

Powering Up an Electrification Strategy for Canada

Pembina Institute recommendations
on implementing *Powering Canada
Strong*

Submitted to Natural Resources
Canada

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Recommendation summary

The Pembina Institute supports Canada's goals in *Powering Canada Strong: A National Strategy for an Electrified Canadian Economy*:

- Building new infrastructure to double Canada's electricity supply by 2050 and meet growing demand; and,
- Accelerating electrification across the economy to support competitiveness and address climate change.

Alongside the clear goal of doubling Canada's electricity supply, the strategy will benefit from equally clear and ambitious goals for the electrification of our lives, and for increasing the productive use of electricity.

To implement this strategy effectively and efficiently, we recommend focusing on six key areas:

1. Connect Canada's grid
2. Make the grid more efficient and productive through demand-side management
3. Electrify homes and make them more efficient
4. Support the adoption of electric cars and trucks by funding chargers and implementing a strong Vehicle Emissions Standard
5. Ensure long-term support for the North and remote communities
6. Integrate workforce planning and development

Introduction

In 2026, becoming an energy superpower means delivering the cleanest, cheapest power to attract investment and power economic growth, while maintaining domestic energy security and affordability. It also means leading on system modernization and optimization, and electrifying transportation, buildings, and industries to keep household costs down and grow domestic industries. While Canada has a long history of clean electricity generation and sits at an advantageous starting point in comparison to other countries, we do not have the luxury of slowly embracing the energy transition. Delay will result in economic loss, decreased competitiveness, and unabated greenhouse gas emissions.

The transition from fossil fuels to clean electricity is no longer simply about climate goals. It is about reducing vulnerability to global energy markets while strengthening domestic resilience. Unstable global conventional energy markets and politics reinforce the business case for investing in optimizing Canada's energy system through demand-side management and

efficiency measures, grid modernization and expansion, and continued development of distributed and utility-scale clean electricity generation.

Canada already has one of the cleanest electricity grids in the world, thanks to our geography that gives every province excellent clean electricity resources to take advantage of: from hydro in B.C., Manitoba and Quebec, to nuclear in Ontario, and across the windy, sunny prairies, Atlantic coastlines and far North. Effective implementation of a national clean electrification strategy is our opportunity to ensure that Canada can lead the world.

Recommendations

1. Connect Canada's grid

Connecting our isolated provincial and territorial grids by building interties is critical to an electricity grid that is affordable, clean, reliable, and secure. There is strong momentum behind building an interconnected grid with the recent National Energy Corridor agreement led by Ontario, the launch of the Indigenous Power Coalition, and ongoing discussion around a B.C. intertie and expanded transmission network in the Atlantic provinces. If done right, this nation-building initiative could build capacity, enhance access, and enable Indigenous communities to meaningfully participate and hold a vested financial equity in intertie projects.

Building interties is challenging because it requires coordination between provinces and a clear understanding and agreement on how benefits will be shared. To seize the momentum on this project, there is a clear role for the federal government. Canada should provide financial incentives and help coordinate by:

- Increasing support for interprovincial transmission projects to 50% in the Clean Electricity Investment Tax Credit (ITC) with an additional 10% for using Canadian content.
- Extending the Clean Electricity ITC to support critical major high-voltage intra-provincial transmission projects.
- Allocating \$500 million to develop regional plans and cost-allocation frameworks, including new federal-provincial–territorial collaboration potentially led by the Canada Energy Regulator, a standard cost allocation mechanism, data sharing and regional grid modelling, and the Transmission InterConnect Investment Strategy.
- Investing \$5 billion to support Indigenous-led and community-led clean energy projects through grants and additional funds to the Indigenous Loan Guarantee Program.

2. Make the grid more efficient and productive through demand-side management

Building new power plants, transmission lines and distribution infrastructure is expensive. As Canada seeks to expand its electricity system, the lowest-cost starting point is to use existing infrastructure more efficiently and ensure that new investment is sized and located based on the demand that remains after cost-effective efficiency and flexibility measures have been implemented.

Provinces and utilities are beginning to move in this direction. B.C. has announced its Power Smart 2.0 plan, while Ontario launched a 12-year, \$10.9-billion electricity demand-side management (DSM) framework in 2025. However, Canada continues to underuse DSM compared to leading jurisdictions in the United States and elsewhere.

Demand-side management includes energy efficiency, demand response and other measures that reduce or shift electricity demand. Distributed energy resources — including customer batteries, managed electric vehicle charging, smart thermostats and solar-plus-storage — can also provide demand-side value when they are integrated into utility planning, programs and operations.

Unlocking these resources at scale will require more than customer adoption of technology. Utilities need the regulatory mandates, business models, cost-recovery mechanisms, data systems and operational capabilities to assess, value, procure and coordinate customer-side resources as alternatives to conventional infrastructure.

At the same time, distribution utilities will need substantial investment to replace aging assets, connect new demand and modernize local grids. These investments should support, but not substitute for, an efficiency-first approach. Grid expansion, modernization and demand-side management are complementary, but they require distinct policy and financing tools.

To support efficient system use through demand-side measures, the federal government should:

- Expand the Clean Technology Manufacturing Investment Tax Credit to support Canadian manufacturing of strategic grid equipment and enabling technologies, including transformers, switchgear, circuit breakers, advanced conductors, power-control systems and networked demand-flexibility technologies.
- Provide low-cost financing through the Canada Infrastructure Bank and other federal financing institutions for necessary distribution-system modernization, including advanced metering, communications, data-management platforms and systems that allow utilities to integrate and operate distributed resources.

- Provide \$6.5 billion over five years to match provincial and territorial investment in utility DSM, including energy efficiency, demand response, managed charging, flexible loads and aggregated distributed energy resources.
- Tie federal DSM matching funds to measurable outcomes, including peak-demand reductions, avoided or deferred infrastructure costs, customer bill savings, emissions reductions, and improved access for low- and moderate-income households.
- Require federally supported electricity planning and infrastructure investment to assess cost-effective demand-side and non-wires alternatives before committing to major conventional infrastructure expansion.
- Support regulatory and utility capacity-building, including integrated resource and distribution planning, standardized cost-benefit analysis, measurement and verification, data access, and utility performance incentives that reward the use of lower-cost customer-side solutions.

3. Electrify homes and make them more efficient

Buildings are central to energy efficiency, grid stability, and integrating new generation, while also offering a key opportunity to accelerate rooftop and balcony solar and electric vehicles. As the largest scalable lever for turning clean electricity into emissions reductions, cost savings, and grid flexibility, they are where the electrification strategy meets implementation.

New buildings constructed to the highest standards of the national building codes and those retrofitted to high levels of performance help shelter owners and occupants from rising energy costs while providing safe, healthy and resilient environments. Federal housing investment programs represent a compounding opportunity: get performance standards right now, and those decisions lock in outcomes for decades, making homes safe, healthy, and affordable to heat and cool. Miss that window, and the affordability burden shifts from upfront construction costs to ongoing energy bills.

The federal government also has a critical role to play in the creation of a robust retrofit sector across Canada, ensuring that existing building stock is climate resilient and affordable. Existing retrofit programs should be maintained and strengthened to act as long-term market transformation tools, demonstrating the commitment to enabling a durable and self-sustaining retrofit industry.

To work toward the stated goal of retrofitting 1 million homes, we recommend investing \$5 billion over five years:

- An additional \$1 billion for the Canadian Greener Homes Affordability Program (inclusive of the Oil to Heat Pump Program)
- \$2.5 billion for a renewed Canada Greener Affordable Housing Program

- \$927.5 million for the Deep Retrofit Accelerator Initiative
- \$500 million for the Codes Acceleration Fund
- \$72.5 million for the Greener Neighbourhoods Pilot Program

4. Support the adoption of electric cars and trucks by funding chargers and implementing a strong Vehicle Emissions Standard

Global sales of electric vehicles (EVs) are rising rapidly as countries around the world recognize that these cost less to operate than traditional vehicles. Increasing EV adoption not only saves on energy bills, it also supports Canada’s growing EV supply chain.

Canada has the tools to succeed as a global exporter of EVs and batteries: a skilled workforce, clean and abundant electricity, and access to critical minerals. A smart industrial strategy would include stimulating domestic adoption of EVs, to support the development of Canadian supply chains that can compete globally, linking vehicle availability and charging infrastructure deployment.

The stringency of Canada’s forthcoming VES will impact how quickly we build the charging network needed to support widespread EV adoption. The federal government has already invested more than \$1 billion in public charging infrastructure, but long-term network expansion cannot rely primarily on public funding. Canada ultimately needs private capital to scale charging networks at the pace required for mass EV adoption. Private investors need confidence that they will see sufficient utilization and returns. The sooner Canada reaches meaningful EV adoption levels, the sooner we will see private investment replacing public dollars.

To catalyze this transition, the federal government should:

- Expand the Clean Technology ITC to on-road EV charging infrastructure (currently only available to non-road vehicle charging) to catalyze large-scale and immediate investment in charging across a broader range of projects and locations. This will help make up for the market uncertainty created by repealing the EV Availability Standard.
- Recapitalize the Zero-Emission Vehicle Infrastructure Program (ZEVIP) with \$400 million over four years to support a reliable public charging network and unlock home charging for all Canadians, regardless of housing type. ZEVIP grants can direct funding to places where charging financials may not yet pencil out, but where there are Canadians interested in the cost-savings EVs provide, such as rural and underserved communities, apartments and condo buildings.

- Establish a dedicated funding stream for fleet charging infrastructure across private and public medium- and heavy-duty vehicle (MHDV) fleets, including public, shared, and depot-based models. By targeting barriers across charging models, this funding could accelerate MHDV-specific electrification. Deploying MHDV charging infrastructure is logistically complex and costly, and requires a level of planning and resources that most Canadian fleets need financial support to overcome.

5. Ensure long-term support for the North and remote communities

Canada has made major progress in reducing diesel dependence in remote Canadian communities. Long-term predictable support for remote communities must continue, enabling communities to deliver on projects and initiatives they have begun and ensuring they have pathways to pursue future clean energy ambitions.

Wah-ila-toos and its associated programs (REACHE, CERRC, IODI) have been successful in delivering local economic opportunity and increasing energy security, and have supported nearly 500 community energy projects, laying the groundwork for long-term project success.

Investing in northern communities and multi-use infrastructure is a critical pillar of *Powering Canada Strong* to both strengthen national security and “position the North as the economic engine of the future.” Communities cannot achieve these goals without the partnership and leadership of the federal government. We call for direct investment to drive economic growth and strengthen the energy future of remote and Indigenous communities:

- Commit \$650 million over eight years for clean energy in remote and Indigenous communities.
- Convene, collaborate with, and codesign the next iteration of programming with representation from Indigenous partners, utilities, provincial and territorial governments, and key federal bodies (NRCan, CIRNAC, CIB, CanNor) to recommend how funding and financing can best support the energy transition in remote diesel-dependent communities.
- Design new programs for clean energy in remote communities to support Canadian sovereignty in the North, economic development and job creation, and climate action to support healthy communities.

6. Integrate workforce planning and development

Employment in the electricity sector now exceeds 110,000 workers (2022) and the sector will require 28,000 new workers by 2028. Up to 130,000 job openings will emerge in the sector

between now and 2050 under a net-zero scenario. But labour shortages, an aging workforce, and misaligned training pathways put potential growth in the sector at risk.

Workforce development efforts are critical to delivering the skills needed to implement Canada's electricity strategy, while creating high-quality jobs and local benefits for communities and regions where these projects will take place.

Principles of Canada's Sustainable Jobs Act can be used to guide implementation of the electricity strategy. We recommend Canada:

- Require labour conditions on federally funded or supported projects introduced via the strategy to promote better quality job opportunities for local and equity-deserving workers.
- Prioritize domestic content for project procurement on federally funded or supported clean electricity projects, to support and grow domestic manufacturing capacity and value chains.
- Allocate dedicated resources from the Team Canada Strong fund to support recruitment, training and hiring of workers needed to implement clean electricity projects.
- Commit \$10 million over five years to regional data analysis and modelling projections that support decision-makers, employers, and individuals to understand future workforce and economic scenarios and make informed decisions through the shift to a clean economy.

Conclusion

We look forward to engaging with the federal government further on the development and implementation of this ambitious and important strategy.