

Electrifying Alberta's Grid

Issue

Alberta's electricity sector is rapidly undergoing transformation, most notably influenced by the drive toward net-zero emissions⁴⁰ and the demands of the increased electrification of other sectors of the economy. Alberta's future depends on the successful restructuring of the province's electricity system, not only to support the massive ramp-up of clean electricity required, but to ensure Albertans are not faced with soaring electricity costs that would threaten industry and business and citizen well-being. A clear, transparent and phased plan for a path forward is urgently needed – one that strikes a balance between the addition of renewable energy sources while encouraging investment and economic growth.

Background

As the world – including Alberta – aims for a net-zero future, Alberta's power sector is undergoing significant change. Alberta has set possible targets of *40-50% fewer total emissions than in 2005 by 2035* and net-zero greenhouse gas (GHG) emissions by 2050. Already it has made great strides in nearing its 2035 target, *primarily through* the implementation of renewable technology and coal generation conversions to natural gas.

Research shows clean electrification of the economy (substituting fossil fuels with increasingly clean, zero-carbon electricity) is the cheapest and most efficient way to *reach net-zero GHG targets*.⁴¹ Technology like electric vehicles, advancements in hydrogen and carbon capture, utilization and storage (CCUS), for example, is rapidly transforming all sectors of the electricity industry, including Alberta's electricity system.

The shift to net-zero has immense implications for Alberta and Alberta businesses: it creates opportunities such as job creation, new infrastructure development and capital investment. A 2021 study found that “pursuing net-zero in Alberta could create nearly 170,000 new clean technology jobs and contribute \$61 billion in GDP to the province's economy by 2050.”⁴² In late 2021, the province announced Alberta's Hydrogen Roadmap, aiming to integrate hydrogen into its electricity and heating systems, use it to power the transportation and industrial sectors, and export it as a source of low-emission energy.⁴³ In addition, Alberta is showing leadership in CCUS development, an emissions-reducing storage technology that will help ensure a reliable supply of electricity.

⁴⁰ GofC: A net zero state is achieved when an economy either emits no GHG emissions or off-sets its emissions by removing carbon from the atmosphere through actions like tree planting or employing technologies that capture carbon before it is released into the air.

⁴¹ [The Transition Accelerator Launches 'Canada Grid,' A New Initiative Focused on Accelerating Electricity Grid Integration to Power Canada's Net-Zero Future - Transition Accelerator](#)

⁴² https://www.calgaryeconomicdevelopment.com/assets/Reports/Sectors/Energy-Environment/CED-2021_EnergyTransition_Report.pdf

⁴³ <https://www.cbc.ca/news/canada/edmonton/alberta-bullish-on-hydrogen-strategy-that-relies-heavily-on-carbon-capture-technology-1.6239097>

While the opportunities for Alberta are promising, there is much work to do if we are to transition towards net-zero with an equal commitment to sustainable economic growth. Canada's electricity systems are largely isolated from one another and there has been little progress made to break down those silos. The Business Council of Alberta recommends better integration of provincial grids across the country to create more resilient, efficient and stable systems. The Council also recommends expanding cross-border infrastructure so as to strengthen the North American partnership to accelerate cross-border clean electricity transmission.⁴⁴

Just as critical for Alberta is the need for a provincial roadmap for grid decarbonization. Currently, Alberta lacks such a plan. Without a comprehensive plan to move forward, Albertans face tremendous uncertainty and Alberta is at risk of experiencing the adverse impacts seen in some other jurisdictions.

Pursuing net-zero: Lessons to be learned

As Alberta seeks to chart a path on energy transition, lessons can be drawn from Ontario and Germany. The Province of Ontario invested billions, moving quickly in the pursuit of renewable energy without sound analysis of the costs of implementing green technologies into the grid. Its Green Energy Act, introduced in 2009, and repealed in 2019, contributed to a doubling of electricity prices in a decade, and according to an Ontario Chamber of Commerce report,⁴⁵ resulted in the province having one of the highest electricity rates in North America, undermined Chamber members' capacity to grow and hire new workers, and increased the cost of doing business in Ontario.

Overseas, Germany is steeped in controversy for its renewable energy deployment.⁴⁶ The country had ambitious climate goals; when it went on its path of pursuing renewable energy for its electric generation, rates skyrocketed. Germans now pay some of the highest rates in the world for electricity. Further, the country's per capita emissions are higher than many other European nations: the decision to phase out nuclear power by 2022 may have prolonged the use of coal, whose phase-out is not set to occur until 2033. And the country's heavy reliance on weather dependent renewables is requiring rethinking to avoid volatility in the system.⁴⁷

More demand, more generation, more investment required

Adopting renewable technologies is expensive. And Alberta in the future will need more power than today to meet growing demand from more electric vehicles on the road, electrified heating, etc. For example, in Canada, in just under three decades, we will need about twice as much non-emitting electricity as we do today to connect our vehicles, heating systems and industry to a clean electricity grid.⁴⁸ In Alberta, calculations using data from the Canadian Energy Regulators suggest that a shift from gas to electricity for residential and small commercial businesses alone (which

⁴⁴ <https://thebusinesscouncil.ca/publication/priorities-for-canadas-2030-emissions-reduction-plan/>

⁴⁵ <https://occ.ca/wp-content/uploads/Empowering-Ontario-1.pdf>

⁴⁶ <https://www.cleanenergywire.org/factsheets/how-much-does-germanys-energy-transition-cost>

⁴⁷ <https://foreignpolicy.com/2021/02/10/is-germany-making-too-much-renewable-energy/>

⁴⁸ <https://www.theglobeandmail.com/opinion/article-can-canada-actually-produce-enough-clean-electricity-to-power-a-net/>

make up just 13% of the province's current natural gas load) will require 66,000 megawatts of power. As Alberta currently peaks out at 12,000 megawatts, that means about 5 times more electricity than is now being generated will be required for just those two sectors alone.

Increasing clean generation requires more investment into clean and emerging technologies. This investment will impact government and end-use consumers, as some of these costs will be passed on to Albertans. According to an October 2021 Alberta Chambers poll of Alberta businesses, about two-thirds of all respondents are worried about rising power costs, 43% reported increases of more than 15% of monthly operating costs, and 35% reported their power costs had increased by 20% compared to just 7% in 2020.⁴⁹

A transition to renewable energy is important for our planet and necessary for our province. As Alberta transforms the electricity grid, it is pertinent that clean and reliable energy should be affordable for and accessible to everyone. Detailed analysis of the costs and implications of electrifying Alberta's grid, followed by a comprehensive plan forward is critical to a net-zero future – and the future growth and competitiveness of Alberta and Alberta businesses.

The Alberta Chambers of Commerce recommends the Government of Alberta:

1. Develop and openly share a comprehensive plan to transform Alberta's electrical system into the future. The plan should:
 - a. Be informed by industry, stakeholders, energy transition research centres and the Alberta *Electric* System Operator (AESO) working collaboratively to understand the potential pathways and implications to a net-zero grid of the future;
 - b. Be informed by analysis of the costs of implementing renewable energy;
 - c. Ensure Albertans have access to a reliable supply of power at affordable rates;
 - d. Ensure Alberta's price of electricity enhances, not detracts from, our ability to compete globally and attract investment;
 - e. Support working with other provinces, the federal government, and the United States to grow, better integrate and optimize the electricity grid;
 - f. Support a phased approach that does not place rapid significant increases in rates on end-use customers;
 - g. Have the flexibility to mitigate potential adverse impacts and respond to changing market conditions;
 - h. Be transparent, engaging and informing Alberta businesses and industries at all stages of its development and implementation to ensure they can be prepared and operationally ready for change; and
 - i. Include a strategy to retrain employees working in the current energy industry to the renewables sector; and,

⁴⁹ Alberta Chambers of Commerce [Alberta Perspectives Oct 2021 survey data](#)

- j. Engage with nuclear research agencies for including nuclear options within the Alberta power gridlines plan.