Canadian Chamber of Commerce
Chambre de Commerce du Canada

# Ready to Compete

## Driving Net-Zero Success: Collaboration for Regional Prosperity in Canada's Economy

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# INTRODUCTION

> **“Ready to compete” in the net-zero economy requires significant investment and commitment from Canadian companies, but they cannot adapt alone.**

Businesses across the world are competing for labour, investment, technology, machinery and resources to achieve net-zero targets. Canada must actively prepare for the net-zero economy so our businesses can remain competitive, secure investment, train and attract workers, lock in supply chains and access global markets. Across all levels of government, decisions made today will influence Canada’s future success in a net-zero world. Our economy, livelihoods and wellbeing are in the balance.

“Ready to compete” in the net-zero economy requires significant investment and commitment from Canadian companies, but they cannot adapt alone; the federal government must facilitate the net-zero transition to ensure Canada’s pathway is competitive, enhances investment, creates jobs for Canadians and promotes innovation. The Canadian Chamber of Commerce’s Net-Zero Council, in partnership with the University of Waterloo Terrametrics Research Lab, conducted research to identify investment, policy, and regulatory priorities for four Canadian regions: Atlantic Canada, Ontario, Prairies and British Columbia. The analysis focused on six key sectors: agriculture, electricity, transportation, buildings, natural resources and heavy industry. Based on the regional analysis, the study identified seven priorities that resonate across regions and sectors, and which are critical to address for Canada to prosper in a net-zero world.

The regional reports are based on a scan of regional position papers, policy documents, and input from regional chambers of commerce and their members. Input was collected through workshops held in each region and questionnaires circulated by regional representatives to business and industry stakeholders. The questionnaires were sent out in April 2023 and regional workshops were held in April and May 2023.

**Click here to access regional reports.**

*Ready to Compete* builds on the Canadian Chamber’s prior report, *How We Get There Matters: Establishing a Path to Net-zero in Canada*, which provides analysis and recommendations to encourage a timely national debate on priorities and current gaps on how to get to net-zero.

# CROSS CUTTING THEMES

While the different regions of Canada face unique opportunities and challenges that reflect their individual economic structures, industrial compositions, energy supplies, geographies and demographics, several priorities were identified by businesses from coast to coast that remain relevant and timely across sectors. These include the need to act quickly, mobilize private investment, address workforce challenges, build Indigenous partnerships and be flexible recognizing differences in capacities and potential pathways across the country.

## Act Quickly

The global transition to net-zero is well underway. Canada's ability to succeed while also remaining competitive requires adaptability, speed and organization — on the part of both businesses and governments. Canadian businesses will be constrained to keep pace with the transition if the supporting infrastructure, regulatory frameworks and funding support programs are not in place.

## Increase Public Investment and Support

Funding the net-zero transition requires massive federal support and investment. While spending on net-zero is growing, the federal government recognizes that current investment levels are still below what is needed. Budget 2022 estimated the investment needed at $125 billion to $140 billion annually through to 2050. However, Budget 2022 only allocated $18.5 billion to the transition. Though the federal government restated and enhanced its commitment to supporting efforts to achieve net-zero in Budget 2023 by announcing $60 billion in clean energy tax credits and $20.9 billion in new investments over the next five years that aim to respond to the United States' Inflation Reduction Act (IRA), accelerate decarbonization and strengthen Canada's transition to clean energy, there remains a massive gap between the needed and actual levels of investment from government.

Implementing net-zero policies and technologies will be expensive across all regions, but it will be especially challenging for small-and medium-sized enterprises (SMEs) with limited financial resources. Funding supports from all levels of government must prioritize SMEs at risk of marginalization due to a lack of resources to meet regulatory and reporting requirements.

Encouraging bold innovation will be key to addressing the technological challenges of achieving net-zero in Canada. Funding that targets the research and development of new technologies, enables partnerships with the post-secondary sector, and fast-tracks commercialization, knowledge mobilization and technology transfer will accelerate the transition. Stimulating this innovation requires access to capital and seed funding for entrepreneurs, researchers, institutes and small companies, which must be supplemented in part by public investment. Additionally, the federal government must ensure that regulatory requirements do not constitute a prohibitive barrier for new and emerging technologies.

## Remove Barriers for Businesses

The urgency of 2030 and 2050 net-zero targets requires that federal government agencies, along with provincial counterparts, remove barriers that compromise competitiveness, delay project approvals and put onerous reporting requirements on businesses. There is a need for clear and thoughtful policies and regulations to support and encourage businesses to transition to net-zero. The federal government must consider the unintended consequences of excessive regulation on economic competitiveness and our ability to transition quickly and efficiently. A lack of clarity and cumulative regulatory and taxation burdens may impede Canada's capacity to attract global investment or encourage industry to relocate to jurisdictions with fewer regulatory burdens, especially in heavy industry and natural resources sectors.

Reducing permitting timelines is critical to accelerating the pace of investment and development. Meeting emission reduction targets requires development of large infrastructure projects. The length of time necessary to secure permitting and assessment approvals compromises our ability to implement the required sectoral transformations that will lead us to achieving net-zero targets. For example, it typically takes 15 years to get a mine permitted in Canada; this is too long to develop a critical mineral industry at scale.

Reporting requirements on companies are demanding, especially for SMEs. Efforts to simplify reporting requirements, improve federal portals for implementing compliance data and streamlining provincial and federal reporting between programs will reduce administrative burden.

## Mobilize and De-Risk Private Investment

Providing regulatory certainty and removing barriers are important first steps to mobilize private investment, but minimizing financial risks to businesses by supporting their ability to compete is also critical. The federal government should consider carbon border adjustments, especially for trade sensitive industries, and explore contracts in industries making major investments based on current carbon pricing regimes. Eliminating political uncertainty at a federal level by committing to supporting businesses will mobilize private investment. The federal government can also offer tax incentives and other innovative blended finance structures (loan guarantees, subordinated debt, first loss equity and public-private partnerships) to de-risk investments in emerging technologies such as carbon capture, use, and storage (CCUS) and green hydrogen. Alongside blended finance structures, Canada-made public procurement requirements may also contribute to de-risking private investment. Carbon Contracts for Difference (CCfDs) can also play a crucial role in facilitating the decarbonization process by providing investors with the assurance of a stable future price for carbon credits. funding for entrepreneurs, researchers, institutes and small companies, which must be supplemented in part by public investment. Additionally, the federal government must ensure that regulatory requirements do not constitute a prohibitive barrier for new and emerging technologies.

> **Reconciliation is a crucial piece of the net-zero transition in Canada that must not be overlooked.**

## Prepare a Net-Zero Workforce

Canada will not see the benefits of the global net-zero transition if our workforce is not ready. The transition to net-zero requires a skilled workforce that is knowledgeable of the new technologies and processes being adopted across industries, ranging from electric vehicles and precision agriculture to renewable energy infrastructure and green buildings. Developing a comprehensive net-zero jobs strategy can help ensure Canada has the necessary skilled workers to succeed. A jobs strategy should focus on decarbonizing existing industries (e.g., oil and gas), expanding supports for established green energy sectors (e.g., nuclear, wind and solar), and developing workforce capacities in emerging fields (e.g., hydrogen and energy storage).

A comprehensive workforce strategy requires collaboration across governments, employers and educational institutions to set up skills training, academic and certification programs and experiential learning and job placement opportunities. Training bodies including universities, colleges, polytechnics, cégeps and apprenticeship programs are positioned to offer training and research opportunities. In addition to training new workers, a critical component of the net-zero workforce strategy will be developing retraining opportunities and supports for those working in sectors that will experience job losses due to the net-zero transition. Interprovincial credential recognition can address some skill shortages by ensuring that the labour pool can move between provinces freely.

Finally, a workforce strategy must be comprehensive in scope. The impacts of large-scale investments and shifts in the energy transition will go beyond a single sector, with spillover into regional labour characteristics as demand grows for roles in healthcare, retail, service sectors and food services.

## Focus on Indigenous Partnerships and Reconciliation

Partnering with Indigenous communities is critical to the development of new natural resource-based projects. Indigenous people and communities across Canada are fully implicated in natural resources and heavy industry, as these sectors employ many Indigenous people and have preexisting partnerships and consultation agreements with Indigenous communities. A collaborative approach to resource development and renewable energy generation that is rooted in Indigenous rights and wellbeing can provide Indigenous communities with opportunities for revenue generation and sovereignty. Reconciliation is a crucial piece of the net-zero transition in Canada that must not be overlooked.

## Plan for Regional Differences and Varying Capacities

Both the capacities and pathways to net-zero vary significantly across the country. Federal support and targets must take into consideration regional differences, as geographic, economic and demographic diversity necessitates different policies, practices and investments. As such, investment priorities and policy decisions must consider consequential opportunities and impacts on a regional level, with heightened consideration of the differences between rural and urban communities, as well as northern and southern communities. Full acknowledgement and incorporation of regional differences will only be achieved with substantial collaboration between federal, provincial and local governments. Issues such as the impact of carbon pricing, zero-emission vehicles (ZEV) targets and potential rising costs of electricity due to fuel switching will have unique impacts across different regional contexts. The federal government must provide flexibility to support regional approaches, as opposed to a one-size-fits-all approach; this will be crucial to protect competitiveness nationally and internationally while transitioning to a net-zero economy.

# ATLANTIC CANADA

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Atlantic Canada, encompassing Nova Scotia, Newfoundland & Labrador, Prince Edward Island, and New Brunswick, produces less than 6% of Canada's total greenhouse gas (GHG) emissions. Atlantic Canada is a predominantly rural and geographically diverse region with a disproportionately large number of small- and medium-sized enterprises (SMEs). Federal regulations and plans must incorporate these unique attributes to ensure no individual or business is left behind in the net-zero transition. Given the small size of Atlantic Canadian provinces, regional approaches will be crucial to protect the region's competitiveness nationally and internationally while transitioning to a net-zero economy.[1] This report highlights key issues, challenges and opportunities within Atlantic Canada by sector associated with the net-zero transition for businesses and industry.

## Agriculture and Fisheries

Despite recent challenges in agriculture due to drought periods associated with climate change,[2] farm operators in Atlantic Canada have made progress in decarbonizing their operations. To achieve net-zero emissions, however, the sector requires widespread adoption of innovative technologies at scale. Farm operators are constrained financially to overhaul operations. Therefore, financial supports and incentive programs that are accessible to operators of all sizes must be prioritized to allow for a low-cost, net-zero transition in agriculture, especially in Prince Edward Island.

In Atlantic Canada's fisheries, a critical sector of the regional economy,[3] new technologies must also be adopted to allow for the decarbonization of fleets and processing. Fisheries in the Atlantic are at the forefront of the effects of climate change with heightened susceptibility to ocean warming and acidification, which may negatively impact the profitability of fisheries across the region.[4] To remain competitive and profitable while lowering the sector's carbon footprint, further public investment in technological innovation and incentivizing the widespread adoption of net-zero fishing technology through financial incentives must be included in Canada's net-zero transition plan.

## Buildings

Reducing emissions related to the residential and commercial building stock in Atlantic Canada is a priority to achieve carbon reduction targets. Atlantic Canada's building stock is notably behind in the net-zero transition due to an ongoing reliance on oil for building energy. It is estimated that approximately 41,000 homes and over 2,000 commercial properties will require retrofits to achieve net-zero 2050 targets.[5] The retrofit process is prohibitively expensive for most property owners and will require substantial federal and provincial support. Throughout the transition, supports must be specifically directed toward SME owners, which make up most businesses in the region and likely have a lesser capacity to retrofit their properties.

Public sector coordination with universities, colleges, trades and certification bodies is key to ensure that a workforce of trained energy auditors, contractors, engineers and skilled labourers is available given the retrofit demand and short timeline. Decarbonizing the building sector will not be possible without a strong and skilled workforce available to complete the necessary retrofits.

## Electricity

Renewable electricity generation is one of Atlantic Canada's largest challenges in terms of the regional net-zero transition, especially in Nova Scotia and New Brunswick which are the only two provinces in the country to rely predominantly on coal for their electricity.[6] Additionally, the four Atlantic Canada provinces have the four highest rates of energy poverty in Canada, and costs are only expected to rise as the region begins to decarbonize their electricity grid in line with federal net-zero targets.[7] While affordable electricity is critical to ensure business competitiveness and increase investment in the region, there is also growing demand for renewable and net-zero electricity. To see the benefits from the electricity transition in increased private investments and business attraction, costs associated with the transition must be absorbed and businesses must be financially supported by substantial public funding.

Additionally, the federal government must support and accelerate regional solutions such as the Atlantic Loop project, which will supplement New Brunswick and Nova Scotia's electricity supply with low-cost renewable energy from Quebec and Labrador.[8] Such collaborative regional projects will be critical in all sectors to ensure cost efficiency and timeliness as Atlantic Canada transitions to a net-zero economy.

## Heavy Industry

Although industry accounts for only 7% of GHG emissions in Atlantic Canada, about half of the region's total emissions were produced by 58 large emitting facilities in 2019.[9] These large industrial emitters contribute substantially to the economy, generating revenue that benefits the region and providing critical services to Atlantic Canadians. The significant role played by these sectors in the regional economy and labour market demonstrate the challenges associated with the net-zero transition for heavy industry.[10]

Combined with changing market demands, Canada's carbon pricing is likely to cause some subsectors in heavy industry to decelerate or cease output.[11] While this will reduce emissions, it will also substantially affect the economy. The federal government must look to alternatives such as incentivizing investments in low-emissions technology, supporting a localized carbon offset system, and directing carbon price revenue investment back to the communities impacted by higher costs.[12] These strategies recognize the important role of industry in the regional economy, prevent the financial burden of the transition falling to SMEs and consumers, and help the region remain competitive in a net-zero economy.

## Natural Resources

Atlantic Canada's reliance on oil and natural gas as primary energy sources is due in part to the rural nature of the region's provinces and the prevalence of offshore oil and gas drilling in Newfoundland. The natural resource sector is instrumental to the region's economic growth, competitiveness, and investment attraction, but constitutes a massive barrier to achieving emissions reductions in energy.[13] A key consideration in the energy transition is the risk of transferring costs to SMEs and individuals. While oil is an expensive and outdated source of residential and commercial energy,[14] developing and adopting new clean technologies in fossil fuels and transitioning to renewable energy sources will be even more cost prohibitive in the short-term and may exacerbate regional energy poverty trends.[15] Federal support must be bolstered to reflect this risk and support businesses through the transition to low-emissions energy.

Despite a heavy reliance on fossil fuels for electricity, transportation, and other industries, Atlantic Canada is also poised to develop and grow their competitive advantage in renewable energy. Recognizing predicted trends in slowing demand for fossil fuels,[16] the region is well positioned to respond by developing its capacity for on and offshore wind energy, small modular reactor (SMR) nuclear technology, green hydrogen, and hydroelectricity. Wind and hydrogen have seen the greatest uptake so far, with a historic green hydrogen partnership recently formed between Newfoundland, Canada, and Germany; Project Nujio'qonik will allow Newfoundland to produce green hydrogen using onshore wind energy for export to Germany.[17] Project Nujio'qonik represents what is possible for Atlantic Canada in becoming a globally recognized renewable energy leader and demonstrates changing market demands that necessitate technological innovation and the transition away from emissions-intensive energy.

Atlantic Canada will not be able to achieve its renewable energy potential in a timely manner without the full support of the federal government. By providing subsidies and loans for technological innovation and deployment, incentivizing private investment attraction, and facilitating partnerships and connections with other stakeholders, the federal government can facilitate the growth of Atlantic Canada's internationally competitive renewable energy market, which will benefit businesses across the country.

**The net-zero transition in transportation will require substantial public and private investment, in addition to consumer buy-in.**

## Transportation

Atlantic Canada's transportation sector, accounting for 33% of the region's GHG emissions, is behind in terms of the national net-zero transition and will require substantial federal buy-in to achieve 2030 and 2050 emissions reductions targets.[18] Conventional strategies for decarbonizing transportation in Canada, including promoting the manufacturing and sale of zero-emission vehicles (ZEVs) and bolstering public transportation networks, have proven more difficult or not applicable in Atlantic Canada due to the rural nature of the region and its emissions intensive electricity, which negates the efficacy of ZEVs in achieving net-zero.[19] While many of these challenges are infrastructural, others are ideological and related to investor and consumer behaviours. The net-zero transition in transportation will require substantial public and private investment, in addition to consumer buy-in. The federal government can act as a facilitator by incentivizing private investment in infrastructure while strengthening regional transportation options, as well as encouraging public buy-in through education and subsidies.

Federal support will become even more critical as carbon prices continue to rise. Without alternative transportation options, such as ZEVs or public transit, increasing carbon pricing will have a significant financial impact on SMEs and individuals.[20] This must be taken into consideration when planning public investment and considering where and how carbon tax revenue will be spent.

# ONTARIO

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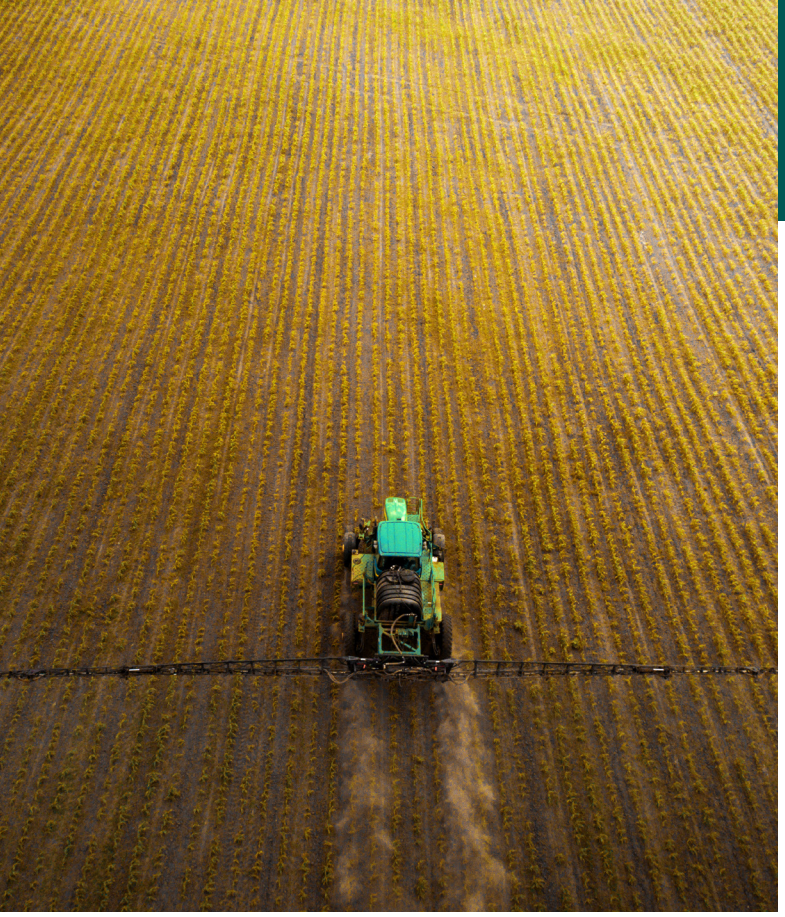

Ontario's net-zero transition has significant economic, social, political and environmental implications for Canada. Ontario's geographic and demographic diversity necessitates policies, practices, and investments that reflect regional differences and support Ontario's businesses and consumers. Policies, practices and investments must also reflect the critical role that Ontario's small- and medium-sized enterprises (SMEs) play in the provincial economy and their relative capacity to respond to the net-zero transition and comply with regulatory requirements. This report highlights key issues, challenges, and opportunities in Ontario by sector associated with the net-zero transition for businesses and industry.

## Agriculture

Ontario's agriculture sector is an important contributor to the provincial economy and plays a critical role in the national agri-food supply chain. In 2021, Ontario had the largest provincial share of farms and farm operators in the country and many were SMEs[21] whose growth, competitiveness, and ability to adapt to a net-zero economy directly impacts the livelihood and wellbeing of Canadians. Therefore, the transition to net-zero in Ontario's agriculture sector must be wholly supported by all levels of government, and regulatory requirements and targets must be implemented within the context of the sector's vulnerability to rapid economic, regulatory and environmental changes.

Ontario farm operators have already shown leadership and willingness to implement sustainable practices made possible by sectoral innovation, federal funding and provincial regulatory changes.[22] This demonstrated interest is in line with growing national and global demand for sustainable agri-food products throughout the supply chain.[23] To achieve net-zero emissions and protect Ontario agricultural exports, there must be increased development and implementation of technologies that reduce the footprint of vehicles and equipment through fuel switching, increase methane capture from livestock, and use agricultural soil as a carbon capture, use, and storage (CCUS) mechanism, among others.

For most Ontario farm operators, these innovations are prohibitively expensive without substantial public and/or private investment. To protect the viability of Ontario agriculture and ensure its competitiveness, federal funding, incentive programs and private investment de-risking subsidies must be maintained and further leveraged to provide opportunities to integrate innovative and sustainable agricultural practices. Significant efforts must also be directed towards protecting Ontario farmland from development, which will secure the longevity of agricultural SMEs and protect Ontario's agri-food supply chain. Altogether, these practices will reduce emissions and position Ontario as a leader in sustainable, net-zero agriculture.

## Buildings

Ontario's buildings make up a significant portion of the province's greenhouse gas (GHG) emissions. Decarbonizing the building stock through retrofits is a critical aspect of the provincial net-zero transition as a large majority of the buildings that will be operational in 2030 are already built and thus fall under Canada's 2030 net-zero targets. Most GHG emissions from Ontario buildings are due to space heating from non-renewable energy, namely natural gas, but switching to electricity is not infrastructurally or economically viable. Therefore, demand-side management (DSM)[24] and blending fuel sources will be critical avenues for transitioning Ontario's buildings sector.

Due to financial and logistical challenges associated with implementing energy efficiency measures, they are unlikely to become mainstream without updated building codes that legislate these measures for new and existing buildings.[25] However, to remain competitive and to avoid passing on costs to individuals and small businesses, updated building codes must be accompanied by strong financial and logistical support from all levels of government, such as providing net-zero recommendations for businesses and homeowners and increasing the level of public investment in net-zero buildings via retrofit incentive programs. This support must also include significant financial investment in building Ontario's workforce to carry out retrofits and implementing net-zero features in new builds, as the province's current workforce is not large enough to support the transition within the net-zero 2030 and 2050 timelines.

In addition to stringent building codes, concentrated workforce development, and amplified incentive programs, Ontario can become a leader in the net-zero building transition while supporting SMEs through its public procurement processes.[26] With a strong commitment to investing in locally sourced sustainable and net-zero building materials, Ontario can incentivize suppliers to provide such options and allow suppliers and businesses to remain competitive through the net-zero transition by easing cost recuperation associated with shifting business practices and legislated energy efficiency retrofits.

## Electricity

Ontario has a competitive advantage in its low-emissions and relatively inexpensive electricity generation capabilities. Through a 15-year process of phasing out coal-fired electricity generation, Ontario reduced its GHG emissions from electricity generation by 90%. Today, 94% of electricity produced in the province is emissions-free, and only 3% of provincial GHG emissions come from electricity generation.[27]

Ontario is well positioned to meet future demand for clean electricity with the expansion of the Bruce Nuclear Generating Station. The Darlington Small Modular Reactor project will also deliver clean electricity, showcasing Ontario as a leader in nuclear technologies. Provincial and federal governments must recognize Ontario's competitive advantage in clean and low-cost electricity and maintain this affordability for individuals, SMEs, and local governments. This should be prioritized in public investment and private investment incentive programs. A failure to keep costs low will compromise the province's ability to retain and attract industry. The federal government must plan to subsidize increased costs associated with infrastructural limitations and grid capacity to ensure these costs are not passed on to businesses and consumers. Subsidies will allow Ontario businesses to remain competitive by retaining and leveraging a clean and low-cost electricity advantage.

## Heavy Industry

Ontario's heavy industries (mining, forestry, steel, chemicals and others) remain a crucial component of the provincial economy and a key challenge and opportunity in the provincial net-zero transition. Heavy industry disproportionately relies on fossil fuels for operation because of the need for high temperatures and massive energy requirements that are more difficult, costly and complicated to attain from renewable energy sources.[28] To achieve net-zero, the federal government must incentivize public-private and cross-sector partnerships that can facilitate the transfer of technology and workforce training to support the integration of net-zero innovations, such as hydrogen, biocarbon, and carbon capture, use, and storage (CCUS) technologies, for implementation in Ontario's heavy industry. Ontario's cleantech industry, with the support of the federal government, is poised to play a critical role in the heavy industry net-zero transition.[29]

De-risking private investment in the heavy industry net-zero transition is also critical for incentivizing private involvement and supporting the provincial economy through the net-zero transition by ensuring that transition costs do not get passed down to Ontario businesses. Some of Ontario's heavy industry leaders in net-zero, such as Algoma Steel in Sault Ste. Marie and ArcelorMittal Dofasco in Hamilton, were made possible by substantial private investments that would not have materialized without significant support from the federal government.[30] De-risking must be adopted as a key mechanism to be leveraged by the federal government, especially in heavy industry where an immense amount of capital is needed to achieve net-zero. The net-zero transition for Ontario's heavy industries also presents challenges and opportunities associated with regional differences. Many mining companies operating in Northern Ontario employ a large proportion of Indigenous people; therefore, northern and Indigenous communities must also be consulted and involved in the development of policies and regulations that impact heavy industry.[31]

## Natural Resources

Ontario remains highly dependent (economically and infrastructurally) on non-renewable natural resources, namely oil and natural gas, presenting a challenge in the provincial net-zero transition. The natural gas system in Ontario has become embedded as a semi-permanent "transition fuel", and the province must begin to scale down natural gas usage as part of the transition to net-zero. However, this scaling down must also be accompanied by shifts in how renewable energy systems are funded, regulated and developed by the provincial and federal governments. Regulatory burdens and slow administrative processes could become critical barriers to achieving net-zero in Ontario's energy system, especially with the introduction of emerging technologies such as green hydrogen, renewable natural gas and CCUS technologies. [32]

The integration of renewable natural gas and green hydrogen through fuel blending represents a significant opportunity for Ontario's energy and natural resources sector. With the economic and coordinating support of provincial and federal governments, fuel blending can allow oil and natural gas to be slowly phased out across the province without compromising infrastructural capacity or costs for businesses and consumers.[33] Economic support from the federal government, including fuel switching subsidies and de-risking initiatives for private investment, will continue to be essential in advancing the net-zero transition in Ontario's natural resources and energy sector. There are also opportunities for the provincial government to legislate some aspects of renewable natural gas production to accelerate its development, as seen in other provinces.[34]

In particular, investment in green hydrogen presents a key path for Ontario to achieve net-zero emissions. Green hydrogen serves as a critical alternative to fossil fuels, especially in energy-intensive sectors such as heavy industry.[35] Ontario already has the capabilities and infrastructure conducive to scaling hydrogen production and use, which is an opportunity in terms of the province's net-zero transition and presents a significant competitive advantage that can be leveraged as a long-term economic opportunity for Ontario businesses.[36] The provincial government's recognition of hydrogen as a key competitive advantage for the province sets a precedent for further provincial and federal investment that can position Ontario and its businesses as leaders in the adoption of green hydrogen to achieve net-zero.

## Transportation

Ontario's transportation sector makes up the province's largest source of GHG emissions by sector, accounting for 35.6% of provincial GHG emissions in 2019.[37] To achieve net-zero, significant and continuous investments are needed to further accelerate zero-emission vehicle (ZEV) infrastructure development, shift consumer behaviour and reduce bipartisanship, and incentivize public transportation, which, when available, is often more expensive and time-consuming than using a personal vehicle. Regional differences are especially significant in the transportation sector, especially surrounding the adoption of ZEVs for personal and commercial use. Private investment in ZEV infrastructure is geographically uneven across Ontario, and public investment (either direct or through subsidies or de-risking strategies to incentivize private investment) must account for these regional disparities to ensure no businesses or consumers across Ontario are left out of the transportation sector's net-zero transition.

Ontario has historically been a leader in the auto manufacturing sector, which is well integrated with global markets. The selection of St. Thomas by Volkswagen for their first ever North American EV battery cell gigafactory demonstrates that Ontario has the capacity needed to absorb investments and become a leader in ZEV manufacturing, the partnerships and reputation needed to foster a strong investment environment, and the technology needed to implement significant fuel switching in transportation.[38] With further public investment, clear and consistent policy and planning from all levels of government, and private investment attraction efforts, global leadership in ZEV manufacturing is a further competitive advantage that Ontario businesses will be able to take advantage of through the net-zero transition.

# PRAIRIES

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Transitioning to a low carbon economy in the Prairies (Alberta, Saskatchewan, Manitoba) is necessary to attract investment, ensure exports are competitive in the global market and build a thriving economy for the next generation. The pathway requires regulatory certainty, government support for strategic investments, research and development of new technologies, incentives to change behaviour and workforce reskilling. Policies, practices and investments must also support small-and medium-sized enterprises (SMEs) that play a vital role in the regional economy and will be challenged to meet net-zero targets and to comply with regulatory requirements.

The capacity to decarbonize is not equal across the country. Federal supports and policies must consider the "steepness" of the pathway to net-zero by region and respond accordingly. Decarbonization will be especially difficult for Saskatchewan and Alberta given their reliance on oil and gas. Financial incentives need to prioritize regions that will be impacted most. This report highlights key issues, challenges, and opportunities in the Prairies by sector associated with the net-zero transition for businesses and industry.

## Agriculture

The agriculture sector is an important contributor to the regional economy and plays a critical role in the national agri-food supply chain. The transition to net-zero in the agriculture sector must be wholly supported by all levels of government, and regulatory requirements and targets must be implemented within the context of the sector's vulnerability to rapid economic, regulatory and environmental changes.

Farmers in the Prairies have widely implemented sustainable farming practices such as zero-till farming and manure management practices. Technology has rapidly advanced in the agriculture sector. For example, precision agriculture has substantially reduced fertilizer use and greenhouse gas (GHG) emissions. The high level of technology, however, requires specialized skillsets to fix and operate which can be a barrier, especially in remote rural regions. While the sector is quickly reducing emissions, farm operations are still heavily dependent on diesel generators and fossil fuel-based equipment. Incentives to integrate renewable energy technologies into farming operations are key. Consideration of context is also important. Farming is energy intensive, and most farms in the Prairies are remote. Additionally, demographic and socio-economic differences must be considered; careful messaging and education and making clear ties between net-zero and economic prosperity are critical in order to avoid alienating farm operators and producers in rural communities.

Funding support programs and regulatory and reporting requirements should also consider the size of farms. Many farm operators in the Prairies are SMEs whose capacities to integrate new technologies and meet reporting requirements are constrained. Federal support will be key for these farms to remain competitive. Accessing government funding and programs should be streamlined and easy. Farmers and agri-food businesses can be reluctant to participate in programs given onerous requirements associated with accessing funding programs, narrow scope of program eligibility and excessive reporting demands.

## Buildings

Buildings contribute a significant portion of the region's GHG emissions. Decarbonizing the building stock through retrofits is a critical aspect of the provincial net-zero transition as a large majority of the buildings that will be operational in 2030 are already built and thus fall under Canada's 2030 net-zero targets. Most emissions from buildings in Alberta and Saskatchewan are due to space heating from non-renewable energy, namely natural gas. Fuel switching to electricity is not infrastructurally or economically viable. Therefore, demand-side management (DSM)[39] and blending fuel sources will be critical avenues for reducing GHG emissions in the building sector.

Large up-front costs pose a barrier to uptake of home and building retrofit programs and adoption of energy management systems. Smaller businesses with limited capital investment cash flow and lower income homeowners are less able to participate in programming. The retrofit process is expensive for most business owners and will require substantial federal and provincial support. Given the scale of retrofits required and the short timeline, decarbonizing the building sector depends on the training of energy auditors, contractors and skilled labourers.

Facilitating the net-zero transition also requires building codes, standards and practices to minimize energy use. Decisions, particularly related to building construction, are driven by project owners who have a strong need to control upfront construction costs. This often results in inadequate investment in the project design and planning stage early in the process and is a lost opportunity to improve the full lifecycle energy performance of a building from the outset.[40]

## Electricity

Electricity has been targeted as the first sector to be net-zero. Clean Electricity Regulations must offer flexibility and reasonable timelines for adoption. The different electrical systems in each province demand unique approaches and considerations especially for those provinces that still rely heavily on fossil fuels such as Saskatchewan and Alberta. Federal tax credits for wind, solar, energy storage, hydro and nuclear are welcomed and critical to advancing investment in renewable energy sources. Phasing out natural gas will need to be balanced with increasing energy demand, the speed at which new renewable energy generation can be integrated into electricity systems, and the ability to ensure cost competitiveness of electricity prices. The electricity sector already has all the regulatory drivers required to propel the sector toward net-zero. Progress depends on financial investments, streamlining of project approvals and flexibility.

## Heavy Industries

In the Prairies, reducing emissions from heavy industry without sacrificing the sector's competitiveness is critical for economic growth. Heavy industry disproportionately relies on fossil fuels for operation because of the need for high temperatures and massive energy requirements that are more difficult, costly, and complicated to attain from renewable energy sources.[41] To achieve net-zero, fuel switching to incorporate other energy sources such as renewable natural gas, hydrogen, small modular nuclear and biomass fuel, alongside hydroelectricity, is necessary. Achieving the shift will require substantial financial and coordinating support from the federal government to incentivize and de-risk the development and deployment of clean energy technology at scale. Supporting competitiveness during the transition is key. Introducing border carbon adjustments can help protect trade sensitive industries. Canada-made government procurement requirements can help de-risk private investment as well.

## Natural Resources

The natural resources sector has made substantial progress in reducing emissions. Many industries in Saskatchewan, such as potash, already have the lowest GHG emission intensity in the world compared to global competitors.[42] Financial investments to support technology adoption to decarbonize industrial processes are critical to ensure global competitiveness and further progress towards net-zero targets. Carbon capture, use, and storage (CCUS) tax credits are welcomed and necessary to de-risk large private investments required for development of CCUS projects. Renewable energy sources will increasingly supply a part of that energy mix, but oil and natural gas will be important for quite some time; therefore, investment and innovation in this sector is still required. Development of new natural resource-based projects must include Indigenous partnerships or be Indigenous-led. A collaborative, Indigenous-focused approach to resource development and renewable energy generation provides for own-source revenue generation opportunities for First Nation communities and businesses. The development of an energy transition workforce strategy can help ensure a skilled workforce is ready. Priority should be directed to help retrain workers in declining industries.

Regulatory uncertainty and regulatory burden are limiting private sector and global investment especially in regards to oil and gas, power infrastructure, and pipelines. Regulations are being implemented without coordination and consideration of cumulative impacts on regions, sectors and industry. Investors want regulatory certainty and clear policy directives. Regulations cannot compromise global competitiveness,

especially for trade sensitive industries. Engagement and collaboration with sectors by region — as opposed to more regulation — will pave the path toward a more rapid and equitable transition.

Building the necessary infrastructure needed to meet net-zero targets requires changes to speed up regulatory processes. Fast tracking permitting, reducing regulatory hurdles, and streamlining provincial and federal environmental assessment processes will encourage global investments and advance major infrastructure projects more quickly. Existing regulatory processes are too cumbersome and lengthy. Changes should include setting firm timelines for federal regulatory decisions, streamlining with provincial processes, and establishing a clearer process for consulting with Indigenous communities. The 2022 Fall economic statement committing $1.3 billion to increase regulatory capacity is encouraging. The federal government should work with provincial counterparts across the Prairies to introduce regulatory efficiencies and fast track approvals for critical projects as was done for the Cedar LNG facility in British Columbia.[43]

## Transportation

Conventional strategies for decarbonizing transportation in Canada, including promoting the sale of zero-emission vehicles (ZEVs) and bolstering public transportation networks, are less applicable to the Prairies given large rural population, long distances between urban centres and climate. Alberta and Saskatchewan's emissions intensive electricity further negates the efficacy of ZEVs in achieving net-zero. While many of these challenges are infrastructural, others are ideological. ZEVs for personal and commercial use are not recognized as a viable option among a large portion of the population living in rural regions. The net-zero transition in transportation will require substantial public and private investment, in addition to consumer buy-in. The federal government can act as a facilitator by incentivizing private investment in infrastructure while strengthening regional transportation options, as well as encouraging public buy-in through education and subsidies. Federal support will become even more critical as carbon prices continue to rise. Without alternative transportation options, especially in rural regions, increased carbon pricing will have a significant financial impact on SMEs and individuals.

> **Building the necessary infrastructure needed to meet net-zero targets requires changes to speed up regulatory processes.**

# BRITISH COLUMBIA

## *Invest, Create, Innovate, Compete*

Positioning Canada’s business community at the forefront of the net-zero transition, sectoral challenges and opportunities.

British Columbia is home to a vast range of businesses, communities, cities, natural resources and industries that will all be impacted by climate change and the net-zero transition. Federal and provincial net-zero policies, regulations and standards need to be evidence-based and attainable with the support of public and private investment, while reflecting the diversity of British Columbia's businesses across the entirety of the province. With continued robust provincial leadership and appropriate federal support, BC is in an opportune position to solidify its strong stance on climate change by setting the standard for a just and economically viable net-zero transition in Canada. This report highlights key issues, challenges, and opportunities in British Columbia by sector associated with the net-zero transition for businesses and industry.

## Agriculture

Agriculture in British Columbia accounts for 4.6% of the province's greenhouse gas (GHG) emissions.[44] Despite a relative lack of arable land in the province, the industry is an important contributor to the provincial economy. Due to its geography, British Columbia's agriculture sector and its associated businesses are notably diverse, and products and production vary across the province. Therefore, a one-size-fits-all approach to net-zero in agriculture has the potential to impede the sector's competitiveness and limit its ability to achieve net-zero 2030 and 2050 targets. Instead, net-zero regulations and standards that are specific to sub-sectors' environmental and economic conditions must be implemented alongside robust federal economic support so as not to harm the financial viability of small-and medium-sized enterprise (SME) farm operators and producers.

Due to the volatility of the sector and its susceptibility to climate change, regulations must also be flexible to allow for fluctuations in income and production rates, especially with consideration of the significant financial challenges facing farm operators in British Columbia and beyond.[45] Additionally, demographic and political differences must be accounted for in the agriculture net-zero transition; careful messaging, education, and making clear ties between net-zero and economic growth are critical in order to avoid alienating farm operators and producers in rural communities. There is growing national and global demand for sustainable agri-food products throughout the supply chain,[46] but most farm operators and producers in British Columbia do not have the financial or technologically innovative capacity necessary to compete with foreign markets and prices. While short-term mechanisms like expanding carbon sequestration may be used to achieve interim net-zero targets,[47] the development and implementation of long-term solutions that can be sustained over many decades must be supported by all levels of government.[48]

## Buildings

Approximately 13.5% of British Columbia's GHG emissions can be attributed to the buildings sector, namely from the energy used to heat and operate them.[49] Emissions from buildings have implications for competitiveness and affordability, disproportionately impacting affordability for Indigenous people and in Indigenous communities.[50] In outdated buildings, businesses and households are the first to feel the economic impacts of energy inefficiency. Fuel switching must be accompanied by programs to offset cost increases to avoid compromising the financial viability of businesses. Alongside fuel switching, widespread demand-side management (DSM) techniques to improve energy efficiency can lower emissions allowing households to save money and businesses to remain competitive.

While provincial and federal regulations and building codes for new construction are in line with net-zero targets, they do little to incentivize retrofits.[51] The public sector must place additional emphasis on the importance of decarbonizing the existing building stock through retrofits, which has implications for net-zero and affordability. Federal grants and incentive programs for efficiency-related retrofits need to incentivize all property owners, not just those with larger portfolios and a greater capacity to complete retrofits. Specific federal financial support and provincial legislation must also be put in place to ensure the stock of affordable housing remains so through voluntary or legislated retrofits by preventing property owners from passing costs down to individuals and small businesses through inflated rental rates.

In addition to protecting the supply of affordable housing and supporting property owners, federal and provincial programs can encourage a made-in-Canada net-zero transition in the sector through the creation of carbon credits that incentivize private and public procurement of Canada-made green building and retrofit materials. A local supply chain, combined with publicly funded workforce retraining and development, will ensure that investments stay in the province and allow suppliers in British Columbia to benefit from the net-zero transition in the building sector.

## Electricity

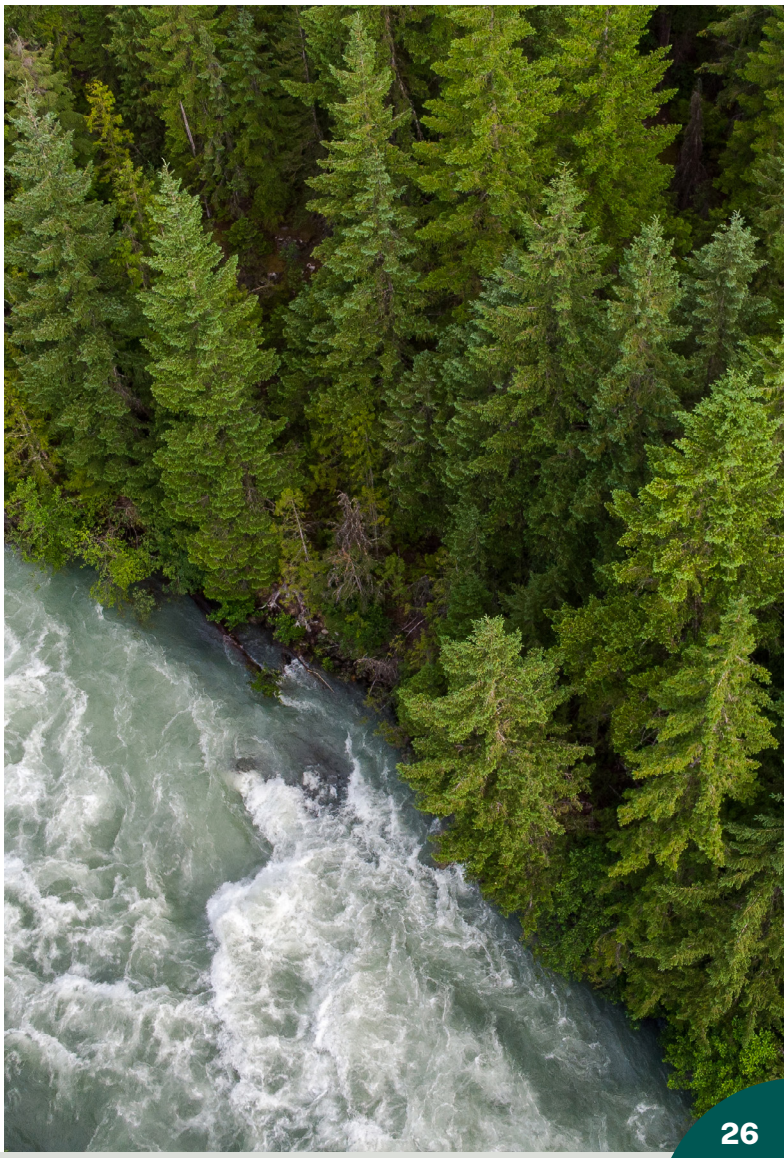
British Columbia's electricity presents a key competitive advantage for all sectors in the net-zero transition. The provincial supply of hydroelectricity is abundant, making it an affordable, near-net-zero[52] energy source for buildings, transportation, and other sectors. BC Hydro and the provincial government must be supported by federal funding to continue scaling production of hydroelectricity through infrastructural investments, ensuring the provincial grid has the capacity to support fuel switching in other sectors. In addition to infrastructural capacity, public investment is needed to ensure that the costs associated with scaling hydroelectricity production are not passed on to individuals and businesses. Doing so will ensure that British Columbia maintains its competitive advantage as a global leader in clean, affordable hydroelectricity, which attracts private investment and allows provincial businesses to remain competitive in a net-zero economy.

## Heavy Industry

Heavy industry and forestry accounts for 8.5% of provincial GHG emissions.[53] In British Columbia, reducing emissions from heavy industry without sacrificing the sector's competitiveness is critical for the growth of the provincial and national economies. While fuel switching to electricity is one avenue for net-zero, the energy intensity of heavy industry necessitates fuel blending, incorporating other energy sources such as renewable natural gas, hydrogen and biomass fuel alongside hydroelectricity to supply the energy needed in heavy industry. Doing so will require substantial financial and coordinating support from the federal government to incentivize and facilitate the development of clean energy technology and energy efficient industry innovations, as well as to coordinate the deployment of clean technologies across the province.

Carbon capture and storage is a key competitive advantage for British Columbia. According to the Clean BC 2030 Roadmap, almost 25% of the province's forested area is considered old growth forest, which has deep Indigenous cultural significance. The forests provide fundamental ecosystem services, and act as a massive carbon sink for the province and beyond.[54] With the expansion of forestry as a key productive industry in the province, protections must be honoured and further legislated to protect old growth forests, recognizing their critical role as carbon sinks. Similarly, to support the longevity of the forestry industry, federal support is needed to scale innovations that allow for sustainable forestry through a shift from high-production to high-value products.[55]

British Columbia is an established leader in carbon taxation, being the first jurisdiction in North America to implement a broad-based carbon tax in 2008.[56] While the carbon tax has proven successful in lowering emissions in the province, energy-intensive trade-exposed (EITE) industries have long been calling for protections to maintain trade competitiveness, economic growth, and prevent carbon leakage. EITE protections are commonplace in other jurisdictions.[57] British Columbia's Budget 2023 announced a new GHG pricing framework, an output-based pricing system (OBPS) for large emitters in 2024, but key stakeholders and industry representatives lack clarity around what kinds of protections will be offered to EITE industries.[58] The federal government must work with the province to ensure that EITE industries are protected under the new OBPS to prevent carbon leakage and protect long-term industry competitiveness.



## Natural Resources

Oil and natural gas accounts for almost 20% of provincial GHG emissions, and both industries remain an important part of the provincial economy.[59] Due to the reliance on fossil fuels in British Columbia for transportation, buildings, and heavy industry (among other sectors), any plan, policy or legislation relating to scaling down fossil fuel production must be accompanied by appropriate strategies for increasing the production and use of low-emission fuel and energy sources, such as renewable natural gas and green hydrogen. These must also include provisions for infrastructure development, workforce reskilling and changes to how renewable energy systems are funded, regulated and developed to accelerate the transition while keeping costs low for businesses and individuals. The federal government must support this transition with policy guidance, fuel switching subsidies and private investment de-risking initiatives to fast-track commercialization and further ensure that costs are equitably distributed along the fuel and energy supply chain.

British Columbia is establishing itself as a leader in the hydrogen and fuel cell sector with its BC Hydrogen Strategy that describes how the province, alongside industry partners, plans to increase and regulate low-emissions hydrogen production to supplement fossil fuels in transportation, heavy industry and buildings through fuel blending.[60] Hydrogen and fuel cells are critical elements of the net-zero transition and align with global trends and demands for low-emissions energy. With the appropriate federal subsidies and energy cost protections for consumers, businesses will greatly benefit from the province-wide adoption of green hydrogen and fuel cells as alternatives to fossil fuels in a net-zero economy.

## Transportation

British Columbia's transportation sector was the largest contributor to provincial GHG emissions in 2020, accounting for 36.2% of emissions.[61] British Columbia is a well-recognized leader in establishing bold regulations for the production and sale of zero-emission vehicles (ZEVs) for passenger, medium and heavy-duty vehicles, and associated infrastructural developments.[62] However, investment in ZEV infrastructure varies greatly across geographies and access to ZEVs remains prohibitively expensive for a large portion of the province. If British Columbia is to fully transition from fossil fuel-reliant private vehicles to ZEVs, targeted public subsidies and private investment de-risking initiatives must be implemented to ensure equitable access to ZEV technology across the province.

Similarly, while accelerating the adoption of ZEVs for personal and freight use will lower emissions and help British Columbia achieve its emissions reduction targets, more economic and political emphasis must also be directed towards shifting consumer behaviour from private vehicles to public and active transportation, especially in urban areas where these systems and supporting infrastructure are already established. Doing so will relieve pressure on ZEV suppliers and infrastructure, provide more affordable and accessible options for transportation, and support a long-term shift in how individuals, businesses, and industries conceptualize transportation.

Finally, given British Columbia's recent focus on accelerating hydrogen fuel cell research and development, the federal government should also back the development of policies, regulations and necessary infrastructure to support the scaling and deployment of fuel cell technology, especially for adoption in medium- and heavy-duty freight vehicles. Doing so will further embed British Columbia's position as a leader in hydrogen fuel cell technology in North America.

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