



Renewable Energy, Good Jobs

A National Green Energy Strategy for Canada

Prepared by
The Green Economy Network (GEN)
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Lead author

Clay Duncalfe, National Convener, Green Economy Network

Contributors

Angella MacEwen, Senior Economist, Canadian Union of Public Employees

Hadrian Mertins-Kirkwood, Senior Researcher, Canadian Centre for Policy Alternatives

Clement Nocos, Director of Policy & Engagement, Broadbent Institute

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Executive summary

Canada's electricity systems lack the capacity to meet growing energy demand. For Canada to become a climate leader, it must expand its role as a producer of renewable forms of energy.

To accelerate this transition, the federal government needs to establish a nation-wide Renewable Energy Development Strategy.

Public investments totaling \$40 billion over five years need to be made to stimulate the development of renewable energy production, as well as interprovincial grid integration.

These investments could be funded in part by withdrawing subsidies from the fossil fuel industry, which would have the added benefit of reducing emissions from this sector as well.

Introduction

In recent decades, Canada has made progress in de-carbonizing its electricity systems. In 2021, 69% of Canada's electricity production came from renewable sources, making its grids the fifth greenest in the world.¹ Taking into account both nuclear and renewables, 83% of electricity generated in Canada is emissions-free.²

However, there is still work to be done: a portion of Canada's electricity still comes from non-renewable sources. More importantly, energy demand is set to double in coming decades, and Canada's electricity systems are not up to the task of meeting future energy needs. Additionally, electricity grids in Canada remain largely disconnected between provinces, leaving regions that lack robust renewable generation capacity dependent on carbon intensive forms of energy production.

Canada's Renewable Energy Development Strategy should therefore focus on two key priorities:

1. Expanding **renewable energy generation and storage**
2. Developing **interprovincial grid integration**

This strategy should also work to promote the public ownership of electrical generation, storage, and delivery to combat the increase in prices that comes with energy utility privatization.

Canada has enormous potential to harness the potential of renewable energy. Its coastal regions and inland areas provide major opportunities for wind power, and locations in this country rank amongst the best in the world in terms of direct sunlight for solar power production.

Although the implementation for such an initiative resides with provincial/territorial and municipal governments, the federal government has a key role to play in initiating, facilitating, and financing the strategic shift to a renewable energy future across Canada.

Key gaps in Canada's electricity sector

Canada has made significant strides in de-carbonizing its electricity grid. In 2021, GHG emissions from the electricity sector were 46% lower than they were in 1990, and 60% lower than their peak of 129 megatons in 2001.³ This is, in part, due to successful phaseouts of coal production and power generation in many regions across Canada.

However, Canada still has a long way to go to green its energy profile. Key gaps stem from an insufficient amount of renewable energy production to meet growing energy demand, a lack of interprovincial electricity grid integration, and an overreliance on the private sector.

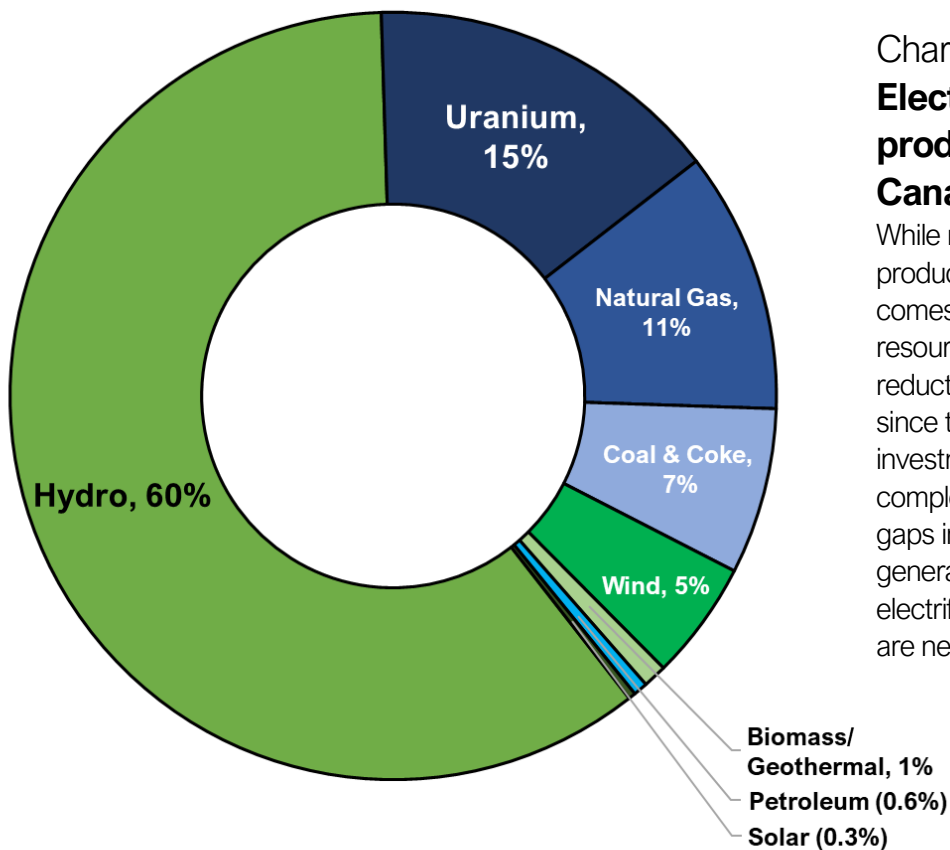


Chart 1
Electricity production across Canada in 2019⁴

While most electricity production in Canada comes from renewable resources with significant reductions in emissions since the 1990s, further investments to completely close the gaps in renewable generation as electrification intensifies are needed.

Under-investment in renewable energy production

In 2021, the federal government committed to achieving net-zero emissions in Canada's electricity grid by 2035 through its Clean Electricity Regulations, which are currently under development as of mid-2023.⁵ However, Canada's current renewable energy capacity remains far below levels needed to achieve this goal, as are current levels of federal investment dedicated to expanding the sector. This is a dilemma compounded by the fact that energy demand is expected to double in the coming decades.⁶

The David Suzuki Foundation estimates that for the Canadian electricity grid to be powered by 100% zero-emissions energy by 2050, an average of over 2,200 new four-MW wind turbines would need to be installed each year, along with 160 new 10-MW solar farms annually.⁷ Granted, this scenario assumes the phaseout of electricity production that is non-emitting, despite not meeting the "renewable" designation—namely nuclear power.

Nonetheless, even maintaining assumptions that the current level of nuclear energy generation will hold constant despite refurbishment needs, projected public investments in renewable energy are insufficient to meet growing energy demand while greening the grid.

Moreover, current regulations contain a series of loopholes and exceptions that allow for the continued reliance on fossil fuel-powered electricity. For example, the proposed Clean Electricity Regulations contain provisions that allow gas plants to continue emitting greenhouse gases beyond 2035.⁸

A lack of interprovincial transmission

Canada's renewable electricity systems are largely disconnected from each other and to regions that lack access to renewable electricity sources. This is due to the patchwork nature of provincial energy transmission lines, which can run north-to-south across the border with the United States from provinces like Ontario, Québec, New Brunswick and British Columbia, but rarely cross provincial borders. This situation leaves provinces that lack renewable capacity dependent on non-renewable energy sources, while provinces with excess capacity sell their energy surplus to buyers in the US as they lack the infrastructure to power their provincial neighbours.

This lack of east-to-west grid connectivity stems from the fact that electricity generation and delivery is managed at the provincial level. If one province were to invest in a transmission line to another, it would have to pass the costs of the project onto its existing customers. Because many provinces with excess grid capacity are already oriented to US buyers due to the overwhelming power of the American economy over domestic energy interests, there are a lack of political and economic incentives for these governments to invest in interprovincial connectivity.⁹

Provinces who have the benefit of having largescale renewable energy generation plants have been able to green their electricity grids by phasing out carbon intensive power generation plants.

For example, Ontario, which has 7,480 megawatts of installed hydroelectric capacity, was able to phase out its coal-fired generation plants in 2014. Meanwhile, provinces that are not endowed with renewable energy capacity or have not built the infrastructure to harness renewable power, continue to produce high emissions electricity generation. Nova Scotia, for instance, which has just 365 megawatts of installed hydroelectric capacity, relied on coal for 51% of its electricity generation in 2019.¹⁰

The David Suzuki Foundation estimates that more than 6,000 km of new or upgraded cross-jurisdiction transmission lines will need to be built by 2050 to fully harness the green potential of interprovincial connectivity and to transfer renewable electricity surpluses from provinces with the production capacity to those who do not.¹¹

Over-reliance on the private sector

Increasingly the maintenance of Canada's current energy capacity and the development of new electricity generation has been made through the private sector. This often leads to higher electricity bills for Canadians and a limited ability of the sector to provide good jobs.

Recent decades have seen provinces sell-off of public energy utilities and infrastructure. For example, in 2015 the government of Ontario partially privatized the province's energy transmission agency, Hydro One. Earlier, in 1992, Nova Scotia's Conservative premier privatized the Nova Scotia Power Corporation, the province's sole power utility.¹²

Privatization of Canada's energy systems has taken place not just through the privatization of already-existing assets, but also through public investment in private sector-led development of new energy infrastructure. Typically, investment in new wind and solar energy generation in Canada is made through public subsidies towards the private sector. According to the Canadian Union of Public Employees, this formulation has "enabled the rise of private ownership of electricity generation."¹³

Often, provinces will privatize public goods on the basis this will shore up funds and increase efficiency in the sector. However, these promises often fail to live up to expectations. In the case of Ontario, the privatization the province's electricity system has correlated with rising costs: retail electricity prices increased 4.3% between 2018 and 2021.¹⁴ This should come as no surprise: private companies—unlike publicly owned agencies—are obligated to maximize profits, meaning they must prioritize their shareholders' interests over the public's by keeping costs low and their customers' fees high.

Bottom line

Canada's renewable energy systems are underdeveloped due to under-investment in renewable energy production, an electricity grid that is largely un-integrated, and the outsized role of the private sector.

A plan for clean energy in Canada

To achieve a net-zero energy economy, Canada must do more to de-carbonize its electricity profile. To do so, significant public investments in renewable energy and grid integration will be required. We call on the federal government to invest **\$40 billion** over a five-year period to support the full decarbonization of Canada's electricity production.¹⁵ Investments should be dedicated to the following:

- **\$20 billion** for investments in cross-province electricity transmission.
- **\$15 billion** dedicated to investments in renewable energy generation and storage, as well as interregional grid integration to facilitate cross-provincial electricity transmission
- **\$5 billion** for investments in Indigenous and rural communities

To ensure that the jobs to be created by a renewable energy development industry go to Canadians, it is imperative that this plan also contains provisions for domestic procurement.¹⁶ Provisions should also be included to promote the construction of energy infrastructure by unionized workers.

This development of renewable energy production could be financed in large part by withdrawing federal subsidies to the oil and gas industry. Annually, the federal government provides an average of \$4.8 billion in subsidies for oil and gas producers.¹⁷ Removing these would both shore-up resources for renewable energy development and stall fossil fuel industry growth, thus tackling the outsized impact oil and gas production has on Canada's emissions profile.

Government action may, and secular economic trends will, have disruptive impacts on workers and communities dependent on Canadian oil and gas production. A phase-out of the industry must therefore coincide with Just Transition programs that will ensure workers in the industry do not suffer financially through the extension of employment supports, re-training programs, and early retirement packages, as well as targeted economic investments aimed at job creation in affected regions.¹⁸ Moreover, investments renewable energy infrastructure should be targeted to regions that will be (or already have been) negatively affected by shifts in the energy economy, such as the transition away from coal or the move towards a more integrated grid.

In all cases, the development of renewable energy should involve proper participation with the communities affected. Equally essential are employment opportunities and measures to support the development of Indigenous-led energy development on Indigenous lands. The federal government already deploys programming to help Indigenous, rural, and remote communities transition away from diesel-reliant electricity generation.¹⁹ However, larger scale investments are still required to meet established clean electricity targets.

Benefits of improving Canada’s renewable energy systems

Fully de-carbonizing, expanding, and integrating Canada’s electricity systems and providing financing through the removing of subsidies for the fossil fuel industry would reduce carbon emissions while creating good, green jobs.

Public investment in renewable energy development will generate thousands of new jobs in Canada. Over a five-year period, a \$40 billion investment towards greening the grid could create between 177,200 and 240,000 jobs. This would partially offset the projected job loss that would result from removing fossil fuel subsidies, which create between 12,672 and 18,144 annual jobs on average, amounting to a total of between 63,360 and 90,720 annual jobs spread over five years.²⁰

Renewable energy development is proven to substantially decrease electricity emissions. Take, for example, the case of Denmark where carbon emissions from electricity production were reduced by 36% between 2005 and 2019, mainly because the country made a decisive move to increase reliance on wind power.²² Similar results can be expected as the result of development of other renewable energy sources such as solar. The Netherlands has been steadily expanding its solar capacity since the 2000s, which has in part contributed to a reduction in greenhouse gas emissions from the country of 29% between 2005 and 2019.²³

One proposed method of funding—the removal of fossil fuel subsidies—would also positively contribute to reducing Canada’s emissions profile. Despite strides in de-carbonizing the electricity sector, oil and gas production in Canada has continued to grow, neutralizing gains made in energy emissions reductions.

National GHG emissions from the oil and gas sector increased by 88% between 1990 and 2021. During this same period, emissions from conventional oil production increased by 24% and oil sands emissions increased by 463%. The latter increase has been the primary factor leading to oil and gas production becoming the largest source of Canadian GHG emissions, accounting for 28% of total national emissions in 2021. Although the industry has taken steps to reduce emissions intensity on a barrel-by-barrel basis, GHG emissions from oil sands crude bitumen production are still 2.2 times higher than conventional crude production.²⁴

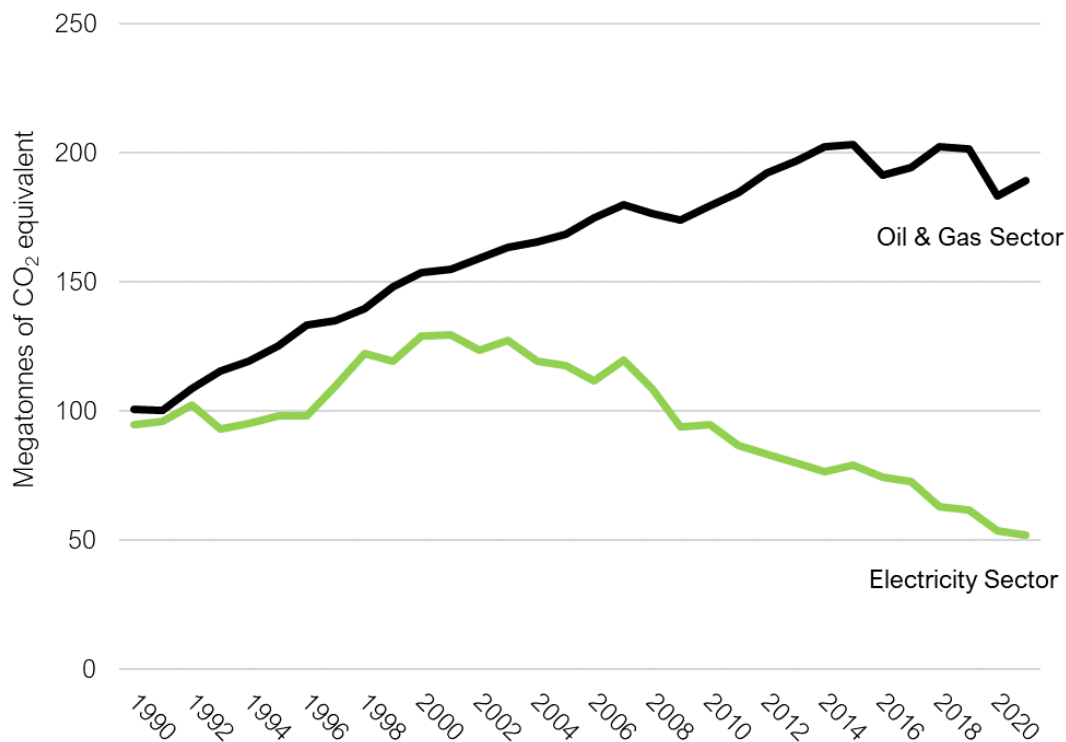
Table 1
Economic impacts of proposed Renewable Electricity Plan²¹

Proposed spending (per year)	
(\$ billions)	\$8.0
Projected employment impacts (jobs created per year)	
Low estimate	35,440
High estimate	48,000

As such, strides made to de-carbonize Canada’s energy profile have been hampered, despite progress made in the electricity sector. In 1990, both the electricity generation sector and the oil and gas sector each contributed to around 100 megatonnes of GHG emissions annually. In 2021, the former’s emissions had decreased to 51 megatonnes of annual GHG emissions, while the latter’s contribution had increased to 189 megatonnes.

Removal of subsidies, along with the government’s forthcoming oil and gas sector emissions cap, would contribute to winding-down the industry.

Chart 2
Canada’s Electricity Sector Greenhouse Gas Emissions vs. Oil & Gas Sector Emissions, 1990-2021.²⁵



The transition from fossil fuel provides opportunities for introducing measures to ensure greater social equity and participation in our economy. These measures must include the establishment of Just Transition programs to assist workers in upgrading their skills for other employment, including employment in renewable energy production, energy efficiency, and public transit. These measures must also ensure that workers in marginalized urban and rural communities have new employment opportunities in these industries and others.²⁶

Conclusion

The transition to the development of clean, renewable energy sources will require nothing less than committed, coordinated and effective leadership. In times like this, it is governments and the public sector that are best equipped to lead and bring about the kind of systemic change required throughout the entire economy. While the private sector will continue to have a role to play, governments must lead the way with a multi-pronged strategy including public investments, ownership, regulations, programs, and infrastructure that transforms Canada from a fossil fuel-based economy to one that is powered by renewable energy sources.

The federal government, in collaboration with the provinces and territories, municipal, and Indigenous governments, along with the involvement of communities, must take the lead in generating this historic transition.

Finally, the transition to a fully renewable electricity grid can only take place if there is strong and vital support from people in local communities and regions. In some cases, there will likely be outright resistance in local communities to making the transition to a renewable energy future without leadership and assurances of the benefits of such a transformation. To ensure that the positives outweigh the negatives, governments must place a priority on strengthening community participation in renewable energy development.

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