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New Analyses Spotlight Massive Potential for Geothermal Powered Data Centers in the US

Next-generation geothermal can power up to 64% of data center demand growth by early 2030s, and a new data release in Project InnerSpace's GeoMap™ reveals development hotspots

AUSTIN, Texas, **MARCH 11, 2025** – Next-generation geothermal energy can economically power nearly two-thirds of the data center growth expected in the United States over the next decade, according to a new report from the independent research provider Rhodium Group. Also today to supplement this notable outcome, Project InnerSpace launched a new data center module in its GeoMap™ tool that will inform data center developers about the most promising locations for geothermal development, both in the United States and around the globe.

Geothermal offers considerable advantages for meeting new data center load growth, including high capacity factor output, wide geographic availability, and massive abundance of subsurface heat. The new data center module in GeoMap™, which includes a site favorability analysis, finds particular synergy for data centers in Texas, on federal lands throughout the western United States, and in several locations outside of the United States, including but not limited to Hungary, Indonesia, and the east coast of Australia.

GeoMap™ uses a data model that assesses geothermal energy potential down to 5,000 meters with a 150°C temperature threshold, ensuring sites meet minimum power generation requirements and can be drilled economically using today's technologies. The model also factors in proximity to fiber nodes, a crucial consideration for connectivity.

"With the United States in an era of urgent competition to develop AI, all eyes are on data center growth and corresponding increases in energy demand," said Drew Nelson, VP of Programs at Project InnerSpace. "The abundance and reliability of geothermal makes it an

obvious choice to meet a great deal of that demand, and for the first time, this research puts a number on exactly what that potential is. The development potential is truly massive."

Data centers are energy-intensive and require constant, reliable baseload power and cooling. They are expected to consume as much as 580 terawatt hours (TWh) of electricity by 2028 in the United States alone, as cloud computing expands to meet the growing demand of artificial intelligence (AI) applications, according to the US Department of Energy. The Rhodium Group report, conducted with support from Project InnerSpace, found geothermal energy could economically meet up to 64% of the expected US data center demand growth by the early 2030s and that geothermal could meet 100% of anticipated data center demand growth in 13 of the 15 largest data center markets.

Further, if data centers are built where the subsurface heat resources are most abundant, geothermal energy could meet all data center demand and lower the national average levelized cost of electricity (LCOE) at geothermal-powered data centers by as much as 45%, the report found. Geothermal energy can also be deployed for cooling data centers, which depending on the data center type, can make up to 40% of data center energy demand. This means companies can pursue more efficient operations, or build larger or more dense data centers with little increase in power usage. A screening layer for geothermal cooling is included in the data center module in GeoMap.

Project InnerSpace is a 501(c)3 non-profit focused on expanding the use of geothermal energy globally. We are a team of scientists working to combine the voices of visionaries, entrepreneurs, and disruptors with the breakthrough expertise of geologists, drilling experts, and well engineers to build a future where geothermal powers the world with abundant and affordable energy. For more information, visit ProjectInnerSpace.org or connect with us on LinkedIn.