NM's geothermal potential remains largely untapped

Tech advances make it a resource for reliable renewable baseloads

BY LAURA SINGER
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Thanks to its long history in the oil and gas industry, New Mexico knows drilling, and there are around 100 drilling rigs operating in state. But New Mexico is missing a huge opportunity, one that will be key to its goal of 100% clean electricity by 2045: drilling for geothermal energy. New Mexico has one of the best geothermal energy resources in the country; technological advances have made this resource increasingly attainable, and it warrants increased focus from industry, policymakers and energy consumers.

The Energy Transition Act of 2019 set goals of attaining half of New Mexico's electricity from renewable sources by 2030, 80% by 2040 and all by 2045. The state has made progress toward this goal: renewable generation, mostly wind, provided 27% of generation in 2020 compared to 6% in 2011.

That said, coal and natural gas still fuel the largest share of New Mexico's in-state electric generation. While coal has declined, it still contributes nearly 40% of generation. Even with natural gas-fired generation increasing to 30% by 2021, the retirement of coal plants has been delayed. Earlier this year, the Public Service Company of New Mexico requested to keep a retiring plant open for several months to avoid blackouts.

COURTESY OF CYRQ ENERGY INC.

Cyrq Energy Inc. operates the 15.3 MW Lightning Dock Geothermal Power Plant in Animas. The company's website says the electricity it generates supplies baseload power to Public Service Company of New Mexico.

This is not uncommon in western states despite widespread aggressive renewable energy targets. Over the last decade, the wind and solar industries have heated up and become firmly established as the renewable energies of choice, despite their variability, while coal and natural gas have provided baseload power required for grid reliability and uptime.

New Mexico needs clean baseload power as a complement to increased generation from variable renewables or it runs the risk of keeping more coal plants open. Geothermal provides this baseload power, and IT does so with a much smaller landscape impact than large-scale solar or wind farms.

What's more, robust oil and gas operations in the Permian, San Juan and Raton basins make New Mexico's workforce uniquely well-suited to produce geothermal energy. Similarities between the production of oil and gas and geothermal energy mean geothermal could provide a path forward for the state's more than 28,000 oil and gas workers, who earned more than $2 billion in wages in 2019. While oil and gas has historically provided a stable career path, industry employment has fluctuated recently due to price changes and faces an uncertain future in the energy transition.

Historically, geothermal energy could only be produced in places where very hot water or steam naturally occurred at or close to the surface. Geothermal drilling has advanced much like oil and gas drilling, and companies like Fervo are pioneering the application of techniques developed in the Permian Basin to the production of clean, firm, renewable energy.

The geothermal development potential in New Mexico is substantial: it has the sixth-largest resource potential in the United States. Most of this resource lies in the southwestern and north-central parts of the state. But today, New Mexico's geothermal potential remains largely untapped: the state's first and only utility-scale geothermal power plant — the Lightning Dock plant in the Animas Valley — came online in 2013.

Geothermal needs strong policy support at the federal and state levels for the industry to grow and to provide much-needed, round-the-clock, clean, reliable energy to more industrial, commercial and residential consumers in New Mexico.

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