INTELLIGENCE UPDATE

PUE caps in Singapore will force data center upgrades

Peter Judge   6 Mar 2026

The PUE metric is often criticized as being an overly simplistic measure of data center energy efficiency. Nevertheless, regulators seeking to control runaway data center energy use are finding it increasingly useful.

Many countries have now set PUE limits or targets for newly planned data centers, and some have started to apply (looser) limits to existing facilities (see **Table 1**). In a few cases, mandatory maximum PUEs are below the region's average or best-practice levels, so compliance by those operators with existing data centers will likely require significant investment.

Table 1 Examples of country-specific data center PUE limits

Country	PUE limit (new facilities)	PUE limit (existing facilities)	Average regional PUE*	Additional information
China	1.25 or 1.3	1.5	1.4	New facilities must meet different limits depending on location.
France	1.3	1.3	1.5	Not mandatory: conditional for tax incentives. Targets are due to reduce over time. Small facilities have higher targets.
Germany	1.2	1.5	1.5	Existing facilities must achieve 1.3 by July 2030.
Netherlands	1.2	None	1.5	Limits set in Amsterdam and Noord-Holland.
Singapore	1.25	TBA	1.532	Limit reduced from 1.3 in January 2026.

* Mapping PUE trends by data center region, age and size (October 2025)

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Singapore is a case in point. As a significant regional data center hub with 1.4 GW of capacity (according to the Singapore Government), the country's limited land area and lack of renewable energy resources heighten the pressures felt by operators in other locations.

Since 2019, Singapore has limited new data center development and regulated the efficiency of any newly permitted projects. Now, the city-state is preparing to extend PUE limits to existing data centers.

PUE limits to be determined

Singapore has been struggling to manage data center growth for many years. In 2020, data center facilities in Singapore consumed an estimated 7% of its electricity.

Singapore's electricity is almost entirely (94%) generated from natural gas. Its national peak demand was 8.5 GW in 2025, and this is expected to increase to between 10 GW and 12.5 GW by 2034 — with a goal of importing 6 GW of low-carbon electricity by that date.

Against this background, any increase in data center capacity will put pressure on Singapore's goal to reduce emissions from a projected peak in 2028 to net-zero in 2050.

The government imposed a moratorium on new data centers in 2019. Since then, it has twice allowed a tranche of new data center capacity, requiring approved projects to comply with an evolving Green Data Center Roadmap that includes specified PUE limits:

- **2023**: 80 MW of allowed new capacity was required to achieve a PUE of 1.3.
- **2025 (Dec)**: a Data Centre — Call for Application (DC-CFA2) invited bids for 200 MW of capacity with a required PUE of 1.25.

Applicants for DC-CFA2 must also meet a strict requirement to use at least 50% low-carbon power. Given Singapore's renewable energy shortage, this will be an expensive requirement for operators, requiring imported low-carbon electricity, on-site generation using biomethane, ammonia, hydrogen, fuel cells with carbon capture and storage, or solar energy supported by batteries.

Operators of existing data centers will now face a different challenge: compliance with new PUE limits that will be proposed in the forthcoming Digital Infrastructure Act (DIA), following an unexpected announcement by Senior Minister of State Tan Kiat.

The DIA was announced in 2024, to improve the security and resiliency of Singapore's critical infrastructure in the wake of an outage that disrupted operations at its largest bank (see *High-impact outages highlight ongoing resiliency challenges*). Its remit has now been expanded to include energy use, with a goal of raising the energy efficiency of all Singapore's data centers to create more headroom for digital growth.

Details, including the required PUE levels, are unlikely to emerge until the DIA is tabled in parliament later in 2026. The Ministry of Digital Development and Information (MDDI) and the Infocomm Media Development Authority (IMDA) have already consulted industry stakeholders to develop requirements that are, according to Kiat, "practicable and consistent with international benchmarks."

The PUE limits are expected to be challenging to meet in a tropical climate. The demands may be somewhat alleviated by government grants for operational upgrades. However, existing grant

schemes are limited to IT systems, and major improvements in PUE are likely to demand upgrades to cooling systems.

Efficiency targets for existing data centers remain unusual and few nations will follow Singapore's lead, but many are facing the same pressure to act. Singapore's geopolitical position may be unique, but its data center dilemma is not.

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