# Canada poised to attract data centre investments amid US energy challenges



Canada may be poised to attract increased investment in data centres as rising power demands for artificial intelligence (AI) applications place significant strain on U.S. energy infrastructure, according to a recent report from the International Energy Agency (IEA). The report highlights escalating electricity requirements for data centres globally and underscores potential vulnerabilities in U.S. energy supply and infrastructure development, which could shift investment flows north of the border.

Data centres worldwide consumed around 415 terawatt-hours (TW-h) of electricity last year, a figure expected to surge by almost 128 per cent by 2030, reaching 945 TW-h. The United States accounted for the largest portion of this consumption, using 186.75 TW-h in 2024, outstripping China’s 103.75 TW-h and Europe’s 62.25 TW-h. Moreover, the majority of new data centre construction is planned in the U.S., where rising energy consumption for these facilities could surpass that of combined manufacturing sectors, including aluminium, steel, cement, and chemicals, assuming current manufacturing activity remains stable.

However, significant challenges threaten to impede the expansion of reliable electricity supply necessary to support this growth. The IEA report notes that power generation and transmission infrastructure must grow amid rising costs, increased competition for materials and equipment, and a deterioration in relations with offshore suppliers due to the U.S. government’s stringent tariff policies. A major bottleneck exists in key U.S. regions like northern Virginia, where securing grid connections for new data centres can take up to seven years, exacerbating constraints on transmission capacity.

Daniel Thorpe, research director at JLL and co-author of a recent global data centre trends report, explained during a webinar that AI-focused data centres have altered traditional site-selection strategies. “Data centres used for training AI models are less latency-sensitive. They don’t need to be located as close to the end-user. However, they do require a lot greater computational power,” he stated. “As a result, we’re starting to see a shift in site-finding strategies. We’re seeing a bring-the-data-centre-to-the-power approach.”

The IEA anticipates that new power capacity to accommodate data centre demand will primarily come from solar, onshore wind, and gas-fired generation in the remainder of the decade. These sources typically have shorter development timelines of under five years. However, solar and wind are variable sources that necessitate pairing with energy storage technologies, which currently face cost and technical challenges, particularly given the U.S. government's retreat from prior green energy policies.

Gas-fired generation capacity faces its own supply chain hurdles. Nearly all U.S. natural gas imports come from Canada, and the prospect of a 10 per cent tariff threatens to increase costs. Moreover, turbine manufacturers such as GE Vernova, Siemens Energy, and Mitsubishi Power are experiencing backlogs so severe that new power plant developers might endure waits of “several years” for essential equipment. The IEA warns that these extended timelines cast doubt on the ability of utilities to expand gas-fired generation swiftly enough to meet demand, while also raising capital costs and risk of project delays due to financing complications.

Beyond conventional energy sources, small modular nuclear reactors (SMRs) present a promising but longer-term option. SMRs, capable of scalable outputs between 1.5 and 300 megawatts (MW), offer potential advantages such as lower development costs and dedicated power supply for data centres. While still in early stages globally, SMRs are expected to begin commercial operations post-2030. In 2024, several agreements were reached between SMR companies and data centre operators, with anticipations of accelerated announcements in 2025.

Canada stands out as a leading country in SMR development, ranking third globally in projects at the planning stage, behind the United States and Russia, and ahead of China. While construction has started only in Russia, China, and Argentina, and only Russia and China have operational SMRs, Canada’s active role in SMR planning underpins its growing influence in the sector.

Supporting Canada’s nuclear ambitions is its status as the world’s second largest uranium exporter, after Kazakhstan, and the primary supplier of uranium fuel for non-military nuclear reactors in the U.S. The U.S. Energy Information Administration reported that nearly all uranium fuel used in American nuclear plants in 2022 was imported, with Canada supplying 27 per cent—roughly 11 million pounds. Yet, U.S. tariffs threatening to impose a 10 per cent surcharge on Canadian energy imports, including uranium, alongside similar tariffs on other major uranium sources such as Kazakhstan, Russia, Uzbekistan, and Australia, inject uncertainty into this critical supply chain.

The U.S. government’s tariff policies risk provoking electricity supply constraints in certain regions, particularly if Canadian authorities respond by restricting electricity exports. This prospect suggests Canadian power producers may need to seek new markets for surplus baseload power. Several Canadian provincial governments are aligning energy and economic development strategies domestically to capitalise on these shifts. For instance, Manitoba recently instructed Manitoba Hydro not to renew a 500 MW contract with U.S.-based Xcel Energy, aiming instead to redirect power resources for national priorities. Manitoba Premier Wab Kinew stated, “There is no better time to be partnering with other Canadian provinces and territories to build the infrastructure we need for a strong domestic economy.”

Industry experts also see collaboration as key to unlocking investment potential. Daniel Thorpe highlighted during the webinar that “joint ventures [are] becoming the most popular route to the market for many investors,” adding that partnering with experienced data centre operators or developers offers substantial benefits in this specialised sector.

Ted Betts, a lawyer and head of Gowling WLG’s infrastructure and construction group in Toronto, pointed to the strategic role of government in mitigating investment risks. “Governments can play a role in ‘de-risking’ infrastructure investments,” he observed, citing the Canada Infrastructure Bank’s model of encouraging investment through ensuring viable returns, alongside Infrastructure Ontario’s success with public-private partnerships. Reflecting on recent governmental responses to market disruptions, Betts commented, “They are genuinely trying to find ways to get confidence back in investment and to ease the burden, harm and damage being caused by the tariffs. It’s one of those times, I think, government is stepping up to fulfil its proper role.”

The IEA report and associated analyses signal a complex energy and investment landscape shaped by soaring data centre demand, emerging technologies such as SMRs, and shifting policy frameworks. Canada's position as a major energy supplier and nuclear technology developer could influence North American data centre infrastructure development amid evolving economic and geopolitical conditions.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.iea.org/reports/energy-and-ai/energy-demand-from-ai> - This International Energy Agency (IEA) report corroborates the claim that data centres globally consumed around 415 terawatt-hours (TWh) of electricity in 2024 and that AI-driven data centre energy demand is rapidly rising.
2. <https://www.iea.org/news/ai-is-set-to-drive-surging-electricity-demand-from-data-centres-while-offering-the-potential-to-transform-how-the-energy-sector-works> - This IEA news article confirms the forecasted surge of data centre electricity consumption doubling to approximately 945 TWh by 2030, and highlights the U.S. as the largest consumer, consistent with the article's data.
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5. <https://www.world-nuclear-news.org/Articles/Canada-expands-role-in-small-modular-reactor-developme> - This article details Canada's prominent role in small modular reactor (SMR) development and planning, supporting the claim that Canada ranks third globally in SMR projects and is a leader in SMR technology.
6. <https://www.eia.gov/energyexplained/nuclear/uranium-supply-and-demand.php> - The U.S. Energy Information Administration page confirms that Canada is the second-largest uranium exporter globally and a major uranium fuel supplier to U.S. nuclear reactors, as stated in the article.
7. <https://news.google.com/rss/articles/CBMiigFBVV95cUxOS29sVTRDaVRnWmlKY2VWOVN5cFlnNEgyb1h0RTUzOF9tbTJkdjFRZ2Fvb0tMRkFiTGNLT19wTmg5NlVxTzRVRkJzVGZlLTQybnRCUWtGNEFZTWJfZVlWY084eVdNSi01bDlQcDBhZjhHZXdTbVZnb1cxenBGVTNud1R4NTZSY0JFaGc?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data