

Canada's AI Compute Quest: Powering an AI Enabled Future

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On December 5, 2024, the Government of Canada announced its much anticipated [Canadian Sovereign AI Compute Strategy](#) (the Federal Strategy), which outlines how the Canadian government intends to invest the \$2 billion funding earmarked from the 2024 federal budget in building up Canada's domestic AI infrastructure.¹ The Federal Strategy incorporated stakeholder feedback from researchers, industry, and civil society, which was collected by the government in the summer of 2024 (AI Compute Consultation).² In addition, the Government of Alberta announced its own [AI Data Centre Strategy](#) (the Alberta Strategy) in early December, which outlines what the Alberta government will do to attract new, sustainable and reliable AI data centres in the province to foster innovation, create jobs, and promote economic diversification.³

Key Takeaways

Urgent Need to Invest in Canadian AI infrastructure

- The AI Compute Consultation underscored an urgent need for Canada to invest in AI compute to lay the groundwork and secure supply chains for the AI ecosystem, given the rapid technological advancements in AI.
 - Stakeholders highlighted the high cost of compute and ability to access compute as key areas of concern. Additionally, access to cutting-edge computing infrastructure was seen as critical in developing, attracting and securing AI talent.
- The lack of Canadian AI infrastructure investments has had a direct impact on Canada's ability to compete globally. Canada dropped 3 spots in the *Tortoise Global AI Index* ranking from being the 5th ([2023](#)) to 8th top country ([2024](#)) for AI capacity.
- In addition to keeping Canada's status as a top global AI destination for innovators and investors, the Canadian and Alberta AI compute strategies aim to attract a portion of the estimated \$2 trillion in investments needed for data centres, electric supplies and communications networks globally that would be required to power the AI that will transform everything from education to healthcare.

The Federal Strategy

- The Federal Strategy aims to stem this AI infrastructure tide by investing:
 - Up to \$700 million in an [AI Compute Challenge](#) (the Challenge), which calls for proposals to secure domestic commercial AI data centres and unlock billions of dollars of private sector investment. Priority will be given to Canadian projects that can demonstrate sustainability

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(including the use of environmentally sustainable energy sources and Canadian-made AI compute hardware or software) and a high rate of return on public investment. Applications are being accepted now on a rolling basis.

- Up to \$300 million for the AI Compute Access Fund (the Access Fund) to provide small and midsize enterprises (SMEs) with access to affordable compute power. It is anticipated that the Access Fund will launch in Spring 2025.
- Up to \$1 billion to build transformational large-scale public supercomputing infrastructure.

The Alberta Strategy

- The Alberta Strategy focuses on attracting AI data centre projects to the province that centre on power capacity, sustainable cooling, and economic growth.

What is 'AI Compute'?

AI compute is the technology that powers AI. Specifically, AI compute is a specialized stack of hardware and software involving processors or chips, servers, storage, software, and networking, all designed to support AI specific workloads and applications. AI compute covers a range of different technologies from computing chips to data servers to cloud computing.⁴

Why is Sovereign Compute Capacity Important?

In addition to keeping Canada competitive on the global AI stage, expanding domestic AI compute capacity is essential to the growth of Canada's AI industry, including by increasing the number of domestic compute suppliers to provide users with more choices, boosting economic resilience, and enhancing the appeal of the Canadian ecosystem through data sovereignty.

Canada's AI Compute Capacity: A Laggard Amongst its Peers

Compared to its G7 peers, Canada holds the lowest amount of publicly available computing infrastructure and performance. To put things in perspective, it was reported that as of November 2023, Canada's AI compute capacity represents 0.7% of global AI compute capacity. Canada's current computing performance potential is half that of the United Kingdom's, the next lowest G7 nation. In contrast, the US is the market leader with 53% of the global compute capacity, followed by Japan (10%) and China (6%). Practically, this means that the lack of availability of compute domestically puts a drag on other AI metrics where Canada excels such as research, a vibrant AI-start up scene and talent.⁵

The Canadian Sovereign AI Compute Strategy

The Federal Strategy, as outlined in more detail below, attempts to bridge the AI compute gap between its current undercapacity and the expected need in AI compute required by AI firms, researchers and the enterprises across Canada to not only build cutting edge AI solutions but also ensure its rapid adoption and diffusion across the economy.

The AI Compute Challenge

The Federal Strategy aims to allocate up to \$700 million to support projects from businesses, consortiums, and academic-industry partnerships to pursue commercial AI data centre projects. The government's hope is that this funding will mobilize private sector funding and accelerate the development of domestic AI compute capacity. Funding will prioritize projects that meet certain objectives:

- **Building or expanding net-new AI compute capacity in Canada:** The establishment of AI data centres, compute clusters, and other infrastructure, while ensuring that sensitive data is processed and stored domestically.
- **Providing flexible and affordable compute offerings for Canadians:** Reserving compute capacity at competitive rates for Canadian firms at domestic data centres and providing access to resources to support the growth and scaling of Canadian AI firms.
- **Contributing to growing Canadian AI champions:** Providing domestic, regulated compute capacity for Canadian AI firms.
- **Advancing innovative and sustainable compute solutions:** Ensuring that AI programs are environmentally sustainable and efficient and driving upstream supply benefits through domestic AI compute software and hardware.

Preference will be given to proposals that will lead to “fully integrated AI data-centre solutions ready for commercial deployment”, and that are “ready for immediate implementation and leading to incremental compute capacity in the near term”.⁶

The AI Compute Access Fund

The Access Fund will deploy up to \$300 million to address the high cost of compute resources and limited domestic capacity, which are both issues often faced by Canadian AI SMEs. In particular, the Access Fund will focus on key sectors such as life sciences, energy, and advanced manufacturing, all of which require high-performance compute capacity and have potential as use cases for AI. This program will be formally launched in Spring 2025.

Building Public Supercomputing Infrastructure

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Lastly, the Federal Strategy will invest up to \$1 billion to develop world-class, large-scale public supercomputing infrastructure for use by researchers, government, and industry in Canada. More specifically, this investment will include the following:

- In Spring 2025, the Government of Canada will release a statement of interest and a call for proposals to build, manage, and operate a large domestic supercomputing facility. This sovereign supercompute facility aims to support researchers and a cross-section of industry. Priority will be given to proposals that can utilize private capital to increase the size and scale of the facility and/or integrate commercial compute infrastructure for industry users.
- A smaller secure computing facility, led by Shared Services Canada and the National Research Council of Canada, will be established for research and development purposes, as well as for national security.
- Up to \$200 million will be used to address the immediate needs of existing public compute infrastructure.

Alberta's AI Data Centre Strategy

Like the Federal Strategy, the Alberta Strategy aims to attract new investment in AI data centres in the province and to establish Alberta as a global leader in the AI industry by leveraging its natural resources, competitive tax rates and incentives, and business-friendly regulatory environment. In particular, the Alberta Strategy focuses on how the province can help data centres scale through three pillars: (1) power capacity, (2) sustainable cooling, and (3) economic growth. Alberta is the home to world-class energy industry leaders who can help with innovative solutions to meet the energy needs of AI firms, and its cold climate provides natural cooling solutions. Alberta also hosts a competitive marketplace and investment in the establishment of AI data centres will help scale the local economy while providing jobs across the province. Beginning in early 2025, the Government of Alberta will collaborate with municipalities and Indigenous communities to implement specific actions to grow Alberta-based innovation in AI.

Next Steps

Both the Federal Strategy and the Alberta Strategy are home-grown initiatives that aim to keep Canada competitive in the ongoing global AI leadership race. By increasing access to domestic, secure, world-class compute capacity and AI data centres, these initiatives will help Canadian businesses, innovators, and researchers continue to scale.

¹ For more information on the AI budget, see our [previous Cassels Comment](#) on the matter.

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² See Government of Canada, "What We Heard Report: Consultations on AI Compute" (last modified 22 November 2024), online: <[ised-isde.canada.ca/site/ised/en/what-we-heard-report-consultations-ai-compute](https://sed-isde.canada.ca/site/ised/en/what-we-heard-report-consultations-ai-compute)>.

³ See Government of Alberta, "AI Data Centre Strategy" (December 2024), online (pdf): <alberta.ca/system/files/ai-data-centre-strategy-fact-sheet.pdf>.

⁴ The Dias, "Can Canada Compute?" (March 2024), online (pdf): <dais.ca/wp-content/uploads/2024/03/Can-Canada-Compute.pdf>.

⁵ *Ibid.*

⁶ *Ibid.*

This publication is a general summary of the law. It does not replace legal advice tailored to your specific circumstances.