



# A Clean, Resilient Future

Recommendations for advancing British  
Columbia's net-zero energy economy

September  
2024

revised October 2024

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**PEMBINA**  
Institute



## What is at stake over the next four years?

British Columbia has an opportunity to be a net-zero energy leader, *and* an economic leader. In 2024, these forms of leadership are inseparable. Climate policy *is* energy and economic policy, and jurisdictions that welcome the net-zero energy economy will thrive, while those that do not risk losing investment to their more innovative competitors. B.C. is a leader in connecting climate and energy policy, and there are ample reasons to be bold and continue moving towards the long-lasting reliability, sustainability and affordability of low-carbon energy, the backbone of a 21<sup>st</sup>-century economy.

The province is at a starting point in decarbonization that few other jurisdictions in North America enjoy. Figure 1 illustrates the greenhouse gas (GHG) emissions by sector. B.C. currently operates an electricity grid dominated by hydro and other renewable energy resources, from which it supplies B.C. communities and industry, and exports power to other markets. And the three sectors contributing the greatest GHG emissions — transport, buildings and oil and gas — each offer cost-competitive solutions to decarbonize that leverage existing technology.

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Thank you to everyone at the Pembina Institute who helped provide information and advice for this document.

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Recommended citation:  
Jessica McIlroy and Betsy Agar. A Clean, Resilient Future: Recommendations for advancing British Columbia's net-zero energy economy.

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Editor: Laurence Miall  
Design: Roberta Franchuk, Steven Cretney  
Cover Photo: Jericho Beach, Vancouver, British Columbia, Canada



The next government must complete an energy plan that provides industrial, commercial and residential customers with the certainty and tools required to decarbonize, while taking an efficiency-first approach. This will provide an excellent investment environment while also giving B.C. residents affordable, reliable energy they can count on.

Since the last election, B.C. has made progress on measures that will reduce carbon emissions, scale up the deployment of low-carbon energy, increase the resilience of communities in the face of extreme weather, and create a solid foundation for the net-zero economy of the future — keys to sustaining prosperity and improving the quality of life for everyone. The assessment we conducted with Simon Fraser University, *All Together Now: A provincial scorecard on shared responsibility reduce greenhouse gas emissions in Canada*, found that B.C. is Canada's best-performing province for climate action.<sup>1</sup> However, B.C. is not competing against its fellow provinces for climate change accolades. Far from it; it is competing in a global marketplace for a share of the investment in a net-zero economy.

During the summer of 2024, the Pembina Institute sent a briefing to all political parties in B.C. with candidates at that time (British Columbia New Democratic Party, BC United, Conservative Party of British Columbia, and the Green Party of British Columbia), outlining critical areas that the next government needs to prioritize over the next four years: formulating an energy plan aligned with climate targets; promoting zero-emission transportation and climate-resilient buildings; reducing oil and gas emissions; growing the clean electricity supply to B.C.'s grid; addressing embodied carbon; ensuring an equitable transition; and making it possible for remote communities to generate clean energy.

In addition to addressing these specific issues, the next government will also need to take stock of the energy resources that power the economy and people's lives and make decisions about which ones

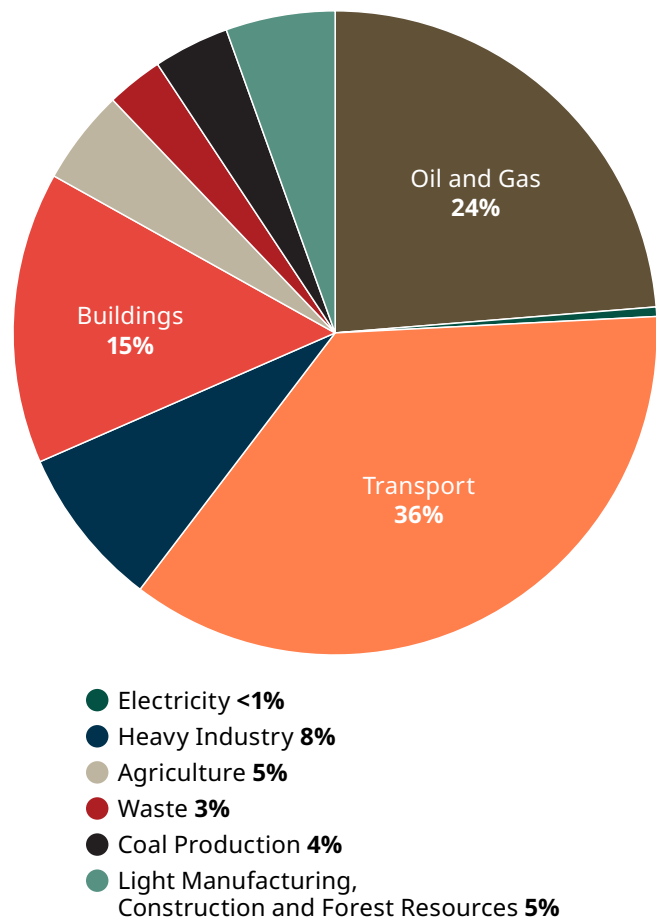


Figure 1: Provincial GHG emissions by sector in 2022

can most effectively meet growing demands. The most cost-effective ways to dependably meet growing demand is to reduce waste, through energy efficiency and demand response. (Figure 2). Known as demand-side management, savings from energy-inefficient buildings and industrial processes leave increased capacity on the grid for other uses. An efficiency-first approach combined with investments in flexible transmission and renewables can support rising demand in an affordable and reliable manner.

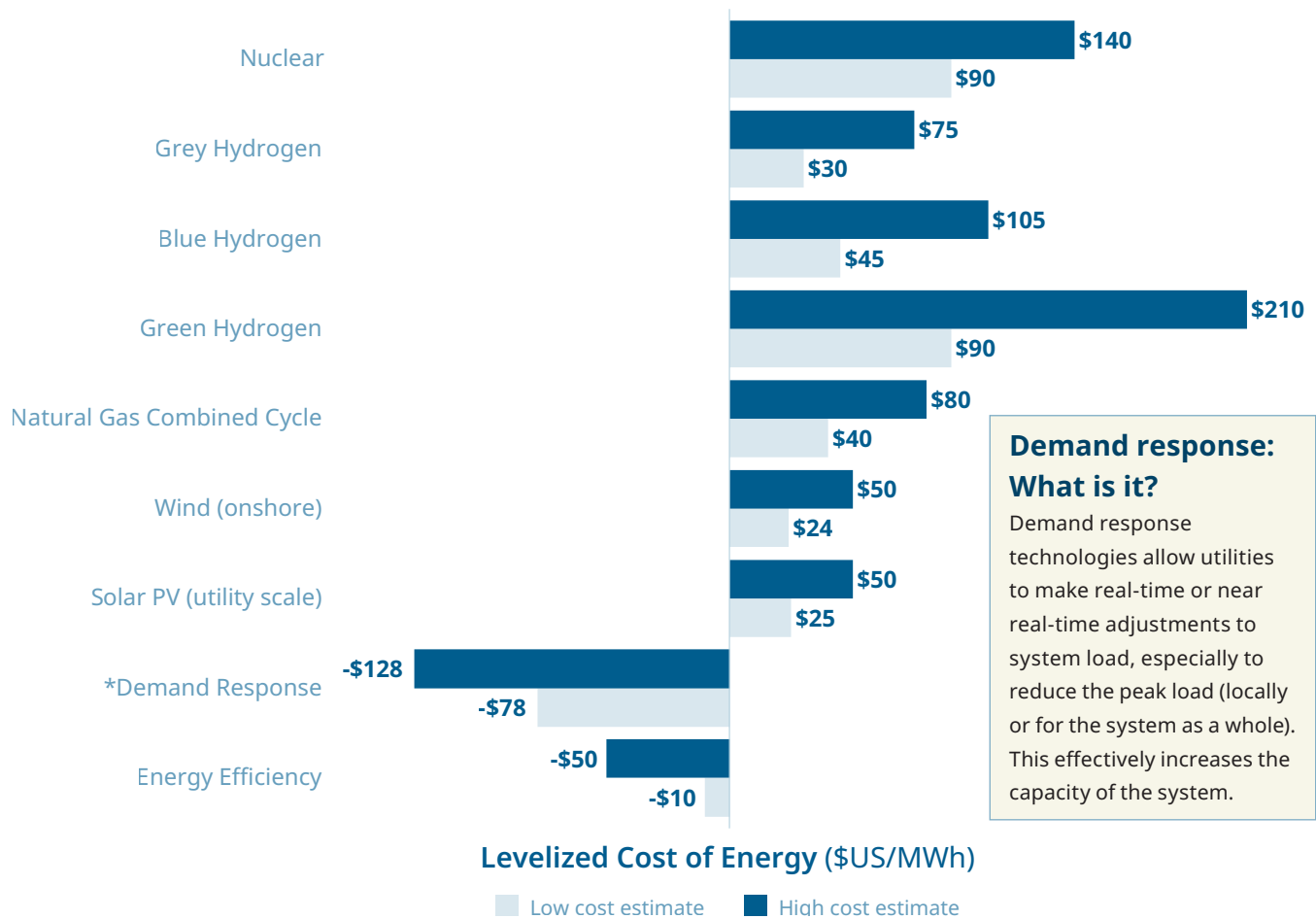


Figure 2: Range of energy costs of different resources

North America-wide cost data on energy resources commonly deployed or identified in decarbonization plans by industry and utilities. Solar and wind are the most cost-effective generation, with hydrogen or nuclear the highest cost. Energy efficiency and demand response deliver the highest savings to utilities and are key strategies in demand-side management plans, along with on-site generation and storage (not shown).

Data sources and methodology: See endnote 2<sup>2</sup>

We believe British Columbia is well positioned to be a clean energy leader. With smart choices over the next four years, the province will be able to attract the investment that will fuel ongoing prosperity and good jobs, while delivering affordable energy that people and industry can count on.

This report outlines key areas that should be a priority for the next government. It builds upon the briefings we provided to the political parties over the summer, and is intended to contribute to an ongoing conversation about how B.C. can fulfill its potential as both a climate and economic leader.

## Quick facts

- B.C. was responsible for 9% of Canada’s national emissions in 2022.<sup>3</sup>
- Extreme weather is costing B.C.’s economy an estimated \$10.6 billion to \$17.1 billion annually.<sup>4</sup>
- 83% of British Columbians say it is important that the province has an energy strategy to meet future energy needs as the world transitions away from fossil fuels and toward net-zero energy resources.<sup>5</sup>



# A climate-focused energy plan

Energy systems around the world are undergoing a massive transition to modernize and reduce emissions, and the International Energy Agency calls for a global doubling of investment in electricity grids by 2030 to meet climate targets.<sup>6</sup>

The benefits to B.C. of aligning its energy plan with its climate plan are not limited to reducing emissions. A plan to reduce dependence on natural gas and increase the supply of clean electricity will help deliver stability, reliability and affordability.

The next government must complete an energy plan that provides industrial, commercial and residential customers with the certainty and tools required to decarbonize and meet climate targets while prioritizing efficiency.

## Quick facts

- In 2021, 63% of the energy used in B.C. was from refined petroleum or natural gas.<sup>7</sup>
- B.C. consistently ranks number one in Efficiency Canada's Efficiency Scorecard.<sup>8</sup>
- There are currently approximately 7,000 megawatts (MW) of proposed new industrial demand in BC Hydro's interconnections queue.<sup>9</sup>

## Highlights since 2020

In 2024, the British Columbia Utilities Commission (BCUC) reviewed and approved the BC Hydro Integrated Resource Plan, the first review of the plan since 2006. The current 10-year BC Hydro capital plan includes \$36 billion in infrastructure investments.

Both major utilities are making record investments in demand-side management, with the BC Hydro efficiency plan investing \$700 million over three years<sup>10</sup> and FortisBC investing \$695 million over four years.

B.C.'s clean energy strategy *Powering Our Future*, released in June 2024, has set the vision and principles for the development of a new energy plan for the province.

## Recommendations

- Commit by end of 2025 to developing a B.C. energy plan with timelines and budget estimates.
- Commit to undergoing energy pathway assessments that include supply- and demand-side resources, and make these publicly available.
- Provide direction to BCUC to facilitate and regulate integrated utility planning by the major utilities.





Photo: Roberta Franchuk

# Zero-emission transportation

British Columbia has legislated a zero-emission vehicle (ZEV) sales regulation for light-duty vehicles, the targets for which were strengthened in 2023. There have also been ZEV purchase incentives and investments in charging infrastructure. To support the transition to zero-emission medium- and heavy-duty vehicles (MHDVs), initiatives have been funded and there is a commitment to develop a sales regulation.

The measures introduced over the last four years are laudable but will not on their own achieve the scale of emissions reductions, in particular from commercial vehicles, needed to align with B.C.'s 2030 and 2050 GHG reduction targets.

## Quick facts

- B.C. is one of the top jurisdictions in North America for adopting electric vehicles, along with Quebec and California.<sup>11 12</sup>
- In the first quarter of 2024, zero-emission light-duty vehicles had 22.7% market share in B.C.<sup>13</sup>
- In 2022, transportation accounted for 36% of provincial GHG emissions.<sup>14</sup>
- As of 2023, only 86 new medium- and heavy-duty zero-emission vehicles were registered in B.C., representing only 0.57% of all MHDVs in the province.<sup>15</sup>

## Highlights since 2020

B.C.'s Zero-Emission Vehicles Act, government rebates, and charging infrastructure investments now form a comprehensive suite of programs and policies to accelerate the transition to light-duty ZEVs.

Zero-emission vehicle sales regulation targets were strengthened in 2023 to 26% of new light-duty vehicle sales by 2026, 90% by 2030 and 100% by 2035.

Budget 2024 included \$30 million to add more than 500 public EV charging stations.

## Recommendations

- Set sales targets for MHDVs and consider adjustments to proposed fleet purchase requirements.<sup>16</sup>
- Adjust rebates for zero-emission MHDVs so that greater funding goes to those who need it most, i.e. small fleets.
- Increase investment in public ZEV charging, specifically focused on rural and remote communities, and on MHDVs.



# Reducing oil and gas emissions

Oil and gas was the second-highest GHG-emitting sector in B.C. in 2022. Further increases in emissions are projected as planned liquefied natural gas (LNG) terminals become operational. The sector needs to be subject to stringent emissions reduction requirements if the province is to meet its emissions reduction targets.

Reducing methane emissions from the oil and gas sector is the most cost-effective way to make significant progress. Methane is a potent climate warmer with more than 80 times the warming power of carbon dioxide in a 20-year timespan. Methane can also cause serious air quality and potential health harms to workers and communities.

Electrification of upstream and LNG operations should be considered as a technological solution to decarbonize this sector, especially where there are benefits to other industries and communities. The feasibility of carbon capture, utilization and storage to decarbonize upstream operations needs to be urgently investigated.

## Quick facts

- Oil and gas is B.C.'s second highest emitting sector and was responsible for 24% of provincial GHG emissions in 2022.<sup>17</sup>
- In 2021, a sectoral emissions reduction target for the oil and gas was set at 33% to 38% below 2007 levels by 2030.
- If all approved and proposed LNG facilities become operational, the CleanBC 2030 target for oil and gas may be exceeded by as much as 21 Mt CO<sub>2</sub>e.<sup>18</sup>

## Highlights since 2020

On April 1, 2024, British Columbia's new output-based pricing system came into effect, replacing the CleanBC Industrial Incentive Program. This is a critical component of the province's plan to meet its climate targets.

The province is developing a new net-zero industry policy that would require new industrial facilities to have plans to reach net-zero by 2050, and 2030 for LNG terminals.

The province announced a backstop to the federal oil and gas emissions cap, with implementation slated for 2025/2026, meaning B.C. will have a pathway for emissions reductions from this sector regardless of any changes in federal policy.

Finally, the province has committed to introduce stronger policies that will reduce methane emissions from the oil and gas sector by 75% by 2030 and nearly eliminate all industrial methane emissions by 2035.

## Recommendations

- Sustain and strengthen the regulatory regime to meet or exceed B.C.'s commitment to reduce methane emissions.
- Fully implement the oil and gas emissions cap as a backstop to upcoming federal regulations to meet or exceed B.C.'s oil and gas emissions targets.
- Implement net-zero requirements for LNG facilities.



Passive House building in Vancouver, B.C. Photo: Stephen Hui

# Climate-resilient buildings

As extreme weather events grow in frequency and intensity, strategic investments in deep retrofits to B.C. buildings are essential for mitigating health risks and ensuring resilience in homes and buildings now and for generations to come. To address the combined challenges of energy affordability and climate impacts, significant support is required to retrofit existing buildings, of which an estimated 80% will still be in place in 2050.<sup>19</sup> Annual retrofit targets and grants, loans and financial tools, combined with regulations, are needed to ensure every home in B.C. is climate safe and affordable to operate. \$2.8 billion per year in residential and commercial retrofits would stimulate \$6.4 billion in GDP growth and 26,300 jobs.

## Quick facts

- Emissions from buildings represented 15% of the total provincial GHG emissions in 2022.<sup>20</sup>
- In 2022 and 2023, for the first time ever, B.C. heating equipment distributors imported more residential heat pumps than natural gas furnaces.<sup>21</sup>
- Retrofitting all the homes of low-income households experiencing energy poverty would generate over 50,000 FTE jobs.<sup>22</sup>

## Highlights since 2020

By investing jointly with the federal government in the CleanBC Better Homes Energy Savings Program, B.C. has now made heat pumps more accessible to low- or middle-income households, providing British Columbians with affordable heating and cooling during increasingly cold winters and hot summers.<sup>23</sup>

The implementation of the Zero Carbon Step Code (ZCSC) has introduced Canada's first carbon pollution standard for buildings. In combination with the Energy Step Code, the ZCSC is a critical tool in decreasing emissions along with energy consumption and costs.

## Recommendations

- Invest \$6.3 billion between now and 2050 to retrofit the homes of low-income British Columbians experiencing energy poverty.<sup>24</sup>
- Implement the Highest Efficiency Equipment Standard which would require heating equipment be rated at more than 100% efficient, effectively winding down the use of natural gas furnaces.
- Set an adoption schedule for full implementation of the Zero Carbon Step Code Emissions Levels.
- Expand the BC Home Energy Planner, currently only in effect on a pilot basis, to serve the whole province.





Construction workers work on a condo building in downtown Vancouver.

# Addressing embodied carbon

Embodied carbon refers to the GHG emissions associated with the extraction, production, transportation and manufacturing of products and materials for the built environment, representing a significant portion of total emissions. As industry sectors make significant progress in reducing emissions in advanced materials, governments play an important role in seeding the market, instilling confidence in product performance, and creating standards for performance and reporting. The strengthening of embodied carbon reduction commitments will position B.C. as a leader in the low-carbon economy and ensure provincial emissions reduction targets are met.

## Quick facts

- Concrete is used twice as much as all other construction materials combined.<sup>25</sup>
- The Government of B.C. purchases 22% of all cement and concrete used in the province.<sup>26</sup>
- Increasing the use of mass timber in place of concrete could reduce the embodied carbon of buildings by 25%.<sup>27</sup>

## Highlights since 2020

The Ministry of Transportation and Infrastructure began accepting the use of Portland-limestone cement (PLC) in their projects.<sup>28</sup> PLC represents approximately 10% lower CO<sub>2</sub> emissions than traditional cement.

A low-carbon building materials guide will be developed that would introduce embodied carbon targets by 2030.<sup>29</sup>

The B.C. Building Code was updated to increase height limits in mass timber residential and office buildings to 18 storeys, and to allow more building types.

## Recommendations

- Adopt the federal Standard on Embodied Carbon in Construction for procurement of ready-mix concrete.
- Support performance-based building codes and standards that allow for the use of lower-carbon building materials.
- Encourage the use of recycled aggregates in concrete products in place of specifying raw material inputs, which will reduce extraction and concrete waste.



Solar PV installation at Balfour Golf Course clubhouse, B.C. *Photo: Dave Lovekin*

# Growing clean electricity supply

Choices that B.C. makes today will be critical in ensuring the province retains and grows its clean electricity supply. Meeting rising energy demand through clean or renewable generation and energy efficiency while keeping rate increases low demonstrates that modernizing the grid offers multiple benefits including savings on customers' electricity bills, greater grid reliability, emissions reductions and improved air quality. B.C.'s clean electricity grid will play a critical role in attracting investment and providing opportunities for First Nations and communities across the province.

## Quick facts

- 97% of B.C.'s grid is already non-emitting; however, the Canada Energy Regulator projects that this could decrease to 88% by 2030.<sup>30</sup>
- BC Hydro forecasts that electricity demand will increase by 15% or more by 2030.<sup>31</sup>
- The electricity supply will need to double by 2050 in order for the province to reach its net-zero targets.<sup>32</sup>

## Highlights since 2020

The BC Hydro 10-year capital plan was increased to \$36 billion and is expected to support 10,500 to 12,500 jobs annually.

The Clean Energy Act objectives have been updated, including a commitment to meet the rising demand for electricity through 100% clean or renewable generation. In April 2024, BC Hydro issued its first competitive call for power in over 15 years to acquire approximately 3,000 GWh per year of electricity, adding about 5% more supply to B.C.'s grid by 2028.

## Recommendations

- Advance discussions with Alberta to increase bi-directional interties. Better physical and market linkages would improve system resilience and allow both provinces to benefit financially.
- Continue to prioritize intermittent renewables and clean energy sources to meet rising energy demand from the clean economy industries and sectors in an affordable and reliable manner.
- Continue to expand the mix of energy resources, incorporating utility-scale and on-site generation along with demand-side management to balance cost, reliability and resiliency.





Diesel fuel tanks storing fuel for heating and transportation in Bella Bella, B.C. Photo: Emily He, Pembina Institute

## Clean energy for remote communities

BC Hydro, the provincial government, and remote First Nations are strongly aligned on meeting the province's goal of reducing diesel consumption in remote communities by 80%, although structural barriers continue to hinder progress. Overcoming these barriers will require the alignment of various pieces of legislation and regulation with the Declaration on the Rights of Indigenous Peoples Act (DRIPA). Throughout that process, close collaboration with remote First Nations communities is required to ensure their unique challenges are adequately addressed.

### Quick facts

- There are roughly 40 diesel-dependent communities in B.C.; the majority of them are Indigenous.<sup>33</sup>
- CleanBC Remote Community Energy Strategy (RCES) has set a target to reduce diesel consumption for generating electricity and heat by 80% by 2030.

### Highlights since 2020

B.C. has widened the pathway for Indigenous leadership in the clean energy transition through the collaborative development of the RCES and acting on the recommendations of the final report of the RCES working group.

A key barrier to clean energy development has been removed with the amendment of the Greenhouse Gas Reduction Regulation to include diesel reduction in the Non-Integrated Areas (NIAs), which are remote parts of the province not connected to the electricity grid.

While more funding is necessary to achieve targets, the recapitalization of the Community Energy Diesel Reduction program has further supported diesel reduction projects.

### Recommendations

- Prioritize DRIPA-aligned reform of relevant energy sector legislation such as the Clean Energy Act and the Utilities Commission Act, with a special focus on the unique nature of diesel reduction in remote communities.
- Support and fund collaborative engagement platforms such as the RCES working group and prioritize co-development with First Nations for regulatory and legislative reform as a part of DRIPA implementation.
- Expand funding for the Community Energy Diesel Reduction program.





Passive House apartment building under construction in Vancouver, B.C. *Photo: Stephen Hui*

# Preparing industry and workers for a clean economy

By 2050, growth in clean energy industries will create more jobs in B.C. By putting the right policies and plans in place, governments can ensure that clean industries succeed, and that workers have the right skills to take advantage of emerging job opportunities.

## Quick facts

- There are approximately 64,000 clean economy jobs in B.C. today, most of which are related to hydroelectric generation, green buildings and transit.<sup>34</sup>
- 1.6 million new clean economy jobs could potentially be created in Canada by 2050, 256,000 of these in B.C.<sup>35</sup>
- Clean economic sectors with the greatest growth potential in B.C. include electric vehicles and net-zero buildings.<sup>36</sup>

## Highlights since 2020

B.C. has initiated forward-facing economic strategies through the federal-provincial B.C. Regional Energy and Resource Table, outlining opportunity areas and actions in its Framework for Collaboration on the

Path to Net-Zero. The province has also released the StrongerBC Future Ready Action Plan, putting in place supports to help workers prepare for a changing economy. However, neither of these actions deliver on the province's commitment to consult on and develop a CleanBC labour readiness plan, which would require more comprehensive workforce and economic planning to manage the changing labour market conditions spurred by investments outlined in CleanBC's Pathway to 2030 and the B.C. Clean Energy Strategy, among other commitments.

## Recommendations

- Develop a jobs plan that aligns regional economic development and workforce readiness with climate and energy plans.
- Undertake an analysis of the impacts and opportunities along the path to net-zero, making labour market analysis and data more accessible to workers and communities.
- Collaborate on economic strategies that reflect the diverse economies and geographies in B.C. and identify future economic pathways for workers and communities.

# Endnotes

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- 36 Based on modelling in *A Sustainable Jobs Blueprint – Part II*.



British Columbia is positioned to be a clean energy leader and attract the investment that will fuel ongoing prosperity and good jobs, while delivering affordable energy that people and industry can count on.

The Pembina Institute advocates for a strong, science-based approach to climate policy, environmental protection and energy development. We are a proudly independent and non-partisan charitable organization, and welcome the opportunity for dialogue with all organizations interested in advancing these issues in B.C.

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## Inquiries

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The Pembina Institute recognizes and affirms these unceded ancestral territories of the xʷməθkʷəy̓əm (Musqueam), Sḵw̓x̓ wú7mesh (Squamish), and səliłwətał (Tsleil-Waututh) Nations. We respectfully acknowledge the presence of many diverse First Nations, Inuit, and Métis Peoples on these lands.