EERS).* https://www.ncsl.org/energy/energy-efficiency-resource-standards-eers#:~:text=New%20Mexico,-Title:%20Energy%20Savings&text=Requirement:%205%25%20by%202025

74 NM Admin. Code 17.7.2 *NMAC 17.7.2: Renewable energy for electric utilities.* https://srca.nm.gov/parts/title17/17.007.0002.html

75 rb&m Research. (2024). I*n-situ heat pump performance: Analysis of Ofgem data 2017–2022*. Renewable Energy Consumer Code. https://www.recc.org.uk/pdf/rbandm-research-project.pdf

76 Oak Ridge National Laboratory. (2024, February 14). *ORNL study projects geothermal heat pumps' impact on carbon emissions and electrical grid by 2050.* https://www.ornl.gov/news/ornl-study-projects-geothermal-heat-pumps-impact-carbon-emissions-and-electrical-grid-2050

77 Office of Energy Efficiency and Renewable Energy. (2013). *New Mexico's clean energy resources and economy* (DOE/GO-102013-3882). U.S. Department of Energy. https://www.nrel.gov/docs/fy13osti/57716.pdf

78 EnergyStar. (2024). *U.S. energy use intensity by property type: Technical reference*. https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf

79 UndauntedK12. (n.d.). *Our schools can't afford fossil fuels. Let's spread the word.* https://www.undauntedk12.org/massachusetts/our-schools-cant-afford-fossil-fuels-lets-spread-the-word

80 New Mexico Institute of Mining and Technology. (n.d.). *Geothermal energy graduate certificate program.* https://www.nmt.edu/academics/petreng/Geothermal.php

81 CleanTechnica. (2025, January 17). *U.S. Department of Energy funds the efforts of 7 non-profit educational organizations to build the pipeline for tomorrow's energy workforce.* https://cleantechnica.com/2025/01/16/u-s-department-of-energy-funds-the-efforts-of-7-non-profit-educational-organizations-to-build-the-pipeline-for-tomorrows-energy-workforce/

82 New Mexico Higher Education Department. (n.d.). *FAQ: New Mexico Opportunity Scholarship.* https://hed.nm.gov/uploads/documents/OS_FAQ.pdf

83 New Mexico Bureau of Geology and Mineral Resources. (n.d.). *Geothermal resources in New Mexico.* https://geoinfo.nmt.edu/resources/geothermal/home.html