

INVESTMENT PERSPECTIVES

The Case for Decarbonizing Singapore's Data Center Boom Using South Sumatra's Geothermal Resources

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The rapid global adoption of AI has led to the accelerated development of data centers worldwide, including in Singapore, which has [historically](#) been a major data center hub. While this continues to represent an excellent economic opportunity for the country, geographical and geopolitical challenges threaten its long-term sustenance. Singapore's data center boom is surpassing its clean energy supply, but a cable running below the Strait of Malacca could change that. The Sumatra–Singapore grid interconnection offers the Energy Market Authority of Singapore (EMA) a rare opportunity to tap South Sumatra's largely untouched geothermal resources to deliver much-needed round-the-clock, clean, baseload power for the country's data centers. Beyond Singapore's energy needs, this interconnection offers a model for how regional grid integration can help resource-rich developing economies like Indonesia to shift from exporting raw potential and instead capture greater value from their own natural assets.

As of late 2025, Singapore had a total installed data center capacity of [1.4 GW](#) across [72 facilities](#), and is expected to see a [CAGR of 9.53%](#) and investments totaling [\\$3.04 billion](#) by 2032. The rise has been driven by [increased utilization of AI](#) across Southeast Asia and by Singapore's existing mature data center market, which continues to propel the growth of tech giants like Amazon, Google, and Microsoft in the region.¹ Contributing factors for its growth include the country's political stability, supply chain dominance, strict policies on environmental sustainability, and one of the lowest costs of capital among ASEAN members.² However, Singapore is constrained by its 735 km² size, its heavy reliance on LNG imports, non-optimal temperatures for data center operations, high drought risk,³ and economic rivals such as Thailand seeking to capture Singapore's market dominance as the largest data center hub in Southeast Asia.

Today, [94%](#) of Singapore's electricity generated is derived from imported LNG and cross-border piped gas, resulting in the highest cost of electricity per kWh amongst ASEAN countries at almost [\\$0.23/kWh](#). Additionally, a high population density underscores that the use of land is best suited for purposes with higher economic productivity than electricity generation from renewable sources, which explains the mere [3.9%](#) share of renewables in electricity generation. This poses a significant challenge as new data centers constructed in Singapore need at least 50% of their power coming from low-carbon sources to comply with [local regulations](#). Singapore's high average temperature of [27° C](#) also poses a threat to optimal data center operations, and installing cooling systems increases electricity consumption. To add fuel to the fire, [25%](#) of the country's water comes from energy-intensive desalination.

To tackle this, Singapore is involved in the Laos–Thailand–Malaysia–Singapore Power Integration Project ([LTMS-PIP](#)), which delivered 265.73 GWh of electricity by the end of 2023, contributing to 1.5% of Singapore's peak capacity. The majority of energy obtained from the LTMS-PIP was sourced from [hydropower resources in Laos](#), which could potentially continue to supply Singapore with clean energy for its data centers through contract renewals. However, the marginal incentive for other countries in the LTMS-PIP to allow Singapore to maintain its geopolitical advantage during the AI boom is relatively low. Vested conflicting interests in developing data centers sit with Thailand,⁴ which is currently Laos' [largest electricity importer](#) and also [heavily invested](#) in Laos,⁵ either as one of the project sponsors of hydro power projects or the sole PPA offtaker. To make matters worse, all countries along the LTMS-PIP have monopolies on their grid transmission and distribution,⁶ which could increase Singapore's exposure to political and counterparty risk. For instance, in 2025, the removal of former Thai Prime Minister Paetongtarn Shinawatra [caused delays](#) in renewing Singapore's LTMS supply contract.

To address these shortcomings, EMA should consider pursuing public–private partnerships to invest in diversifying beyond the LTMS-PIP. The proposed [Sumatra–Singapore grid interconnection project](#) presents an opportunity to tap into Sumatra's vast geothermal resources.⁷ South Sumatra alone has an estimated [2 GW](#) of geothermal potential and could meet up to 100% of the projected 2030 Singaporean data center demand. EMA could start by funding geothermal resource exploration in South Sumatra and utilizing the technical expertise in subsurface drilling that its [established](#) oil and gas industry brings. As geothermal exploration is [CAPEX-intensive](#), a tax-exempt infrastructure bond raise in Singapore's developed financial markets, issued by the state-owned utility, Singapore Power, can be executed at one of the lowest cost-of-capital levels in Southeast Asia. Lastly, collaboration within the Ministry of Trade and Industry to invest in geothermal's upstream supply chain through offtake agreements in Indonesia's [Nickel](#) and [Chromium](#) mines would reduce the procurement strain on domestic companies during project construction.

What makes this partnership viable long-term is that Indonesia has as much to gain as Singapore does. President Prabowo has [pledged](#) to phase out fossil fuel power and develop over 75 GW of renewable energy by 2040, with geothermal as an important component. [Danantara](#), Indonesia's new Sovereign Wealth Fund launched in early 2025, now holds [99% of PLN](#) (Indonesia's state-owned utility and grid operator) and reports directly to the president, meaning a Singapore-backed geothermal project flowing through PLN's grid infrastructure aligns with Prabowo's priorities. Indonesia also has active institutional capacity on the ground to co-invest at the project level.⁸ PT Sarana Multi Infrastruktur (SMI), the Ministry of Finance's dedicated infrastructure finance arm, co-financed the [Ijen Geothermal Power Plant](#) alongside Ormat and Medco Power, a plant Prabowo [inaugurated](#) in June 2025.

Geothermal energy in South Sumatra is an under-utilized, clean, renewable source that can deliver 24/7 baseload power for data centers through the upcoming Sumatra–Singapore grid interconnection. The blocker to geothermal development has always been the initial high CAPEX and resource risk during exploration. This gap can be filled by leveraging Singapore's access to cheap debt, technical expertise in drilling, and strategic alignment across stakeholders in Indonesia. Beyond geothermal, a regional grid integration project like this demonstrates a unique pathway for developing countries like Indonesia to attract investment to continue industrializing while building clean energy capacity.

Endnotes

- ¹ Bloomberg L.P., Map of Operational and Under-Construction Data Centers in Singapore, Bloomberg Terminal, Feb 28, 2026.
- ² Bloomberg L.P., Rates and Bonds, Bloomberg Terminal, March 9, 2026.
- ³ Bloomberg L.P., Drought Risk Dataset, World Resources Institute, Bloomberg Terminal, March 9, 2026.
- ⁴ From an interview with Phumthep Bunnak, Former Policy and Planning Analyst at the Ministry of Energy, Thailand, and PhD Candidate at Cornell University, Feb. 27, 2026.
- ⁵ Additional on-the-ground insights gathered with the help of Sengdao Oudomsinh, Local resident of Vientiane, Lao PDR, March 2, 2026.
- ⁶ Supporting comments from Kunthida Rungruengkiat, former Member of Parliament of Thailand, and MPP Candidate at Princeton University, Feb. 25, 2026.
- ⁷ Supporting insights on Geothermal in Indonesia gathered from Rayka Abdillah Haqi, former Guidance and Consultation Assistant Manager at PT Penjaminan Infrastruktur Indonesia, March 8, 2026.
- ⁸ From an interview with Faizal Lihawa, Member of the ASEAN Power Grid working group and former Sustainability Analyst at Perusahaan Listrik Negara (PLN), March 6, 2026.

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