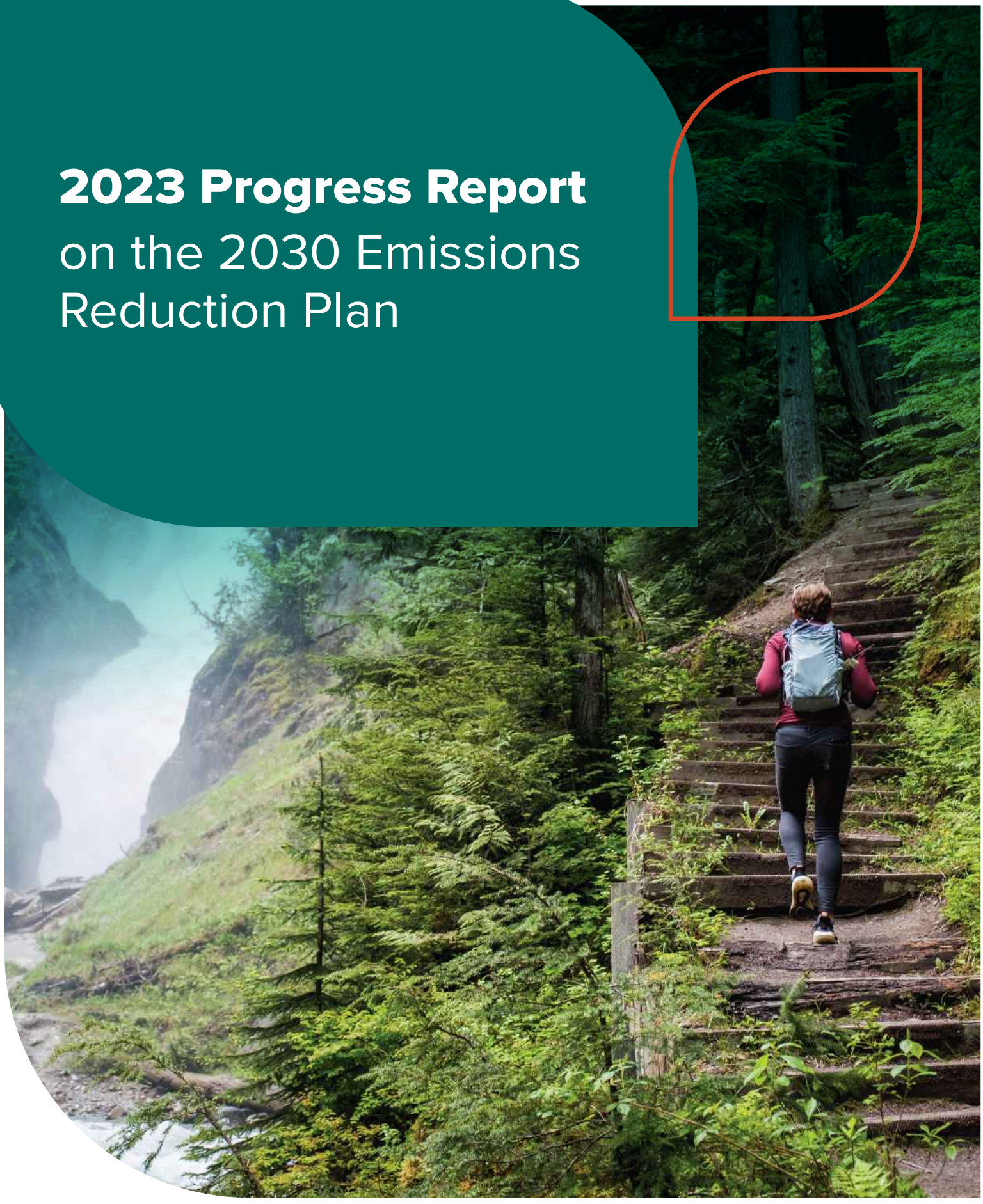
2023 Progress Report on the 2030 Emissions Reduction Plan



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Minister’s Statement

There are two stories being told in Canada.

One is the story of those who would have us ignore the climate crisis, and do nothing to keep people and our future safe, or who would ask that we choose between clean air and good jobs in a strong economy.

The other story is told in the pages of this report, which summarizes the work of the Government of Canada, provincial and territorial leaders, businesses, and households who have helped bend the emissions curve in Canada, while the economy continues to grow.

In 2015, Canada was on track to have our emissions continue to rise, year after year after year. After eight years of hard work, that track has changed. The most recent emissions projections show we are on pace to surpass our previous target of 30% below 2005 levels and we are currently tracking to exceed our 2026 interim objective. This is no accident. It is the result of the over 140 climate policies the Government has rolled out in the past few years, from pollution pricing that cuts emissions while putting money back in people’s pockets, to investments in clean technology that creates jobs and helps keep our air clean. Seventy-eight percent of the climate measures announced are ongoing or adopted, draft regulations have been published or final regulations are in place, funding programs are accepting applications, companies are being supported, and research is being carried out.

This story is about the over 140 companies spanning many sectors of the Canadian economy, from construction to information technology, that have joined the Net-Zero Challenge program to date and pledged to undertake the necessary planning to get to net zero by 2050 or earlier, including Microsoft Canada, the Cement Association of Canada, and the construction company Pomerleau. This story is about The Stack, the first new commercial high-rise tower in Canada to be recognized officially as a net-zero building, located in Vancouver. And this story is about people who are decarbonizing their homes by installing heat pumps and purchasing electric vehicles one step at a time.

I could go on. We are working with provincial governments to attract electric battery factories and building the economy of the future right here at home. A combination of entrepreneurialism and business acumen has led to the growth of renewable energy. Companies are developing electric snowmobiles, fishing boats, outboard engines, and float planes.

This is a story of courage and hard work. Governments are ready to support the ingenuity and creativity that drive the economy of the future and people are eager to find solutions, from our young people to our auto workers, to our energy sector workers, and beyond.

We have achieved a lot. When we look at our economy growing while our emissions begin to trend down, it shows. And there is more still to do to keep reaching higher and to be inspired by the example that Canadians set. That is why this report includes several additional actions to be explored, as we

stand firmly on the path to meet our ambitious but achievable emissions reduction targets. The Government of Canada is stepping up to do our part. We invite provinces, territories, businesses, the financial sector, and households to do the same.

The last couple of years have not been easy. The pandemic, inflation, and geopolitical tensions have cast a shadow, all while the realities of climate change have become all too real as devastating wildfires, storms, and heat waves have hit home. These challenges do not exist in isolation. And neither do their solutions. We know that affordability and housing are key priorities. Together, we can do our part to cut the pollution that is causing climate change while making life better for people living in Canada and leaving a future we can be proud of for our children.

The Canada I know steps up and takes responsibility, and right now our responsibility is to step up and significantly reduce the pollution that is causing climate change. That is the story that needs to unfold here in Canada, for our youth and most vulnerable populations who have the most at stake.

Thank you for all you have done to help us get to where we are. I hope you can see yourself in this story because if you are doing something, anything, to help stop climate change, this story is about you.

The Honourable Steven Guilbeault,
Minister of Environment and Climate Change

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Executive Summary

Last year, the Government of Canada released the *2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy.* The *2023 Progress Report on the Emissions Reduction Plan* is the first progress report since and shows Canadians our progress on the path laid out in the Emissions Reduction Plan.

The 2030 Emissions Reduction Plan presented an ambitious and achievable roadmap, outlining a sector-by-sector path for Canada to reach 40% below 2005 national emissions levels by 2030, accompanied by scenario modelling that indicates priority areas for further action. It also set an interim objective of 20% below 2005 levels by 2026.

The Progress Report indicates that we are on a solid path toward our 2030 target. In fact, Canada is on pace to surpass our previous target of 30% below 2005 levels and is currently tracking to exceed our 2026 interim objective. With additional actions, and engagement from provinces, territories, municipalities, Indigenous communities, the financial sector, and the business sector, Canada can and will meet our emissions reduction target.

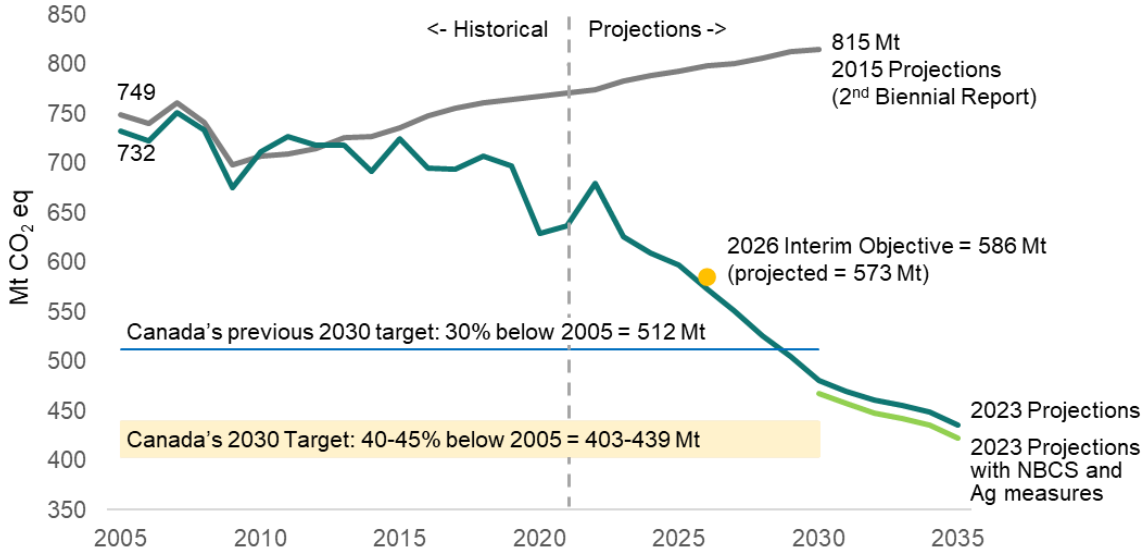
Assessing progress

The primary means through which Canada will assess achievement of its target is through emissions in the target year. This 2023 Progress Report includes several measures to assess progress toward Canada's greenhouse gas emissions reduction target, including:

- **Emissions trajectory:** The emissions trajectory often combines historical and projected emissions. Historical emissions describe the path we have taken. Emissions projections indicate where we think emissions will be in the future, based on the best available information. The emissions trajectory, including historical and projected emissions, illustrates the expected peak of emissions and the pattern of emissions change. In other words, it shows if we are headed in the right direction, and where we expect emissions to be in the target year.
- **Emissions intensity:** The ratio of greenhouse gas emissions per unit of gross domestic product. Greenhouse gas emissions intensity indicates how closely linked emissions are to economic growth. The decoupling of emissions from economic growth is an essential step toward achieving emissions reductions while maintaining economic prosperity.
- **Implementation of measures:** The assessment of implementation status for each Emissions Reduction Plan measure, using an assessment grid.

This Progress Report is presented in two parts: Part I provides an overview of the progress made toward Canada's 2030 target and implementation of the 2030 Emissions Reduction Plan. Part II provides a comprehensive accounting of federal actions and more in-depth consideration of the work across Canada.

Canada's projected emissions trajectory



In the Emissions Reduction Plan Progress Report, which references the projections published in the 2023 Emissions Projections Report, Canada is expected to:

- Exceed the previous target of 30% below 2005 levels by 2030.
- Exceed the 2026 interim objective of 20% below 2005 levels by 2026.
- Reach 36% below 2005 levels by 2030 if all modelled measures are fully implemented.
- Reach 40% below 2005 levels if additional actions (provided in this document) and new measures (not in this document) are implemented, as illustrated in the backcasting scenario.

When the Emissions Reduction Plan was released, potential measures with enough information to model were included. As we continue to finalize regulations and programs, staying the course on implementation is critical to ensuring we meet the 36% reductions below 2005 levels already identified. The changes in projections from the 2030 Emissions Reduction Plan to the Fifth Biennial Report to the Emissions Reduction Plan Progress Report are a result of changes to the data and methodology of the model, such as changes in forecasts for supply and demand for natural gas, population and gross domestic product estimates, forecasts for industrial emissions intensities, and land use, land-use change, and forestry calculations.

This Progress Report lists a suite of additional actions that have already been identified but are not developed enough to be fully modelled. In the upcoming months these will be further refined to develop policies and programs that will close the gap by 2030.

Furthermore, of the 149 measures, 78% are actively being implemented. For regulations this means, at a minimum, draft regulations have been released. For funding programs, it means they are running and accepting proposals to support decarbonization. Only 9% are being explored or are under development.

As a result of the division of powers between the national and subnational governments, provinces and territories are responsible for many of the regulations and policies needed to meet net zero. This report illustrates the commitments made by each.

Whole-of-society approach

Five provinces and one territory (British Columbia, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and the Yukon) have legislated climate targets. Four provinces and one territory (Alberta, Manitoba, Ontario, Newfoundland and Labrador, and the Northwest Territories) have non-legislated climate targets. Saskatchewan is the only province without a climate target. Nunavut has no climate target, but the extremely small population, paired with the cold temperatures, provide additional challenges for this region.

Municipal governments have a role in managing buildings, transportation, water, waste, and land use, and therefore play an important role.

First Nations, Inuit, and Métis in Canada are at the forefront of efforts to address climate change and adapt to the impacts of our changing climate. Canada has committed to advancing an Indigenous Climate Leadership Agenda together with First Nations, Inuit, and Métis partners in recognition that Indigenous Peoples have long called for a renewed nation-to-nation, Inuit–Crown and Government-to-Government relationship, based on the recognition of rights, respect, cooperation, and partnership.

Many Indigenous leaders are taking action to reduce greenhouse gas emissions, serving as guardians and stewards of ecosystems, managing water and air pollution, and improving how the natural environment is respected and protected. Indigenous leadership and knowledge are critical to achieving the foundational changes required to address climate change and support a healthy environment.

The private sector, including industry, banks, and institutional investors, can make decisions with far-reaching impacts. Sectors with a high potential to effect changes include transportation, buildings, and electricity. Their actions, such as supporting the adoption of zero-emission vehicles, heat pumps, and using the most efficient building codes, will help prepare Canadians for a low-carbon future and support the expansion of renewable energy to decarbonize Canada’s electrical grid.

Climate action is taking place nationwide.

Additional actions

The Government of Canada is pursuing a number of opportunities to help ensure that Canada remains firmly on track to meet our 2030 target and be net zero by 2050, including:

- Collaborate with provinces and territories—along with Indigenous partners and key stakeholders—to identify and accelerate the most promising clean-growth opportunities in each region; build clean energy projects; and, support workers in the global net-zero future.
- Continue to explore additional ways to provide businesses certainty regarding the carbon pollution pricing trajectory, including potential legislative approaches and other new measures, in conjunction with provinces and territories.
- Continue to explore how border carbon adjustments may fit into Canada’s broader climate strategy.
- Guided by Canada’s Carbon Management Strategy, identify policies and programs to support accelerated innovation and scale-up of negative emissions technologies to offset hard-to-abate emissions sources.
- As announced in the 2023 Fall Economic Statement, the Canada Growth Fund will be the principal federal entity issuing carbon contracts for difference—the Canada Growth Fund will allocate, on a priority basis, up to $7 billion of its current $15 billion in capital to issue all forms of contracts for difference and offtake agreements.
- Complete the implementation of the new clean economy investment tax credits.

- Continue to develop the Canada Green Buildings Strategy to support a net-zero emissions and climate-resilient buildings sector.
- Work with the provinces and territories and other stakeholders to develop new code requirements to limit greenhouse gas emissions in new construction and for energy-efficient alterations to existing buildings.
- Explore the potential to update energy and greenhouse gas performance standards in federally funded homes and buildings programs.
- Explore further opportunities to minimize embodied emissions from the built environment.
- Engage with provinces, territories, and others to develop the design and implementation details of the Clean Electricity Investment Tax Credit.
- Building on the release of *Powering Canada Forward: Building a Clean, Affordable and Reliable Electricity System for Every Region of Canada*, Canada remains committed to releasing its first Clean Electricity Strategy in 2024.
- Explore opportunities to advance industrial decarbonization, including the potential to articulate a coordinated approach to accelerating industry's adoption of clean technologies and fuels.
- Continue to support industry on the road to net zero and promote clean economic growth through the Strategic Innovation Fund and the Canada Growth Fund, providing significant funding and other forms of financial support to develop and adopt new low-carbon technologies and processes.
- Continue to implement regulations that are addressing emissions in the oil and gas sector, including carbon pricing, methane regulations, and the Clean Fuel Regulations.
- Develop and implement a national cap on emissions from the production of oil and gas.
- Provide financial supports for decarbonization activities in the oil and gas sector, including through the Carbon Capture, Utilization, and Storage Investment Tax Credit.
- Deliver on the commitment to permanently fund public transit.
- Consider opportunities stemming from engagement with biofuels' stakeholders.
- Continue to develop and implement climate plans for marine, rail, and aviation sectors.
- Explore opportunities to accelerate the turnover of older, higher-emitting on-road vehicles.
- Explore opportunities to deploy charging and hydrogen stations for medium- and heavy-duty zero-emission vehicles.
- Explore opportunities to accelerate development of an off-road decarbonization strategy to transition to zero-emission equipment, machines, and zero-emission and/or low carbon fuels.
- Advance the development of a Sustainable Aviation Fuels (SAF) Blueprint.
- Examine options for the development of a new blueprint for a sustainable, net-zero transportation system by 2050 that takes an integrated transportation sector approach, ensures coordination across governments and stakeholders, and supports low-emitting modes where appropriate.
- Explore the potential to expand the Incentives for Zero Emission Vehicles Program to include used vehicles, building off the recent expansion of the program to enhance access to more incentives for car-sharing fleets.
- Explore the potential to expand incentives for medium- and heavy-duty zero-emission vehicles to other specialty vehicles/off-road equipment used at transportation hubs (such as airports and ports).

- Develop the Sustainable Agriculture Strategy, which will help set a shared direction for collective action to reduce emissions and improve environmental performance in the sector over the long-term.
- Explore various approaches to help promote the sustainability of the agriculture sector, increase clean technology use in Canada, and address barriers of adoption/extension and knowledge transfer of emissions-reducing technologies on farms.
- Building on recent achievements to strengthen the Policy on Green Procurement with the completion of two new standards—the Standard on Embodied Carbon in Construction and the Standard on the Disclosure of Greenhouse Gas Emissions and the Setting of Reduction Targets—attention will focus on the effective implementation of these standards, working with companies bidding on federal contracts.
- Continue the implementation of the Government of Canada's Greening Government Strategy to demonstrate leadership while exploring the potential for new measures that could contribute towards the Government of Canada's targets related to net-zero emissions and climate-resilient operations. Short-term opportunities include: procurement of clean electricity, low-carbon fuels, and zero-emission vehicles, as well as climate risk assessment of operations.

About this report

In 2021, Canada passed the *Canadian Net-Zero Emissions Accountability Act* which requires setting emissions targets every five years and regular reporting on progress. The 2023 Progress Report on the 2030 Emissions Reduction Plan (ERP) is split into two parts.

Part I includes:

Chapter 1: highlights the context that informs and influences the Government of Canada's actions to address climate change and outlines how implementation of the 2030 ERP is assessed.

Chapter 2: summarizes the progress toward meeting Canada's interim 2026 emissions objective and 2030 emissions target, provides an overview of measures implemented and in development, identifies opportunities for additional climate action to increase the probability of achieving the 2030 target, and describes the enabling measures that are helping to steer the economy to net zero.

Chapter 3: addresses the importance of collective action, recognizing that action is needed across all of society and by all orders of government, highlighting work with Indigenous partners to advance an Indigenous Climate Leadership Agenda, the advice of the Net-Zero Advisory Body, and efforts underway with the international community.

Chapter 4: highlights next steps and upcoming milestones such as 2035 target setting and the 2025 Progress Report under the *Canadian Net-Zero Emissions Accountability Act*.

Part II includes:

Chapter 5: provides an overview of Canada's emissions reporting, including an overview of international reporting commitments, summaries of the most recent national inventory report and emissions projections report, and an overview of the approach to continuous improvement for Canada's emissions inventory and projections.

Chapter 6: provides comprehensive updates on the implementation status of 2030 ERP measures—federal measures and strategies as well as cooperative agreements and measures with provinces and territories.

Chapter 7: provides an overview of the work of provinces and territories, recognizing their important role in taking action on climate change.

Key definitions, acronyms, and references are provided in the annexes.

Together this comprises Canada's 2023 Progress Report on the 2030 Emissions Reduction Plan, which fulfills the Government of Canada's reporting requirements under Section 14 of the *Canadian Net-Zero Emissions Accountability Act* to prepare a progress report by no later than the end of 2023.

Unless explicitly stated otherwise, all emissions estimates given in Mt represent emissions of GHGs in megatonnes of carbon dioxide equivalent (Mt CO_2 eq).

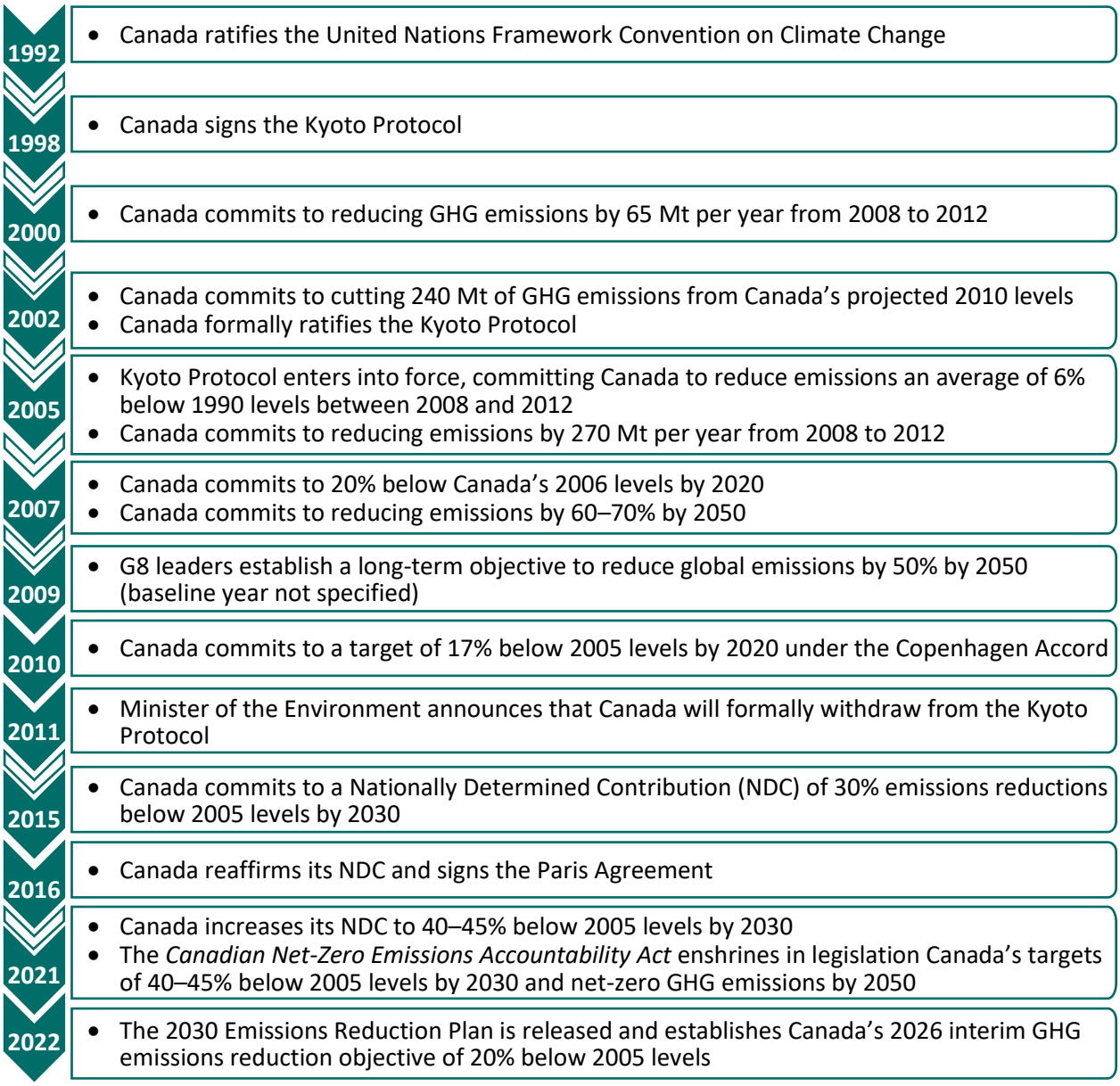
Part I

Chapter 1: Introduction

1.1 Climate accountability legislation and climate plans

Canada was a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and set its first national emissions target in 2000. Despite these and other commitments, emissions in Canada continued to rise. While emissions hit a peak in 2007, in the year before the global economic slowdown, projections in 2015 indicated that that peak would be temporary. Canada's emissions were projected to exceed the 2007 peak by 2020 and continue to rise. To ensure accountability and transparency, Canada ratified the Paris Agreement in 2016 and adopted the *Canadian Net-Zero Emissions Accountability Act* (CNZEAA or "the Act") in 2021, enshrining Canada's commitments to address climate change in domestic and international law.

Figure 1-1: Timeline of climate commitments in Canada



1.1.1 UNFCCC Paris Agreement

Under the Paris Agreement to the UNFCCC, countries agreed to collectively strengthen the global response to climate change, including by limiting global warming to well below 2°C, while also pursuing efforts to limit warming to 1.5°C. To help reach this goal, the Government of Canada announced in April 2021 that Canada's initial target for 2030, to reduce greenhouse gas (GHG) emissions by 30% below 2005 levels, would be enhanced to the more ambitious target of 40% to 45% below 2005 levels by 2030, reflecting our ability to surpass the original target, the scale of the climate crisis, and the socio-economic opportunity that climate action presents.

1.1.2 The *Canadian Net-Zero Emissions Accountability Act*: The Government of Canada's climate accountability and transparency legislation

The CNZEAA became law in June 2021. This Act enshrines in legislation the Government of Canada's commitment to achieve net-zero GHG emissions by 2050, and provides a framework of accountability and transparency to deliver on this commitment. The Act also establishes a legally binding process to set five-year national emissions reduction targets as well as develop credible, science-based emissions reduction plans to achieve each target. Under the Act, Canada's legislated 2030 GHG emissions target is set as Canada's Nationally Determined Contribution (NDC) for 2030 under the UNFCCC (40% to 45% below 2005 levels by 2030).

In Summary: The *Canadian Net-Zero Emissions Accountability Act*

- Requires national GHG reduction targets for every five years from 2030 to 2050 and an emissions reduction plan, a progress report, and an assessment report for each target to be published and tabled in Parliament.
- Provides for public participation when setting or amending a target or plan.
- Formally establishes the Net-Zero Advisory Body as a Governor in Council appointed body to provide independent advice on achieving net-zero emissions by 2050.
- Requires the Minister of Finance to prepare an annual report on key measures that the Government of Canada has taken to manage its financial risks and opportunities related to climate change.
- Requires the Commissioner of the Environment and Sustainable Development to, at least once every five years, examine and report on the Government of Canada's implementation of the measures and strategies in the current plan.
- Provides for a comprehensive review of the Act, five years after it comes into force.
- Enshrines the role of Indigenous Knowledge in the climate accountability process.

1.1.3 Emissions Reduction Plan

The CNZEAA requires that the Government of Canada prepare a 2030 Emissions Reduction Plan (ERP) to guide actions to meet the 2030 target. In March 2022, the Government of Canada released Canada's 2030 ERP. Emissions reduction plans are also required for each of the 2035, 2040, 2045, and 2050 targets. The CNZEAA further requires the government to report regularly on the progress being made to meet targets, starting in 2023. As governments, Indigenous Peoples, businesses, civil society organizations and communities across the country work together to reach Canada's climate targets, the plan will evolve and respond to new opportunities.

1.2 Imperative for climate action

Increasingly, scientists are linking extreme weather events with anthropogenic GHG emissions. An analysis by Carbon Brief found that of 504 extreme weather events reviewed, 71% were the result of or made worse by climate change.[1] At current rates, it is expected that global warming of 1.5°C will likely be reached between 2030 and 2052.[2] Canada is one of the highest per capita emitters in the world and accounted for approximately

1.5% of global GHG emissions in 2020, making it the world's tenth largest emitter.[3] Canada is the only G7 country that exports more emissions than it imports. While Canada's emissions related to electricity generation have been cut in half over the past 20 years and Canada's electricity system is among the cleanest in the world, Canada's path to additional emissions reductions must contend with a vast geography, cold climate, trade-exposed economy, and role as a major producer and user of energy and natural resources.

According to the UNFCCC, global emissions need to be nearly halved by 2030 for the world to limit temperature rise to 1.5°C,[4] requiring increased ambition, accelerated implementation, and a whole-of-society approach including action by subnational governments, Indigenous Peoples, financial institutions, the private sector, and civil society. The science is clear—accelerated global efforts to reduce emissions are necessary to avoid the most devastating impacts of climate change. The economics are clear too—to build a strong, resilient economy for generations to come, we must harness the power of a cleaner future. Ambitious climate action over the coming years will be critical to making the necessary changes in time to prevent the worst impacts of climate change.

1.2.1 Impacts to Communities

The devastating impacts of climate change are clear. In 2023 alone, Canada experienced the hottest summer ever, the largest wildfires in history, drought in the Prairies, and floods in British Columbia and Nova Scotia. Homes were destroyed, lives lost, thousands of people had to evacuate their homes, communities and businesses were impacted, smoke from wildfires blanketed the country, and biodiversity was put at risk. In addition to personal and emotional impacts, these climate impacts have economic consequences that affect families and communities, and send ripples through the Canadian economy.

Cost of Climate Disasters in Canada

Early estimates from provincial and territorial governments have placed the cost of fighting wildfires in 2023 in British Columbia, Alberta, Northwest Territories and Saskatchewan at $1.4 billion. This does not include firefighting in other impacted provinces, notably Nova Scotia and Québec, and also excludes costs related to evacuations, insured losses, economic interruptions, not to mention health costs. The Canadian Climate Institute reported that the health cost from forest fires alone for one week in June in Ontario amounted to $1.28 billion.

The Insurance Bureau of Canada reported in January 2023 that severe weather in 2022 caused $3.1 billion in insured damage—the third worst year for insured damage in Canadian history. The 2022 season was characterized by a wide variety of events, including storms and flooding. Hurricane Fiona alone was responsible for $800 million in insured damages. The worst year on record was 2016, with $5.96 billion in losses, largely due to the Fort McMurray wildfire. The costs for 2023 are still being tallied. The Tantallon, Nova Scotia wildfire, which lasted from May 28 to June 4, caused over $165 million in insured damage. The atmospheric river event in Nova Scotia on July 23 caused an estimated $170 million in insured damage. An estimated 80% to 90% of structures in the hamlet of Enterprise, Northwest Territories were destroyed by wildfire. The Okanagan and Shuswap area wildfires in British Columbia caused over $720 million in insured damage, with the 2023 British Columbia wildfires ranking as the costliest insured event in provincial history. The financial costs of climate change are staggering, and do not begin to touch the full impact that these events have on people and communities. Moreover, the wildfires had disproportionate impacts on Indigenous, fly-in, and other remote communities that were particularly vulnerable due to lack of services and barriers to response interventions.

Internationally, record-breaking flooding in Bangladesh impacted over 7 million people, leaving thousands homeless. Temperatures nearing 50°C were experienced in most parts of North Africa this past summer, while many parts of Italy, Greece, and Spain had temperatures in the mid- to high-40s. The U.S. National Oceanic and Atmospheric Administration has reported that 2023 is the worst year on record for the number of extreme climate related disasters in the U.S., with more than in any previous year on record.[5]

1.2.2 Impacts to Nature

The wildfire season in Canada in 2023 that took a terrible toll on communities also impacted the landscapes and species found in those areas, including species at risk. As we saw in 2023, extreme weather events such as wildfire contribute to species and habitat loss. In addition, climate change impacts such as increased temperatures and precipitation can alter habitat, affecting ecosystem and species health.

Climate change also undermines nature's ability to provide a critical contribution to climate change mitigation and adaptation. Canada's forests, soils, plants, and wetlands contain almost one third of all land-based carbon storage and if these ecosystems are harmed by extreme weather events or ecosystem distributions from the changing climate, the stored carbon can be released into the atmosphere. The 2023 wildfire season in Canada burned over 18.5 million hectares of forest land, resulting in large, unprecedented emissions. The North is warming twice as fast as the global average, melting the permafrost and releasing carbon that has been naturally stored underground.

A synergistic approach to tackling climate change and biodiversity loss is essential to store as much carbon as possible and retain natural features, such as wetlands, that can better absorb climate impacts as we experience greater change. To help meet that goal, in December 2022, Canada co-hosted and brokered a global biodiversity agreement at COP15 in Montréal. Canada followed up on that historic event by hosting the Global Environment Facility Assembly in August 2023, where governments launched the Global Biodiversity Framework Fund.

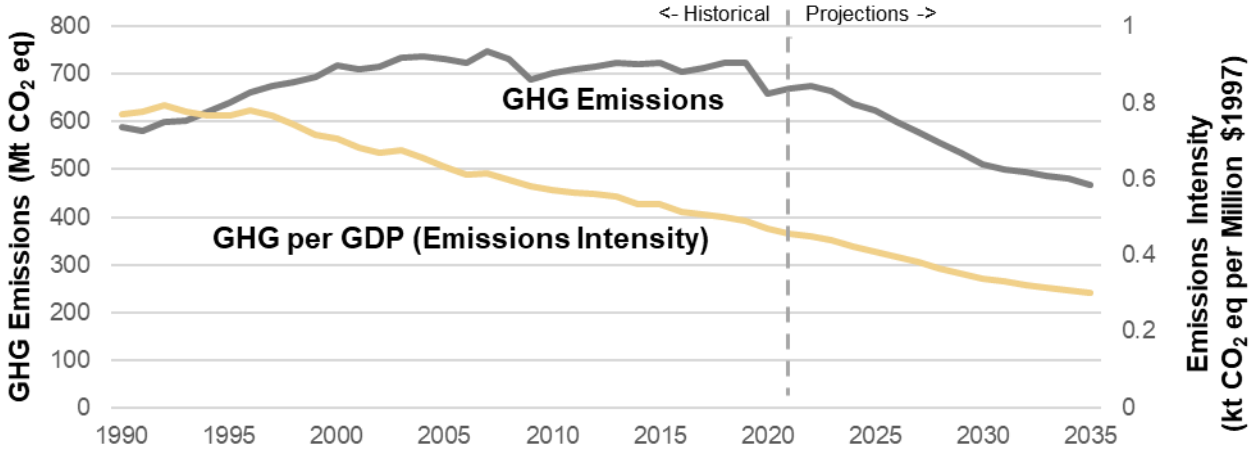
1.3 Climate change and affordability

1.3.1 Economy-wide impacts of climate policies

Canada's economy has recovered strongly following the COVID-19 pandemic, yet many Canadians are now facing new affordability challenges, including higher grocery prices, energy prices and housing costs. The pandemic led to significant supply chain disruptions and changing consumption patterns, which in turn contributed to high inflation. This situation was then worsened by the Russian invasion of Ukraine. These challenges have been significant and highly disruptive for Canadians.

Slowing economic growth has been observed both in Canada and around the world. The Canadian economy grew by 1.6% per year from 2006 through 2021, a period that includes the 2009 global recession and the COVID-19 pandemic. On an annual basis, Canada's real GDP growth is projected to slow down from a strong 3.8% in 2022 to 1.1% in 2023 and 0.4% in 2024, before rebounding to 2.2% in 2025.[6] While Canada's economy continues to grow, emissions continue to decrease.

Figure 1-2: Canadian GHG emissions and indexed trend emissions intensity (excluding Land Use, Land-Use Change and Forestry)



1.3.2 Revenue neutral carbon price

Since 2019, every jurisdiction in Canada has had a price on carbon pollution. Canada's approach is flexible: any province or territory can design its own pricing system tailored to regional needs, or can choose the federal pricing system. The federal government sets minimum national stringency standards that all systems must meet to ensure they are comparable and contribute their fair share to reducing GHG emissions. If a province decides not to price pollution or proposes a system that does not meet these standards, the federal system is put in place.

The carbon pricing system has two parts: a regulatory charge on fossil fuels like gasoline and natural gas, known as the fuel charge, and a performance-based system for industries, known as the Output-Based Pricing System. The fuel charge applies in Ontario, Manitoba, Yukon, Alberta, Saskatchewan, Nunavut, Nova Scotia, New Brunswick, Newfoundland and Labrador, and Prince Edward Island. The Output-Based Pricing System applies in Manitoba, Prince Edward Island, Yukon, and Nunavut. All other provinces and territories are implementing their own pricing systems.

The revenue generated from the federal fuel charge is returned to consumers in the form of Climate Action Incentive payments (CAIP), distributed quarterly. Through these payments, the majority of Canadian families receive more money back than they pay, with low-income Canadians benefitting the most. Households and individuals who take steps to reduce their use of fossil fuels can save even more money by not paying the carbon price.

With this revenue neutral approach, the price signal from the carbon price encourages consumers to reduce the consumption of fossil fuels while ensuring households are not worse off, on average. While this can seem counterintuitive, carbon pricing is proven as one of the lowest cost and effective ways to reduce emissions. For more on how carbon pricing works, the Government of Canada has additional information available online.

1.3.3 Household economic benefits of decarbonization

The International Energy Agency (IEA) has highlighted the important role of electric vehicles and heat pumps in not only achieving net zero but also boosting energy security and affordability.[7] Research by Clean Energy Canada found that decarbonization can reduce overall energy costs by up to $800 per month, even when the costs of purchasing the equipment is factored in. Recent analysis by the Canadian Climate Institute found that on average, in the five cities assessed (Vancouver, Edmonton, Toronto, Montréal, and Halifax), the lifetime cost of a standard heat pump with electric backup is 13% lower than a gas furnace and air conditioning, considering both capital and operating costs and including existing household grants that range from $5,000 to $12,000. Heat pumps are two to five times more efficient than gas furnaces, providing substantial savings while helping keep homes warm in winter and cool in summer. Analysis by BC Hydro compares the cost of zero-emission vehicles to gas vehicles, including purchase cost, fuel cost and upkeep cost, and even with a higher upfront purchase cost, zero-emission vehicles are often a more economical option. As an example, the cost to drive 20,000 km per year can average $3,340 in a gas-powered vehicle, based on 2021 gas prices, whereas the equivalent electricity costs for an electric vehicle would be about $478 per year, and not subject to the same degree of price fluctuation as with gas.

However, the upfront costs of a new heating system, new windows, or an electric vehicle are a barrier for many families. This is being addressed in two ways. First, the uptake will happen over time, enabling families to replace their fossil fuel-reliant equipment with electric when needed. No one has to purchase an electric car right now. But in the future when you need a new car, and are going to have that expense regardless, cheaper and more reliable electric cars will likely be available. Second, measures are in place to help families, especially low-income families, purchase equipment sooner so they can begin to realize cost savings sooner while helping reduce emissions. One example is the recently announced Oil to Heat Pump Affordability Program (OHPA) that would make the average heat pump free for low to median income families. A summary of Canada's 2030 ERP measures is provided in Chapter 2 and a full list of measures is in Chapter 6.

As the Canadian Climate Institute concluded in their report *Damage Control: Reducing the Costs of Climate Impacts in Canada*, climate change is itself an affordability risk for households in Canada, and especially for

vulnerable populations. Evidence indicates that households will pay the highest price for climate impacts, with low-income households being hardest hit. The impacts are already materializing, with a drop in income per capita of $720 expected by 2025, rising to $1,890 per capita by mid-century in a low-emissions scenario and almost $2,300 per capita in a high-emissions scenario. Low-income households will be most affected, facing income cuts of 23% in a high-emissions scenario by the end of century. The Institute concluded that a combination of proactive adaptation measures and global emissions reductions will be the most effective in mitigating damages, reducing Canada's total real GDP losses by 75%.

1.3.4 Avoiding the Costs of Climate Change

Climate change is already increasing the number of acute, high-impact weather- and climate-related events in Canada resulting in costs to individuals, households, communities, business, and governments. As noted in the National Adaptation Strategy released in June 2023:

- Extreme heat events are the deadliest weather-related events in the country. For instance, the 2021 heat dome resulted in at least 619 deaths in British Columbia.
- Floods are one of the most costly and widespread hazards, with annual coastal flood damage to buildings and homes projected to increase from $60 to $300 million in the next 30 years.
- Wildfires increasingly threaten communities, infrastructure, and industry. Wildfire smoke can disperse over large areas affecting human health near and far. In addition to direct costs combating wildfires (about $1 billion per year), indirect costs from property loss, industrial shutdowns, health-related expenses, etc., are expected to rise in Canada.
- The increasing rate, severity and unpredictability of climate-related natural disasters are straining Canada's emergency response systems, and impacting the reliability of supply chains, putting our food security and livelihoods at risk.

There are many ways to measure the costs of climate change (Table 1-1). While some costs are covered by insurance, many uninsured costs are borne by homeowners, communities, businesses, and governments. Insurance usually covers direct costs, leaving those unable to get to work or businesses that cannot open without support. Increasingly, there is more attention on the non-market costs of climate change, such as impacts to the health care system from increased physical and mental health costs.

Table 1-1: An overview of the different types of costs incurred due to climate change[8]

Insured costs	Costs covered by insurance companies.
Uninsured costs	Costs not covered by insurance companies, where costs must be covered by homeowners, business, and governments. This often includes situations where insurance coverage is not available.
Direct costs	Costs that arise from the physical impacts of climate hazards, such as damage or disruption to goods and services as well as intangible items.
Indirect costs	Costs that stem from direct climate change impacts in an indirect way, such as when infrastructure is damaged or destroyed, interrupting normal use or service flows, disrupting the delivery of critical services, or otherwise interrupting the operations of businesses.
Market costs	Costs related to goods and services that can be traded in a market and thus have an observed price.
Non-market costs	Costs related to intangible items that are not bought or sold in a traditional market and thus have no readily observable price (e.g., ecosystem services, stress or pain levels, and general quality of life).

There are two ways to avoid the costs of climate change: mitigation of emissions and becoming more resilient to climate impacts through adaptation measures. This report outlines the steps we are taking to mitigate emissions domestically, which, as the eleventh largest emitter in the world, contributes greatly towards achieving the goal of the Paris Agreement to limit global temperature change to 1.5°C. The Government of Canada also released the National Adaptation Strategy in 2023, a whole of society approach to reducing vulnerabilities and increasing adaptive capacity to climate change.

1.4 Climate adaptation: preparing for impacts

The mitigation policies discussed in this report aim to reduce emissions in an effort to reduce climate impacts. Adaptation measures aim to reduce people's vulnerabilities and increase their resilience to the floods, fires, drought, and other climate impacts we are experiencing today.

In June 2023, the Government of Canada released the *National Adaptation Strategy*, which sets the direction for whole-of-society efforts to better prepare for the impacts of climate change. The Strategy outlines long-term goals, medium-term objectives and near-term targets for five interconnected systems—disaster resilience, health and well-being, nature and biodiversity, infrastructure, and economy and workers. The Strategy also identifies foundational actions that crosscut these five systems and are necessary to support effective adaptation (e.g., developing evidence-based knowledge on how the climate is changing and the impacts on communities). The Strategy's implementation will further be underpinned by a set of guiding principles, emphasizing the need for respecting jurisdiction, upholding the rights of Indigenous Peoples, ensuring equity and support for the most vulnerable, taking proactive and integrated risk-based actions, and maximizing benefits across society while reducing maladaptation.

All of us across the country—governments, Indigenous Peoples, the private sector, civil society, communities, and individuals—need to take action to create a more climate-resilient Canada. The implementation of the National Adaptation Strategy will be supported by a number of action plans, including the *Government of Canada Adaptation Action Plan*, which outlines the federal contributions to the Strategy's goals, objectives and targets. Provincial, territorial, municipal, and sectoral strategies and action plans will also advance the implementation of the Strategy. In addition, Indigenous Peoples are on the front lines of the response to climate change, as First Nations, Inuit, and Métis are experiencing disproportionate impacts of climate change while leading climate action both within Canada and globally. This includes advancing responses to climate change that draw on Indigenous Science and Knowledge systems and are based on Indigenous stewardship of lands and waters. The Indigenous Climate Leadership Agenda will be a key mechanism for advancing Indigenous-led and self-determined climate change adaptation and mitigation action.

Implementation of Canada's first National Adaptation Strategy presents an opportunity to coordinate efforts to reduce vulnerability and increase resilience across the country, with an emphasis on the most vulnerable. As implementation of the Strategy proceeds, regular reporting will outline progress on the state of climate resiliency in Canada.

1.5 The role of science in combatting climate change

Scientific research is fundamental to understanding climate change and its impacts on Canadians and their health, environment, and communities. Science informs climate mitigation and adaptation measures, and assesses the effectiveness of actions that have been taken. Each year, Canada prepares a National Inventory Report (NIR) to report Canada's GHG emissions estimates and tracks emissions from individual facilities through its Greenhouse Gas Reporting Program (GHGRP). The NIR serves as the fundamental basis for informing policy decisions and developing Canada's regulatory regime. Atmospheric measurements from the ground, aircraft, and satellites are increasingly being explored to improve the validity and robustness of

emissions estimates. This information upholds the credibility of Canada's emissions estimates and improves capacity to track Canada's emissions reductions over time.

Climate emergency and air quality warnings to protect Canadians and their communities—like the air quality alerts issued because of the devastating 2023 wildfire season—depend on federal government science, monitoring, and air quality forecasting. In 2023, there were three to five times more air quality alerts than any other year between 2017 and 2022. Without this information, the lives and the health of Canadians may be put at risk, from immediate asthma attacks to chronic health problems related to long-term exposure to air pollution. *Canada's Changing Climate Report* (2019) assessed the state of knowledge on how and why Canada's climate has changed and what changes are projected for the future.[9] It found that both past and future warming in Canada is, on average, about double the magnitude of warming globally. In the Arctic, the rate of warming is now three to four times the global average. Climate science allows us to monitor and report on current conditions and project future climate conditions to better predict and respond to these changes and understand their underlying causes and potential impacts.

Biologically diverse ecosystems are more resilient to the adverse effects of climate change. Scientific research on nature-based solutions and the natural carbon cycle can play a vital role in Canada's future ability to mitigate GHG emissions and adapt to climate-change impacts. Climate change also impacts the quality and quantity of freshwater. Scientific monitoring, modelling, and analysis inform hydrological predictions and preparation for extreme events like flooding. They also inform water management decisions related to water supply and demand, contaminant levels, and recreational use. Ongoing advancement and mobilization of knowledge, data, and tools are essential to make informed decisions with respect to identifying the climate actions necessary to respond to the risks and impacts we are experiencing now and will experience in the future.

Science and knowledge, inclusive of the full range of Western natural, social, and health science and Indigenous science and knowledge systems, is crucial to guiding and informing the most effective climate actions to reduce GHG emissions, minimize risks for health and our natural environment, and increase resilience across the country. Efforts need to continue to build relationships that bridge, braid, and weave Indigenous and Western science and knowledge systems to inform and enhance decision-making. As scientific understanding continues to advance and evolve, it will help identify, inform, and assist with the implementation of new approaches to meeting Canada's climate targets, protect Canadians and their communities, and evaluate the progress to date.

A National Priorities for Climate Change Science and Knowledge report is planned for publication in early 2024, which will summarize the most important scientific research and data needs that Canada's science community should undertake to help us better evaluate climate change and plan for its impacts.

1.6 How Canada assesses progress

Canada's established methodology for reporting on progress toward emissions reduction targets considers (1) historical greenhouse gas emissions and (2) greenhouse gas emissions projections, which are both indicators within the Canadian Environmental Sustainability Indicators (CESI) program, indicators under the Federal Sustainable Development Strategy (FSDS), and consistent with UNFCCC reporting guidelines. This approach for assessing progress is confirmed within the CNZEAA, further specifying that the most recently published data must be used.

Canada reports on progress domestically under the CNZEAA and the Federal Sustainable Development Strategy and internationally through the UNFCCC biennial reports, UNFCCC biennial transparency reports, and United Nations Sustainable Development Goals (UN SDGs). This ERP Progress Report fulfills requirements laid out in the CNZEAA. For more on Canada's emissions reporting, see Chapter 5.

1.6.1 Indicators of Progress

The primary means through which Canada will assess achievement of its target is through emissions in the target year. This 2023 Progress Report includes several measures to assess progress toward Canada's GHG emissions reduction target, including:

- **Emissions trajectory:** The emissions trajectory often combines historical and projected emissions. Historical emissions describe the path we have taken. Emissions projections indicate where we think emissions will be in the future, based on the best available information. The emissions trajectory, including historical and projected emissions, illustrates the expected peak of emissions and the pattern of emissions change. In other words, it shows if we are headed in the right direction and where we expect emissions to be in the target year.
- **GHG intensity:** The ratio of GHG emissions and unit of GDP. GHG emissions intensity indicates how closely linked emissions are to economic growth. The decoupling of emissions from economic growth is an essential step toward achieving emissions reductions while maintaining economic prosperity.
- **Implementation of measures:** The assessment of implementation status for each ERP measure, using an assessment grid.

1.6.2 Historical emissions

Historical GHG emissions are presented in Canada's NIR, which is submitted to the UNFCCC in April each year. Canada's most recent submission in April 2023 included emissions data covering the period 1990 to 2021 and is available online. Canada's emissions inventory is prepared according to UNFCCC reporting guidelines for national GHG inventories. The reporting guidelines require Annex I Parties, which includes Canada, to develop their national inventories using the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. The reporting guidelines also require inventory reports to provide detailed and complete information on estimates development, including the formal arrangements supporting their preparation and any significant changes to inventory preparation and submission procedures. The reporting guidelines also commit Parties to improve the quality of emissions and removal estimates on an ongoing basis.

Emissions reductions often do not follow a linear path, as there is usually a ramping up period between when an initiative is first implemented and when emissions reductions are fully realized, limiting how much can be determined from the historical emissions trajectory. For example, the GHG reductions from regulations and programs designed to incent the uptake of electric vehicles are not realized the year they are put in place. It can take several years for regulations to come into force and programs to be fully implemented. To consider what could happen, future emissions trajectories are projected.

1.6.3 Emissions projections

Emissions projections are a valued tool to estimate future GHG emissions. They are used to establish a baseline scenario and inform the development of emissions targets, assess progress toward the target, and estimate the impact of measures on future GHG emissions. Projections are an estimate based on best available information at the time that they are developed. Projections are expected to change over time in response to new climate actions, revisions to historical emissions estimates, improvements in estimation methodology, and in response to new information in the changing domestic and global context such as economic conditions and energy demand.

Emissions projections are prepared annually and submitted to the UNFCCC every two years as part of Canada's biennial report to the UNFCCC. Canada last submitted emissions projections to the UNFCCC in December 2022, with Canada's *Eighth National Communication and Fifth Biennial Report*, which included emissions projections to 2035. In non-UNFCCC reporting years, projections are published as a standalone report by ECCC as *Canada's Greenhouse Gas and Air Pollutant Emissions Projections Report*. Canada's most recent emissions projections report was published in December 2023. Canada's emissions projections are developed in line with recognized best practices and incorporate IPCC standards for estimating GHG

emissions across different fuels and processes. These standards are continually being improved upon. In addition, Canada relies on outside expert views and the most up-to-date data available for key drivers such as economic growth, energy prices, and energy demand and supply. Finally, Canada applies an internationally recognized energy and macroeconomic modelling framework in the estimation of emissions and economic interactions.

When developing emissions projections, Canada includes both a "reference" scenario (referred to in UNFCCC submissions as the "with measures" or WM scenario) and an "Additional Measures" scenario (referred to in UNFCCC submissions as "with additional measures" or WAM scenario). According to international guidelines, the reference scenario includes all policies and measures funded, legislated, and implemented by federal, provincial, and territorial governments up to the designated cut-off date. The Additional Measures scenario accounts for those additional policies and measures that are under development and for which there is enough information for the policies and measures to be modelled. It is the Additional Measures scenario that is referenced throughout this report, as it best represents progress to Canada's 2030 target and captures the impact of Canada's climate policies.

Even though every effort is made to be as complete as possible in what is included in the model, the Additional Measures scenario does not include all announced measures. Measures that have not been sufficiently developed to support their inclusion in the model, as of the cut-off date for completion of the annual modelling cycle, are not reflected in the Additional Measures scenario. The cut-off time for preparation of the projections scenarios is typically two to three months in advance of publication of the projections. Measures are not included when there are important decisions yet to be confirmed that would impact the emissions reductions associated with the measure. For the 2023 projections cycle, the cut-off date for new measures was August 2023. Measures not included in the model update for 2023 include elements of the Canada Green Buildings Strategy. Measures that are being considered or are under development by the provinces and territories are only included if these measures have been identified by the jurisdiction for inclusion in the model by the cut-off point, with sufficient detail to be included. Conversely, measures that had previously been included based on announced timelines and approach may require adjustment if measures do not advance as originally expected.

1.6.4 Accounting for uncertainty

Canada's GHG emissions projections are based on the current economic structure and policy context subject to future changes that will occur in government policy, energy supply, demand and technology, or domestic and international economic and political events. A series of plausible assumptions are made regarding, among others, population and economic growth, prices, demand and supply of energy, and the evolution of technologies. Given the uncertainty inherent in projecting into the future, emissions projections should be seen as one estimate within a set of possible emissions outcomes over the projection period. Scenarios and sensitivity analyses are used to explore the potential impacts of these assumptions. An overview of the assumptions used in the 2023 projections can be found in Chapter 5. The detailed description of assumptions and the results of the sensitivity analysis is available in *Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2023*.

The Energy, Emissions and Economy Model for Canada (E3MC) is used to generate Canada's economy-wide emissions projections and is also often used for the analysis of various policies and regulations, depending on whether it has sufficient level of granularity and model features required to analyse a policy or regulation in question. Nevertheless, throughout policy development, ECCC does not rely solely on the E3MC, because different modelling tools could be used to provide the best analytical insight about the different features or parameters of the proposed measure. Different modelling approaches could produce different modelling results, that are still informative and could be used in specific circumstances. Information about Canada's approach to prepare emissions projections is available online.

For those wanting to learn more about projections and international best practices, the UNFCCC is an important source of information. One example of the materials available to learn more is an introductory guide for practitioners on emissions projections developed by Germany to support UNFCCC efforts related to new

reporting requirements under the Paris Agreement's Enhanced Transparency Framework. For Canada, an Energy Modelling Hub was established in 2022 to foster ongoing dialogue among Canadian energy system modellers, policy makers, and stakeholders. In 2023, the Government of Canada announced funding support for three energy modelling projects with leading organizations across Canada to expand the evidence base for net-zero pathways in Canada.

ECCC convened an expert-led process to provide independent advice on ensuring a robust and reliable modelling regime that maximizes transparency and addresses the inherent uncertainties in all modelling processes. A summary of the modelling review outcomes is provided in Section 5.5. See the Emissions Projections Report for more on the independent modelling review action plan.

The Pace of Technology Development and Adoption

The development and adoption of clean technologies across all economic sectors will be necessary to meet Canada's climate commitments, shifting from carbon-intensive technologies, processes, and practices to those that can significantly reduce or eliminate GHG emissions. Clean technology solutions are needed across all of Canada's economic sectors. The International Energy Agency's Net-Zero Emissions Scenario forecasts that reaching net zero by 2050 requires further rapid deployment of available technologies as well as widespread use of technologies that are not yet on the market. It estimates that about 35% of emissions reductions needed to reach net zero by 2050 will come from technologies that are currently at the demonstration or prototype phase. The Canadian Climate Institute similarly estimates that, for Canada, clean technologies that are currently commercially available can be expected to play a significant role in reaching the 2030 target, but that substantial innovation efforts will be needed to ready solutions in key areas for net zero by 2050. The pace and scale of change will vary by sector according to context-specific factors, such as the relative cost of clean technologies, supply-chain development, and presence of enabling infrastructure.

For the development of emissions projections, assumptions are made based on current technologies and expected pace of technology development and adoption. Greater emissions reductions are possible—from more rapid development of innovative technologies as well as greater uptake of existing technologies. A range of factors influence technology development and uptake, including government and private sector investment and innovation. Decisions rest in large part with industry stakeholders—influenced by the financial sector, as well as the extent to which the federal, provincial and territorial governments create enabling policy, regulatory, and market environments to drive the clean technology transition.

For more on Canada's emissions reporting and the Government of Canada's commitment to continuous improvement of Canada's inventory estimates and emissions projections, see Chapter 5 in Part II of this report.

Chapter 2: Progress update

This chapter provides an update on progress toward the 2026 interim objective and 2030 target with reference to Canada's most recent NIR and most recently published emissions projections (see Part II of this report for more information on Canada's emissions reporting).

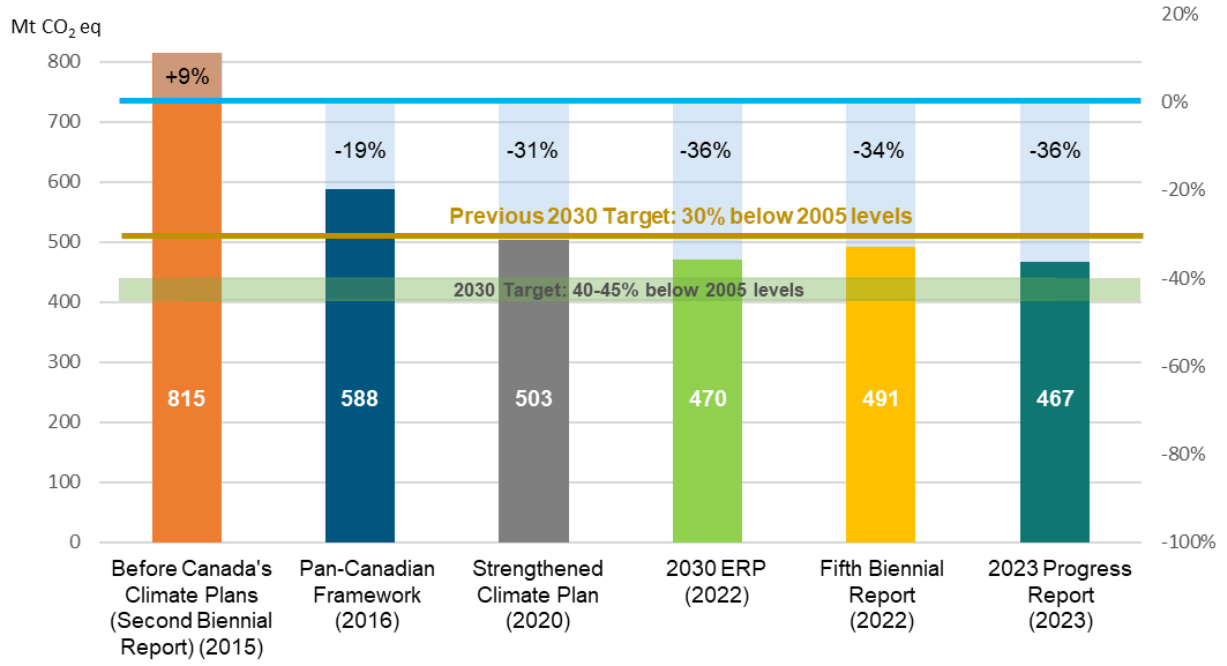
To provide insight on the actions that are contributing to Canada's trajectory of declining emissions, this chapter also provides an overview of the implementation status of measures to date and some of the work that is forthcoming. Section 2.2 provides a summary of the status of the 149 ERP measures and an overview of some of the key measures that are well under way or implemented. Section 2.3 looks ahead to the measures that the Government of Canada has committed to exploring. Section 2.4 highlights examples where provinces, territories, Indigenous Peoples, and the private sector are demonstrating best practices and what can be done to help move Canada toward our target. Finally, Section 2.5 outlines the enabling measures that do not necessarily reduce emissions directly but that help society make the transition to a cleaner, more affordable, net-zero lifestyle.

2.1 Meeting Canada's emissions target

Canada's emissions target is 40% to 45% below 2005 levels by 2030, with an interim objective of 20% below 2005 levels by 2026. Based on the most recently published projections:

- Canada is on track to exceed the previous climate target of 30% below 2005 levels by 2030;
- Canada is on track to exceed 20% emissions reductions below 2005 levels by 2026; and,
- Additional efforts will be required to achieve Canada's 2030 target.

Figure 2-1: Progression of Canada's projected emissions in 2030 (Mt CO_2 eq)



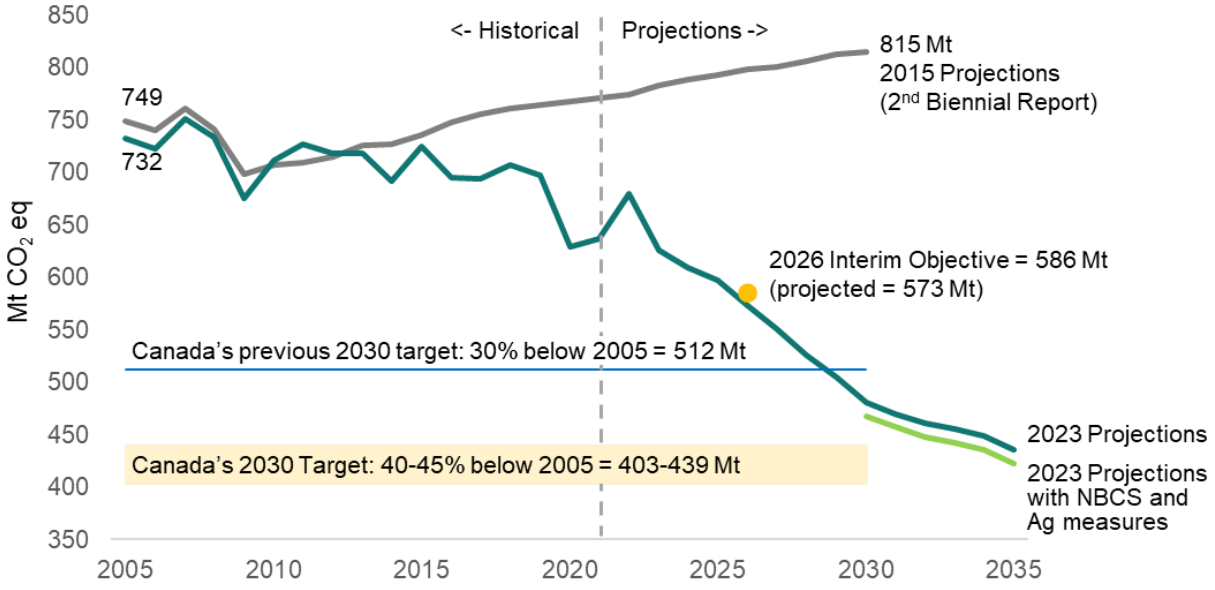
Note: Percentage reductions are calculated here against the 2005 emissions as reported in the same year as the emissions projections were generated. Canada's 2005 emissions level can change with each edition of the annual NIR, due to methodological improvements and revisions to source data. Percentage reductions can also be calculated based on the 2005 level from the current year NIR, yielding different values.

Canada has made substantial and enduring progress toward emissions reductions since the establishment of the *Pan-Canadian Framework on Clean Growth and Climate Change* with provinces and territories in 2016. Emissions projections are updated each year to account for new measures, to address changing conditions in the domestic and global economy, and to incorporate the historical emissions from the most recent NIR. The underlying data and methodology for estimating emissions are also revised over time in line with the principle of continuous improvement. For more on Canada's emissions reporting, including recent changes to emissions projections modelling and the continuous improvement approach, see Chapter 5.

Based on data from Canada's most recent NIR and Emissions Projections Report (EPR), Canada's GHG emissions peaked in 2007. This represents a significant accomplishment, given that in 2015, as reported in Canada's Second Biennial Report to the UNFCCC, Canada's emissions were projected to be 2.2% above 2005 levels in 2020, and to continue to grow, reaching 9% above 2005 levels by 2030.[1] In contrast, the most recent NIR indicated that Canada's 2020 emissions were 10% below 2005 levels, which does not include the accounting contribution from the LULUCF sector or credits purchased by Québec from California under the Western Climate Initiative (WCI). If the LULUCF and WCI contributions were included, Canada's emissions are estimated to have fallen by about 16% below 2005 levels by 2020, very near to Canada's 2020 target of 17%.

The most recent projections indicate that the modelled measures will result in emissions reductions of 21.7% below 2005 levels by 2026 and 36.2% below 2005 levels by 2030. Emissions continue to fall post 2030, on the road to net zero by 2050, falling by 42.2% below 2005 levels by 2035. According to these results, with the current measures announced, Canada is on track to significantly surpass the original 2030 target of 30% below 2005 levels, exceed the 2026 interim objective, but has more work to do to achieve the enhanced target of 40% to 45% below 2005 levels by 2030.

Figure 2-2: Canada's projected emissions trajectory



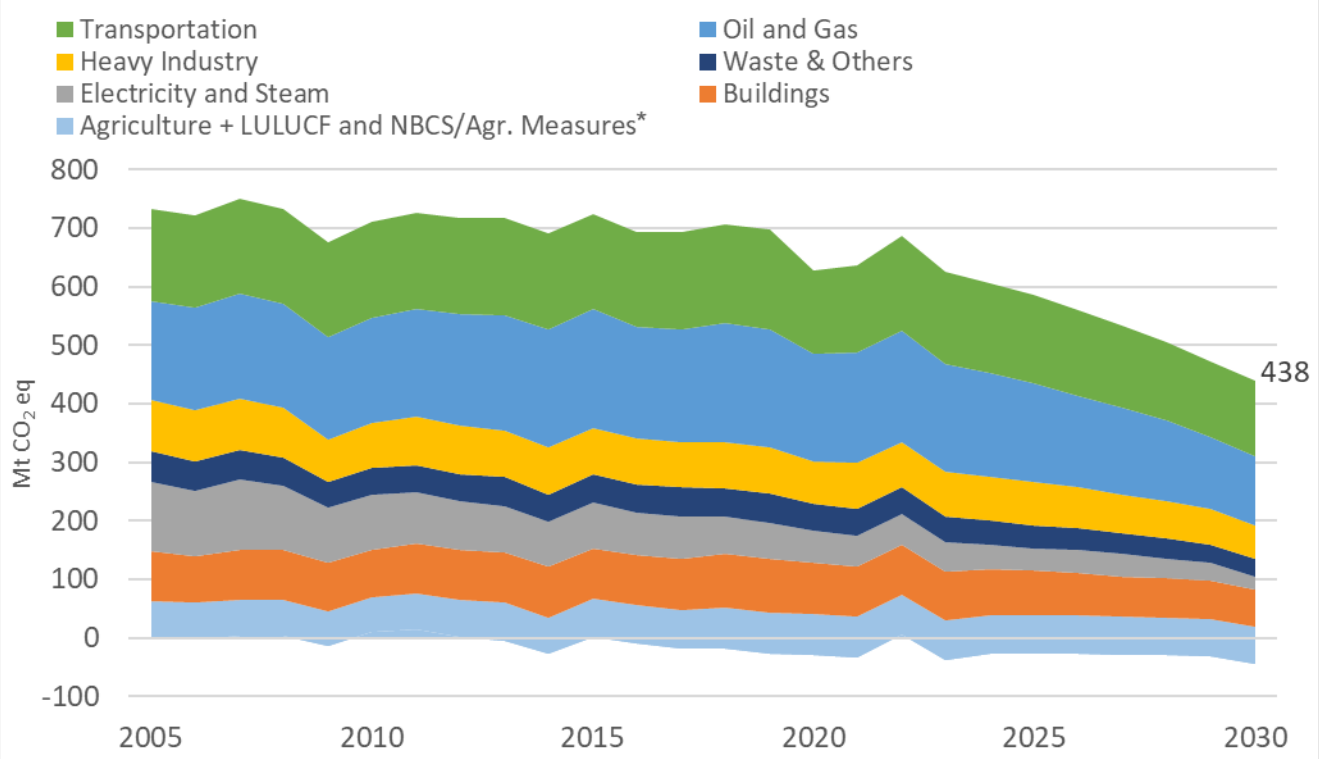
The Government of Canada uses a combination of models and modelling approaches. The “bottom-up” approach uses a detailed simulation model that provides an estimate of emissions reductions from existing climate measures (additional measures scenario). Bottom-up projections are what is typically referred to when emissions projections are referenced. Under the “backcasting” approach, the model is used to identify potential reductions by sector in an economically efficient manner. Backcasting produces an illustrative scenario that is based on all policies and measures included in the bottom-up approach and is calibrated to achieve the 2030 target of 40% below 2005 levels. Backcasting is not used to assess progress. It is, however, an important tool to support the consideration of where additional emissions reductions could be found. It can also be used to help account for policies and measures that are announced but that are not sufficiently developed to support their inclusion in the bottom-up modelling. The results from the backcasting scenario should not be interpreted as signaling policy intentions, but rather as an illustration of what the modelling framework suggests are economically efficient opportunities to reach pre-determined emissions reductions.

The 2030 ERP used the combined bottom-up and backcasting approaches to provide one potential pathway across economic sectors to meet Canada’s 2030 target. Along with the updated bottom-up projections published in December 2023, the backcasting was also updated, identifying a path to meeting the 2030 target that takes into account recent developments. The revised path identifies the same sectors with the greatest potential as the 2030 ERP:

- the oil and gas sector, for which an emissions cap is under development alongside substantial other supports, including the new Carbon Capture, Utilization, and Storage Investment Tax Credit (ITC);
- the transportation sector, for which a number of initiatives are ongoing and for which additional opportunities are actively being explored;
- the heavy industry sector, which is benefiting from high levels of private sector investment and supported with major investments by federal and provincial governments to decarbonize and establish low-carbon industries in Canada; and,
- the buildings sector, which has had major investments in recent years to support the decarbonization of buildings, and for which the Canada Green Buildings Strategy is currently under development.

The path identified requires additional efforts between now and 2030, including full implementation of the measures already announced under the 2030 ERP and the development of new opportunities for further emissions reductions, particularly those that will help Canada’s low-carbon economy grow and support Canadians to prosper in a low-carbon future. The path to the target also requires that other orders of government and the private sector take action.

Figure 2-3: Pathway to 2030 (40% backcasting scenario)



*NBCS/Agr. Measures refers to nature-based climate solutions and agriculture measures.

An overview of the bottom-up and backcasting results by sector is provided below. For more detailed information about Canada's GHG emissions projections, including results from the backcasting scenario, please see the full version of Canada's emissions projections report, which is available online.

Table 2-1: GHG emissions by sector from historical estimates (2005), and bottom-up and backcasting scenario (2030)

Sector	2005 Emissions (Mt)	2030 Emissions (Mt)	
		Bottom-up	Backcasting
LULUCF + NBCS/Agr. measures	0	-45	-45
Agriculture	64	63	63
Buildings	85	69	64
Electricity	118	20	22
Heavy Industry	89	63	57
Oil and Gas	168	128	119
Transportation	157	137	128
Waste and Others	52	32	30
Total	**732**	**467**	**438**

*Agriculture emissions are not expected to show significant reductions in the backcasting scenario as process emissions from crop and animal production, which represent approximately 80% of the sector's emissions, are exogenous to the modelling. Reductions associated with agriculture measures are included in the "LULUCF + NBCS/Agr. Measures" row.

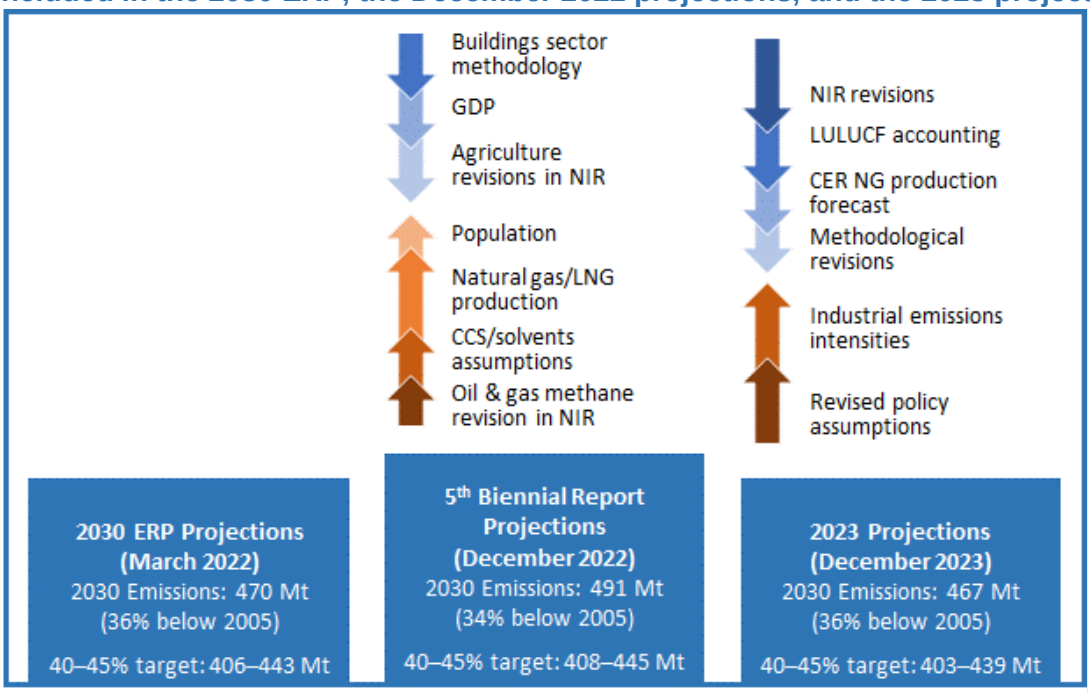
Emissions projections are updated each year to account for new measures, to address changing conditions in the domestic and global economy, and to incorporate the updated historical emissions from the most recent NIR, including changes that result from methodological improvements to the NIR.

In the projections that were updated and submitted to the UNFCCC in December 2022, the main drivers of change leading to emissions increases were higher population growth expectations, higher forecasts for natural gas and liquefied natural gas production, changes in assumptions related to carbon capture and storage and solvents in the oil and gas sector, and revisions in the NIR that led to increases in the oil and gas sector methane emissions. Changes that led to lower emissions included changes to building sector methodology, lower expected GDP growth estimates, and agricultural sector revisions in the NIR. The net impact was an increase in projected 2030 emissions compared to the previous projections that were published as part of the 2030 ERP in March 2022.

For the 2023 projections, NIR revisions, LULUCF accounting changes, a lower natural gas production forecast, and methodological revisions to the model resulted in lower projected emissions. Higher industrial emissions intensities and revised policy assumptions related to the hydrogen strategy and the adoption of net-zero building codes by provinces and territories led to higher emissions. The net impact was a drop in projected 2030 emissions compared to the December 2022 projections.

For more on Canada's emissions reporting, including an overview of the drivers for change, see Section 5.4 in Chapter 5. Detailed information can be found in Canada's National Inventory Report and in Canada's Emissions Projections Report.

Figure 2-4: Overview of main drivers for change in updated projections between the projections included in the 2030 ERP, the December 2022 projections, and the 2023 projections



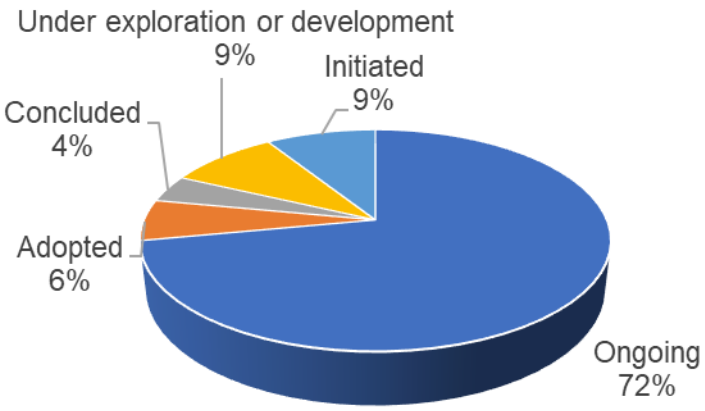
CER NG: Canada Energy Regulator Natural Gas
CCS: Carbon capture and storage
LNG: Liquefied natural gas

2.2 Implementing the 2030 ERP: Highlighting recent climate action

Canada's approach to climate action is organized on a sector-by-sector basis, while recognizing the interconnectedness among sectors. The entire Canadian economy has a role to play in reducing emissions. The sectors identified include economic sectors (buildings, electricity, heavy industry, oil and gas, transportation, agriculture, and waste), economy-wide measures that cut across sectors, and nature-based solutions, which look for opportunities to reduce emissions through nature, such as planting trees and conserving and enhancing other GHG sinks such as wetlands. An overview of how sectors are defined is included in the annex.

The Government of Canada has taken extensive action to reduce emissions, using the range of mechanisms available, including through regulations, funding support, procurement, research, and communications to inform actions being taken by others. There are 149 ERP measures which are categorized as: under exploration (1); under development (13); initiated (12); ongoing (108); adopted (9); and, concluded (6). Highlights are provided below, with a comprehensive implementation update on all of the 2030 ERP measures and strategies provided in Chapter 6, as well as information on how measures are categorized into the different implementation status types.

Figure 2-5: Implementation status of ERP measures



2.2.1 Economy-wide

Putting a price on carbon pollution continues to be a fundamental measure in Canada's approach to climate action, with the minimum price set at $65 per tonne of CO_2 eq in 2023 and rising by $15 per year to $170 in 2030. The carbon price is estimated to be responsible for about a third of projected emissions reductions in 2030. Climate Action Incentive payments to households have increased since their introduction, reflecting the higher price on carbon pollution. Individuals and families in the provinces where the federal fuel charge applies are receiving these payments on a quarterly basis. The majority of households get more money back in Climate Action Incentive payments than the costs incurred from the federal carbon pricing system, and still have an incentive to reduce emissions.

The Government of Canada has established the Canada Growth Fund, a $15 billion arm's length public investment vehicle that will help attract private capital to build Canada's clean economy by using investment instruments that absorb certain risks to encourage private investment in low carbon projects, technologies, businesses, and supply chains. The first investment by the Canada Growth

Fund was announced in October 2023. One of the investment tools the Canada Growth Fund will provide to support clean growth projects is contracts for difference.

Carbon contracts for difference will backstop the future price of carbon and provide predictability to businesses to de-risk important emissions reducing projects. The 2023 Fall Economic Statement announced that the Canada Growth Fund will be the principal federal entity issuing carbon contracts for difference. The Canada Growth Fund will allocate, on a priority basis, up to $7 billion of its current $15 billion in capital to issue all forms of contracts for difference and offtake agreements. The Canada Growth Fund is already in the process of negotiating carbon contracts for difference with a number of project proponents across a range of sectors. The Canada Growth Fund's carbon contracts for difference will also support the establishment of robust carbon credit markets.

Canada's GHG Offset Credit System enables industries with hard-to-abate emissions to purchase emissions reductions from other sources. This extends the carbon price signal and creates opportunities for foresters, farmers, Indigenous communities, and other project developers to earn revenue by selling GHG offsets. At the same time, the availability of offset credits is expected to help stimulate innovation and private sector investment. The *Canadian Greenhouse Gas Offset Credit System Regulations* were published in June 2022 and the Government of Canada is continuing to develop offset protocols, which set out the requirements for particular offset project types.

In the spotlight: Greenhouse Gas (GHG) Offsets

Canada's GHG Offset Credit System encourages municipalities, Indigenous communities, foresters, farmers and other project developers to undertake innovative projects that reduce GHGs compared to business-as-usual practices. There are currently two active federal offset protocols:

- The federal offset protocol for *Reducing Greenhouse Gas Emissions from Refrigeration Systems* (described below); and,
- The *Landfill Methane Recovery and Destruction protocol*.

The federal offset protocol for *Reducing Greenhouse Gas Emissions from Refrigeration Systems* encourages industrial and commercial entities to transition away from refrigerants with high global warming potential (GWP) values in their refrigeration or air conditioning systems. To be eligible under the protocol, entities must either a) retrofit a pre-existing refrigeration or air conditioning system to use an eligible refrigerant, or b) install a new refrigeration or air conditioning system containing an eligible refrigerant.

The Low Carbon Economy Fund (LCEF) leverages further climate actions from provinces and territories, municipalities, universities, colleges, schools, hospitals, businesses, not-for-profit organizations, and Indigenous governments, communities, and representative organizations by providing funding for decarbonization initiatives and programs. There are four streams in the LCEF: Leadership Fund for provinces and territories; Challenge Fund for business and not for profit organizations; Indigenous Leadership Fund; and, Implementation Readiness Fund.

In the spotlight: Low Carbon Economy Fund (LCEF)

The LCEF supports climate actions by provinces, territories, municipalities, universities, colleges, schools, hospitals, businesses, not-for-profit organizations, and Indigenous communities and organizations. Since March 2022, LCEF has been investing in a number of projects, including:

- Up to $60.5 million to Nova Scotians and up to $17.3 million to Newfoundlanders and Labradorians for provincial Heating Oil Transition programming to support lower-income homeowners' move from home heating oil to more affordable low-emitting technologies, like electric heat pumps and electric furnaces.
- Up to $2.9 million to support Brock University's District Energy System Electrification Project, which aims to reduce emissions through retrofits.
- Up to $1.4 million to Redcliff Cypress Regional Waste Management Authority, in Redcliff (Alberta), and up to $10 million to PurEnergy Inc., in Havelock Township (Ontario), to reduce emissions from food waste.
- Up to $910,000 from the Government of Canada and British Columbia to the District of Kitimat to help develop a new compost facility to process food, yard, and wood waste.
- Up to $600,000 for the Kwadacha and Heiltsuk Nations to help create and expand their organic processing capacity.

The Clean Fuel Regulations set increasingly stringent requirements on producers and importers of fossil fuels to reduce the carbon intensity of gasoline and diesel used in Canada. This reduces emissions while also creating economic opportunities in the development and use of clean fuel alternatives. The Clean Fuel Regulations were published in *Canada Gazette, Part II*, in July 2022, and the reduction requirements came into force in July 2023.

Measured over a 20-year period, methane is 80 times more potent than carbon dioxide (CO_2). As such, reducing methane from the oil and gas sector and landfills continues to be a prerequisite for Canada to meet its climate targets. To this end, the Government of Canada released Canada's Methane Strategy in September 2022 with the objective of reducing domestic methane emissions by more than 35% by 2030, compared to 2020 levels, consolidating Canada's leading role in this area. As part of the Strategy, Canada recently released draft methane regulations for consultation that aim to reduce methane emissions from the oil and gas sector by at least 75% below 2012 levels by 2030.

The Government of Canada is implementing the Carbon Management Strategy, released in September 2023. Carbon management—a range of approaches to capture CO_2 to be durably stored or reused. This includes technologies removing carbon from point sources, such as power generation or industrial plants, or direct air capture, bioenergy with carbon capture and storage (BECCS) or other carbon dioxide removal technologies that remove CO_2. According to the IPCC and the International Energy Agency, there is no credible path to net-zero emissions without carbon management technologies. Their deployment must be rapid and immense, scaling up by nearly 200 times by 2050.[2] Other benefits include innovation and employment opportunities. These innovative technologies are being developed and implemented around the world, including in Canada. The Government is implementing supports to build on Canada's early leadership in this area, including through the Carbon Capture, Utilization, and Storage (CCUS) Investment Tax Credit, Canada's GHG Offset Credit System, and direct support for technology RD&D.

In the spotlight: Regional Energy and Resource Tables

The Regional Energy and Resource Tables (Regional Tables) are a key initiative to drive efforts to support workers and communities as Canada shifts to a low-carbon economy, ensuring equitable, inclusive, and sustainable economic growth across the country. The Regional Tables are helping to accelerate Canada's economic growth opportunities by taking into account each region's unique advantages and ability to meet the demands of new and emerging markets. These regional processes are being undertaken in partnership with individual provincial and territorial governments, and through engagement with Indigenous partners, as well as experts, labour organizations, industry, and other stakeholders. The Regional Tables will form the basis for implementing joint strategies to leverage energy and resource opportunities to realize each region of Canada's comparative advantages in a net-zero emissions economy.

2.2.2 Buildings

The Canada Green Buildings Strategy is an overarching vision for decarbonizing existing and new buildings in Canada, seeking to mobilize national action to create a net-zero emissions buildings sector by 2050, while increasing resiliency. The Strategy will focus on increasing the rate of building retrofits, ensuring buildings are resilient and net-zero-ready from the start, and on transforming space and water heating. Two key initiatives supporting the Canada Green Buildings Strategy—the Codes Acceleration Fund and the Deep Retrofit Accelerator Initiative—were launched in early 2023. The Oil to Heat Pump Affordability (OHPA) Grant also launched in 2023. A Discussion Paper on the Canada Green Buildings Strategy was shared for public consultations in 2022 and a What We Heard Report and Summary of Engagement with Indigenous partners were released in July 2023.

2.2.3 Electricity

Regulations are in place to phase out unabated coal-fired electricity generation by 2030. Complementary regulations are also in place to ensure only well-performing natural gas generation is built. Additional funding programs and incentives are de-risking and supporting capital projects such as smart electrification, renewable energy development and deployment, as well as energy transitions in rural, remote, and Indigenous communities. The Government of Canada has committed to achieving a net-zero electricity grid by 2035 and has provided a suite of measures, including billions in funding, to support the achievement of this objective. In light of similar commitments made by the United States and other G7 countries, to remain competitive internationally and to support the growing demand for the electrification of the Canadian economy, the Clean Electricity Regulations (CER) were proposed to provide an early signal to ensure that this transition is clean. The draft CER were published in August 2023 for a 75-day comment period. The CER provide considerable flexibility to electricity generators to determine the best way to transition to a clean grid while continuing to provide reliable and affordable energy to Canadians and their businesses. Powering Canada Forward, a vision for achieving an affordable and reliable net-zero electricity grid by 2035, was released in August 2023. It underscores the critical importance of decarbonizing Canada's electricity systems as a step toward achieving net-zero emissions across the economy by 2050 and ensuring a prosperous future for Canadians. The paper is a call to action and invites Canadians to join a national dialogue on electricity that will inform the development of Canada's first Clean Electricity Strategy to be released in 2024.

A Canada Electricity Advisory Council was established as an independent, electricity-sector focused, expert advisory body to provide advice to the Minister of Energy and Natural Resources to accelerate investment, and promote sustainable, affordable, and reliable electricity systems. The Council commenced its work in May 2023 and aims to submit a final report with their advice in spring 2024.

2.2.4 Heavy industry

The Strategic Innovation Fund – Net Zero Accelerator (SIF-NZA) is investing in projects to support Canada's largest industrial GHG emitting sectors reduce emissions, help position them to be successful in the net-zero global economy of 2050, and assist in establishing Canada as a clean technology leader capitalizing on new growth opportunities, including a domestic battery ecosystem. Since its launch in 2021, the initiative has executed a number of contribution agreements in a wide array of sectors including fuel cell technologies, battery development, nuclear, steel, and electric vehicles. The Government of Canada worked with the Cement Association of Canada to develop the Standard on Embodied Carbon in Construction and the development of the data required to disclose and reduce the embodied carbon of ready-mixed concrete supplied to major federal government construction projects. The standard took effect on December 31, 2022, with all Government of Canada procurements that take affect after that date required to apply to the standard. Canada's Critical Minerals Strategy was launched in December 2022 and a Critical Minerals Centre of Excellence has been established.

Jurisdictions across North America are competing for zero-emission vehicle (ZEV) and automotive supply chain investments. The *Inflation Reduction Act* (IRA) in the U.S., as well as its Advanced Manufacturing Tax Credit, are attractive incentives for firms to choose to anchor production in the U.S., and thereby pose a challenge to Canada's ability to compete for North American battery investments. As a response, Canada has committed to provide production-based support via Special Contribution Agreements with select battery manufacturers (e.g., PowerCo, NextStar, and Northvolt). These investments stand to secure battery and EV manufacturing in Canada for decades to come.

2.2.5 Oil and gas

The Government of Canada is publishing a regulatory framework for a cap on emissions from the production of oil and gas in fall 2023. The cap will complement other measures such as the methane regulations, clean fuel standards, carbon pricing, and tax incentives (e.g., the Carbon Capture, Utilization, and Storage Investment Tax Credit), the SIF-NZA, and the Canada Growth Fund.

2.2.6 Transportation

The Government's *Regulations Amending the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* requiring that all sales of new passenger cars and light trucks be ZEVs by 2035, with interim targets of at least 20% by 2026, and at least 60% by 2030.The Government is also developing similar requirements for on-road heavy-duty vehicles. Several initiatives complement these regulatory measures by helping to address barriers. For example, the Incentives for Zero-Emission Vehicles (iZEV) Program has contributed to the purchase of over 300,000 ZEVs since its launch in May 2019, and the Incentives for Medium- and Heavy-duty Zero-Emission Vehicles (iMHZEV) Program, launched in 2022, has processed over 1,000 incentive requests. The Zero-Emission Trucking Program (ZETP) is funding projects to capture data and firsthand experience on zero-emission truck performance in Canadian conditions and is helping accelerate the safe deployment of MHZEVs, including funding for testbeds and to support provinces and territories in the development, modernization, and alignment of codes, standards, and regulations for zero-emission trucking.

2.2.7 Agriculture

The Government of Canada continues to implement ambitious action to support farmers and producers, to build resilience and reduce emissions through investments in climate-smart farming practices. In July 2022, the federal, provincial, and territorial Ministers of Agriculture reached an agreement in principle for the Sustainable Canadian Agricultural Partnership. As of August 2023, Agricultural Climate Solutions: On-Farm Climate Action Fund has distributed over $124.8 million through 13 projects, supporting farmers to adopt and implement immediate on-farm beneficial management practices that

store carbon and reduce GHG emissions. The Agricultural Clean Technology Program provides funding for research, innovation and adoption of clean technology that will support a low carbon economy and drive sustainable growth in the agriculture sector. The Government of Canada has committed $470.7 million to this program over seven years, with over $79.2 million distributed as of October 2023.

2.2.8 Waste

The Government of Canada is implementing a comprehensive plan to reduce plastic pollution and move towards a circular plastics economy, including by working with provinces and territories to implement the Canada-wide Strategy and Action Plan on Zero Plastic Waste. A proposed regulatory framework for reducing methane emissions from landfills was released in April 2023, with draft regulations under development and planned for publication by winter 2024. Canada published an offset protocol for "Landfill Methane Recovery and Destruction" under Canada's GHG offset system. Offset protocols are also available for use in BC ("Methane from Organic Waste Offset Protocol"), Alberta ("Landfill Gas Capture and Combustion" and "Aerobic Landfill Bioreactor"), and Québec ("Landfill Methane Reclamation and Destruction").

2.2.9 Nature-based solutions

The Government of Canada continues to make progress toward conserving 25% of Canada's lands and waters by 2025 and 30% by 2030, working closely with provinces and territories, Indigenous Peoples, municipalities and local governments, environmental non-governmental organizations (ENGOs), private land trusts and other partners.

Additional funding of $780 million in the Nature Smart Climate Solutions Fund, for a total of $1.4 billion, has been invested to deliver emissions reductions from nature-based climate solutions. Furthermore, the 2 Billion Trees program will invest up to $3.2 billion in tree planting efforts to support provinces, territories, third-party organizations (for-profit and not-for profit) and Indigenous organizations to support the Government of Canada's commitment to plant two billion trees across the country. In 2022, the Canadian Council of Forest Ministers endorsed the Renewed Forest Bioeconomy Framework to accelerate development of the bioeconomy and maximize the forest sector's contribution to net zero. The Framework builds on the recognition that emissions reductions can be achieved by increasing the use of wood in construction and by using waste and forest residuals to generate bioenergy and produce bioproducts that substitute for more emissions-intensive materials.

2.2.10 Greening government

The Government of Canada has committed to transition its operations to net-zero emissions and increase climate-resilience, while also reducing environmental impacts beyond carbon, including on waste, water and biodiversity. Led by the Centre for Greening Government of the Treasury Board of Canada Secretariat, the Government of Canada will ensure that Canada is a leader in government operations that are net-zero, resilient and green. The Centre for Greening Government works closely with technical departments, such as NRCan, ECCC, NRC and PSPC, to provide expert advice and guidance to support departments in implementing the Greening Government Strategy.

Consistent with the Greening Government Strategy, all departments must develop a Carbon Neutral Portfolio Strategy to create a pathway to the complete decarbonization of departmental real property holdings. This includes assessing real property to ensure future needs are met and divest surplus assets, optimize the management and energy efficiency of buildings retained, and fuel switch to low carbon sources of energy.

In the spotlight: The 25 St. Clair Avenue East Rehabilitation Project
The 25 St. Clair Avenue East Rehabilitation Project is a flagship model of the Government's commitment to reducing its real property carbon footprint. It will be one of Canada's first federal net-zero carbon ready buildings in downtown Toronto. The building features geothermal systems to provide sustainable heating and cooling, roof-top photovoltaic panels to provide over 10% of the buildings electricity demand, water reduction infrastructure, a (Smart) Building Automation System, and Electrical Vehicle Charging Stations in parking garages, reducing the building's GHG emissions by over 80%. The building will meet the Zero Carbon Building Standard (CaGBC) and achieve LEED-GOLD and WELL-SILVER certifications.

In 2023, the Government of Canada released the Standard on Embodied Carbon in Construction which sets minimum requirements for the procurement of design and construction services. Companies bidding on federal government projects must meet the requirements of the standards to be considered. Embodied carbon forms a significant proportion of the whole life carbon emissions from construction projects. Major construction projects typically include the renovation or new construction of buildings or engineering assets.

The Standard on the Disclosure of Greenhouse Gas Emissions and the Setting of Reduction Targets requires companies bidding on federal projects over $25 million to disclose their GHG emissions and set reduction targets. Companies that join the Net-Zero Challenge or other recognized programs automatically meet the standard. This ensures the process for procurements over $25 million encourages suppliers to set a path to net zero.

2.3 Implementing the 2030 ERP: Opportunities for additional action

There are a number of measures that the Government of Canada has committed to that are still in the early stages of exploration, development, and implementation. These measures hold the potential to have significant impacts. This includes taking a collaborative approach so that both public dollars and private capital can be strategically directed with maximum effect to support economic growth, reconciliation, climate outcomes, diversity and equity, and the creation of sustainable jobs. For many of these initiatives, the Government of Canada has committed to consult widely—with provinces and territories, Indigenous Peoples, industry, and the Canadian public. How these initiatives will develop will depend in large part on what the Government hears from Canadians.

2.3.1 Economy-wide

Collaborate with provinces and territories—along with Indigenous partners and key stakeholders—to identify and accelerate the most promising clean-growth opportunities in each region; build clean energy projects; and, support workers in the global net-zero future.

Continue to explore additional ways to provide businesses certainty regarding the carbon pollution pricing trajectory, including potential legislative approaches and other new measures, in conjunction with provinces and territories.

Continue to explore how border carbon adjustments may fit into Canada's broader climate strategy.

Guided by Canada's Carbon Management Strategy, identify policies and programs to support accelerated innovation and scale-up of negative emissions technologies to offset hard-to-abate emissions sources.

As announced in the 2023 Fall Economic Statement, the Canada Growth Fund will be the principal federal entity issuing carbon contracts for difference—the Canada Growth Fund will allocate, on a priority basis, up to $7 billion of its current $15 billion in capital to issue all forms of contracts for difference and offtake agreements.

Complete the implementation of the new clean economy investment tax credits.

2.3.2 Buildings

Continue to develop the Canada Green Buildings Strategy to support a net-zero emissions and climate-resilient buildings sector.

Work with the provinces and territories and other stakeholders to develop new code requirements to limit GHG emissions in new construction and for energy-efficient alterations to existing buildings.

Explore the potential to update energy and GHG performance standards in federally funded homes and buildings programs.

Explore further opportunities to minimize embodied emissions from the built environment.

2.3.3 Electricity

Engage with provinces, territories, and others to develop the design and implementation details of the Clean Electricity Investment Tax Credit.

Building on the release of *Powering Canada Forward: Building a Clean, Affordable and Reliable Electricity System for Every Region of Canada*, Canada remains committed to releasing its first Clean Electricity Strategy in 2024.

2.3.4 Heavy Industry

Given the multiple linkages between this sector and others, measures in other sectors will also be important for how emissions can be reduced in the heavy industry sector:

- Canada's Carbon Management Strategy;
- Efforts to address embodied carbon in Canadian infrastructure projects through the investments of the National Research Council to develop tools, solutions, and resources to decarbonize the construction sector;
- Greening Government Strategy green procurement commitments and efforts to create demand for clean technologies; and,
- Supporting the availability of clean electricity.

Explore opportunities to advance industrial decarbonization, including the potential to articulate a coordinated approach to accelerating industry's adoption of clean technologies and fuels.

Continue to support industry on the road to net zero and promote clean economic growth through the Strategic Innovation Fund and the Canada Growth Fund, providing significant funding and other forms of financial support to develop and adopt new low-carbon technologies and processes.

2.3.5 Oil and Gas

Continue to implement regulations that are addressing emissions in the sector, including carbon pricing, methane regulations, and the Clean Fuel Regulations.

Develop and implement a national cap on emissions from the production of oil and gas.

Provide financial supports for decarbonization activities in the oil and gas sector, including through the CCUS Investment Tax Credit.

2.3.6 Transportation

Deliver on the commitment to permanently fund public transit.

Consider opportunities stemming from engagement with biofuels' stakeholders.

Continue to develop and implement climate plans for marine, rail, and aviation sectors.

Explore opportunities to accelerate the turnover of older, higher-emitting on-road vehicles.

Explore opportunities to deploy charging and hydrogen stations for medium- and heavy-duty ZEVs.

Explore opportunities to accelerate development of an off-road decarbonization strategy to transition to zero-emission equipment, machines, and zero-emission and/or low carbon fuels.

Advance the development of a Sustainable Aviation Fuels (SAF) Blueprint.

Examine options for the development of a new blueprint for a sustainable, net-zero transportation system by 2050 that takes an integrated transportation sector approach, ensures coordination across governments and stakeholders, and supports low-emitting modes where appropriate.

Explore the potential to expand the Incentives for Zero Emission Vehicles (iZEV) program to include used vehicles, building off the recent expansion of the program to enhance access to more incentives for car-sharing fleets.

Explore the potential to expand incentives for medium- and heavy-duty ZEVs to other specialty vehicles/off-road equipment used at transportation hubs (such as airports, ports).

2.3.7 Agriculture

Develop the Sustainable Agriculture Strategy, which will help set a shared direction for collective action to reduce emissions and improve environmental performance in the sector over the long-term.

Explore various approaches to help promote the sustainability of the agriculture sector, increase clean technology use in Canada, and address barriers of adoption/extension and knowledge transfer of emissions-reducing technologies on farms.

2.3.8 Greening government

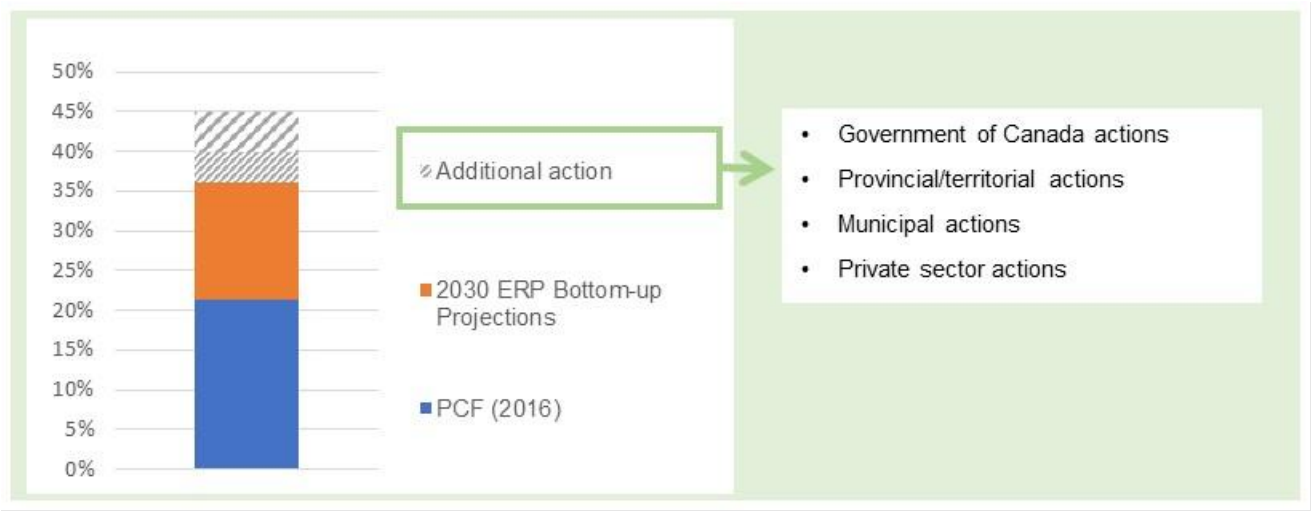
Building on recent achievements to strengthen the Policy on Green Procurement with the completion of two new standards, the Standard on Embodied Carbon in Construction and the Standard on the Disclosure of Greenhouse Gas Emissions and the Setting of Reduction Targets, attention will focus on the effective implementation of these standards, working with companies bidding on federal contracts.

Continue the implementation of the Government of Canada's Greening Government Strategy to demonstrate leadership while exploring the potential for new measures that could contribute towards the Government of Canada's targets related to net-zero emissions and climate-resilient operations. Short-term opportunities include procurement of clean electricity, low-carbon fuels, and zero-emission vehicles, as well as climate risk assessment of operations.

2.4 Actions being taken across Canada

The Government of Canada recognizes that achieving Canada's emissions target requires efforts across society and the economy. Many are already stepping up to do their part, but more is needed. In addition to those actions that the Government of Canada is pursuing, provinces and territories, municipalities, Indigenous Peoples and the private sector have important roles and responsibilities. This section provides highlights of what is being done by others and uses examples of successful projects to illustrate how other governments and sectors can increase their ambition. The whole of society approach is explored further in Chapter 3, and overviews of each province and territory are provided in Chapter 7.

Figure 2-6: Achieving Canada's 2030 emissions reductions



2.4.1 Economy-wide

The private sector makes investment decisions and provinces and territories help establish a business environment that incentivizes investments towards decarbonization. A number of provinces and territories have developed their own carbon pricing systems and are considering how they can support emissions reductions opportunities that best suit their jurisdiction. The private sector is making investments to reduce emissions and pursue low-carbon opportunities, including in hydrogen production.

In the spotlight: Low-Carbon hydrogen production

Over 70 new low-carbon hydrogen production projects have been announced and are at various stages of development. These projects set the foundation for this new clean energy industry to help decarbonize hard-to-abate sectors such as heavy-duty vehicle transportation and heavy industry, while also creating export opportunities.

2.4.2 Buildings

Provinces and territories are responsible for the adoption of building codes and have authority over municipal government affairs. Municipalities have responsibilities related to zoning and building, and have considerable scope to support homeowners to pursue deep retrofits. The private sector and

individuals make purchasing decisions that have enduring impacts given the long-term nature of building stock.

In the spotlight: Net-zero buildings in Canada

Following in the footsteps of both the Mosaic Centre for Conscious Community and Commerce (Alberta's first net-zero commercial office building) and the Mohawk College's Joyce Centre for Partnership & Innovation (Canada's first institutional building to receive a Zero Carbon Building Design certification by the Canada Green Building Council (CAGBC)), several buildings have distinguished themselves in achieving net-zero emissions:

- The Stack in Vancouver is the first new commercial high-rise tower in Canada to be recognized officially as a net-zero building.
- The Co-operators headquarters in Guelph is designed to be all-electric and eliminate direct carbon emissions from any onsite source, earning CAGBC Zero Carbon Building – Design Standard certification.
- The Phenix in Montréal achieved CAGBC Zero Carbon Building – Performance certification for transforming an abandoned warehouse into a low-carbon, net-zero energy workspace.

Going further: Building codes

In December 2016, Canada's First Ministers adopted the *Pan-Canadian Framework on Clean Growth and Climate Change* (PCF).[i] In the PCF, governments committed to work to develop and adopt increasingly stringent model building codes, starting in 2020, with the goal that provinces and territories adopt a "net-zero energy ready" model building code by 2030. Building codes are recognized as important to spur innovation and support Canadian businesses in developing more efficient building techniques and technologies.

British Columbia has committed to take important steps to increase energy-efficiency requirements in the BC Building Code and to make buildings net-zero energy ready by 2032. The BC Energy Step Code is a part of the BC Building Code. A voluntary provincial standard that provides an incremental and consistent approach to achieving more energy-efficient buildings that go beyond the requirements of the base BC Building Code, it establishes a series of measurable, performance-based energy-efficiency requirements for construction that builders can choose to follow while communities may voluntarily adopt bylaws and policies highlighted in the BC Energy Step Code. This Code came into force in April 2017, giving builders the option to build to the requirements in the Energy Step Code at any time. Currently, local governments have the authority to require or incentivise builders to meet one or more steps. In future, new homes will need to be built better than the current BC Building Code, reaching 40% more energy efficient by 2027 and 80% more energy efficient by 2032, which is the net-zero energy ready standard.

Further to this example from British Columbia, there are other jurisdictions, including municipalities, that are also looking to develop and accelerate adoption of codes and standards with a focus on net-zero energy readiness.

[i] Saskatchewan and Manitoba did not adopt the PCF at that time. Manitoba joined in February 2018.

Going further: Heat pumps

Space and water heating accounts for 98% of direct operational emissions in the buildings sector. These emissions can be reduced by switching from fossil fuels to heat pumps, powered by non-emitting electricity. Not only does the use of heat pumps contribute to lower emissions, but they have also proven to be highly energy efficient and, consequently, can reduce energy costs for homeowners and renters. Technology development in recent years has led to new high-performance cold-climate models suited to the Canadian climate that have been shown to out-perform fossil fuel options.[3] Heat pumps also offer both cooling and heating, eliminating the need for a separate air conditioning unit—a feature that has grown in importance given the more frequent heat waves during Canada's summers. These considerations, combined with incentives from federal, provincial and territorial governments and utilities, have led to a considerable increase in the number of residential heat pumps installed in Canada, more than doubling since 2000 to around 850,000 households using heat pumps as their primary source of heating in 2020.[4] This estimate does not include heat pump uptake since 2020, and does not include households who use a heat pump for partial heating. In the three Maritime provinces, the proportion of households with heat pumps was more than 20% as of 2021.[5]

Research from the Canadian Climate Institute, published in September 2023, shows that heat pumps, when combined with currently available grant incentives, are less costly over their lifetime than gas heating and air conditioning, including capital and operating expenses, in most cases in Canada. They are particularly cost effective for single family homes and townhouses. The all-electric scenario—a standard heat pump with electric backup—tends to be the lowest-cost option available.

As of 2021, home heating in Canada accounted for 33 Mt of emissions, or approximately 6% of Canada's emissions. By 2030, home space heating is projected to account for about 23 Mt of emissions, with just over 10% of total home heating supplied by heat pumps. Accelerated adoption of heat pumps holds enormous potential to further reduce emissions, help maintain comfortable and safe indoor temperatures during extreme heat events, and lower costs for Canadians.

2.4.3 Electricity

While the federal government has the authority to regulate GHG emissions, provinces and territories have a key role in electricity planning and operation. Furthermore, several utilities are provincially-owned Crown corporations. In other jurisdictions, utilities are privately owned, but are regulated by provincial utility regimes. Municipal governments also have an important role, with ownership of utilities in some jurisdictions (i.e., Ontario), and decision-making related to zoning. As well, Indigenous communities continue to implement innovative solutions to support a robust transition to clean electricity.

In the spotlight: Tarquti Energy

Tarquti is a Nunavik-owned company that carries out clean energy projects tailored to the needs and interests of the region's Inuit communities. They are leading Nunavik's clean energy transition in partnership with community stakeholders, promoting local job creation and building a better future for the region that respects the environment and Inuit values. In 2022, Tarquti signed a historic partnership with Hydro-Québec, the provincial utility organization, to advance community-led and community-owned clean energy projects across Nunavik, while creating numerous local and regional jobs. The Government of Canada also established a partnership with Tarquti to help build capacity for renewable energy in the region.

In the spotlight: Accelerated coal phase-out in Alberta

In 2012, the Government of Canada introduced Canada's first coal phase-out regulation, that would have seen Alberta close its last coal plant in 2061. In 2015, the Government of Alberta introduced its Climate Leadership Plan, which included the objective of phasing out coal-fired electricity by 2030. At that time, coal provided over half of Alberta's electricity.[6] In 2016, the Government of Canada announced federal legislation to achieve the phase-out of all unabated coal-fired electricity generation in Canada by 2030. In 2023, the coal phase-out is about to be achieved in Alberta, seven years ahead of schedule, as the last remaining coal-fired generating station completes the switch to natural gas. The phase-out ahead of schedule has been possible due to several factors, including clear policy leadership from both provincial and federal governments through measures such as carbon pricing, regulation, and financial supports to impacted utilities, workers, and communities, as well as the availability of cost-competitive technologies.

Going further: Renewable energy

Renewable energy holds significant potential to increase the availability of electricity to support wide-scale electrification, reduce emissions from electricity generation and, given their emergence as some of the lowest cost options for new electricity production, reduce costs for Canadians. The cost of renewables such as solar and wind power has declined dramatically between 2010 and 2022. The weighted average cost of electricity from solar photovoltaics and onshore wind fell by 89% and 69%, respectively.[7] These technologies have become competitive with fossil fuels in certain regions, for example in Alberta and Ontario where wind can produce electricity at a lower cost than natural-gas-fired power.[8] In 2022, Canada's solar electricity generation capacity grew by 41% and wind by 7%. Canada now has an installed capacity of more than 19 GW of utility-scale wind and solar energy, having added more than 1.8 GW of new generation capacity in 2022 (CANREA).[9] Alberta has been a leader in renewable energy development in Canada, accounting for 75% of the country's increase in solar and wind generation in 2022, with 17% of the province's electricity from wind and solar in 2022. Nova Scotia, already a pioneer in Canada in the adoption of wind energy and exploration of renewable energy alternatives, is committing to large-scale wind and solar development, citing low costs and proven technologies. The province released its clean power plan in October 2023, calling for 30% more wind power and 5% more solar energy in its power grid. The clean power plan calls for an additional 1,000 megawatts of onshore wind by 2030 which would then generate 50% of the province's electricity.

Going Further: Provinces investing in nuclear energy

Nuclear energy is an existing source of emissions-free energy in Canada with new opportunities being explored. Ontario's Independent Electricity System Operator's Pathways to Decarbonization Report forecasts that in less than 30 years, Ontario could need to more than double its electricity generation capacity from 42,000 MW today to 88,000 MW in 2050. The report forecasts an additional 17,800 MW of nuclear power could be required to meet that increased demand. In response Ontario has announced the potential construction of up to 4,800 MW new nuclear capacity being added to the grid at the Bruce Power site. This would be the first new, large-scale nuclear plant built in Canada in over 30 years. Ontario has also announced that it will work with Ontario Power Generation to commence planning and licensing for three additional small modular reactors (SMR), for a total of four reactors at the Darlington New Nuclear Site. Pending regulatory approvals to build the additional three reactors, the total output would be 1,200 MW with the first grid-scale SMR in Canada to be completed by 2029.

New Brunswick is home to the only Canadian nuclear plant outside of Ontario and is considering opportunities associated with small modular reactor technology.

Saskatchewan has identified nuclear power as a possible energy generation option in the province and in March 2022 launched a strategic plan to support SMR development.

The Government of Alberta has expressed interest in SMRs as an option to help decarbonize the oil and gas industry and provide clean electricity to their grid, highlighting SMRs as a potential decarbonization pathway in the *Emissions Reduction and Energy Development Plan 2023*. The province has committed $7 million to further assess the feasibility of SMR applications in the oil sands, following up a study by Hatch which concluded that SMRs are a feasible option for the provision of electricity and steam in the oil sands to support net-zero energy production at in-site facilities.

2.4.4 Heavy Industry

Heavy industry operates in a global marketplace and is facing increasing market pressure to account for and reduce their Scope 1, 2 and 3 emissions.

In the spotlight: Canada's Steel Industry

Canada's major integrated steel operations are transitioning to lower-emitting steel. Algoma Steel is transitioning its operations to electric arc furnaces in Sault Ste. Marie. This process is expected to reduce Algoma's GHG emissions by more than 70%. ArcelorMittal Dofasco is transitioning to direct-reduced iron steelmaking, set to reduce carbon emissions by 60% and lay the groundwork for net zero, and announced an annual biocarbon purchase agreement with CHAR Technologies to purchase biocarbon at their Thorold facility made of woody biomass, as a partial replacement for fossil coal in its steelmaking process.

In the spotlight: Cement Association of Canada

The Cement Association of Canada (CAC) is the voice of Canada's cement industry. CAC has been active over the past years in accelerating the decarbonization of the sector by beginning a transition to lower-carbon fuel sources, carbon-reduced cements, and clean technologies. Its mission is to create the conditions necessary for the industry to lead and thrive in a clean economy. In 2021, CAC and the Government of Canada announced a partnership to position Canada as a global leader in low-carbon cement and concrete production and related clean technologies. The partnership established an Industry-Government Working Group, which spearheaded the Roadmap to Net-Zero Carbon Concrete by 2050, released in 2022. The Roadmap committed the industry to reducing GHG emissions from the cement and concrete sector by 15 Mt by 2030 and achieving net-zero concrete by 2050. In 2023, CAC published an action plan to get to net zero, where collaboration between the public and private sector plays a central role. CAC has also been among the first organizations to join the Net-Zero Challenge, a federal initiative that encourages businesses to develop and implement credible and effective plans to transition their facilities and operations to net-zero emissions by 2050.

In the spotlight: Decarbonizing the Chemicals Industry

On November 28, 2023, Dow announced its final investment decision for the construction of the world's first net-zero ethylene and derivatives facility at its Fort Saskatchewan site in Alberta. This investment will represent the world's first net-zero Scope 1 and Scope 2 ethylene and derivatives complex. This investment will triple Dow's capacity while eliminating carbon emissions by converting hydrogen from cracker off-gas as a clean fuel as well as CO_2 capture and storage. It will leverage an additional $2 billion of investment from third parties for circular hydrogen, CO_2 capture, and other infrastructure assets. At the height of construction, this facility is estimated to create 7,000 to 8,000 construction jobs. Alberta is the home to this "first of its kind" investment because of the availability of Carbon Capture, Utilization and Storage (CCUS) and associated infrastructure, and its feedstock advantage. When the project was announced in 2021, Dow stated that a key element of the investment decision was Canada's strong, stable, and rising carbon price.

2.4.5 Oil and Gas

Provinces and territories and industry all have pivotal roles to play in ensuring emissions reductions from oil and gas production. Indigenous Peoples are also important partners, recognizing the impacts of oil and gas development and given the role of Indigenous Peoples through ownership and benefit sharing agreements.

In the spotlight: British Columbia's oil and gas sector methane emissions

British Columbia has committed to reduce methane emissions from oil and gas by 75% from 2014 levels by 2030 and to nearly eliminate methane emissions in oil and gas, mining, industrial wood waste and other sectors by 2035.

In the spotlight: The Clean Resource Innovation Network

The CRIN is a pan-Canadian network focused on ensuring Canada's oil and gas resources can be sustainably developed and integrated into the global energy supply. By identifying industry challenges, they create a market pull to accelerate commercialization and widespread adoption of clean technologies by bringing together industries, entrepreneurs, investors, academia, governments, and other economic actors. As part of the Government of Canada's Strategic Innovation Fund (SIF), $100 million has been allocated for CRIN to help accelerate the development and adoption of innovative technologies and processes aiming to lower the oil and gas industry's environmental impacts. Furthermore, three technology competition challenges for high-impact projects with clear paths to commercialization have been launched. Some of these projects include: up to $10 million funded in 2022 to Cvictus that will enable an expansion of its commercial operations to demonstrate technology that will supply low carbon intensity hydrogen from stranded hydrocarbons in Alberta; up to $8 million to Ekona Power Inc. to demonstrate pilot-scale methane solutions that will deliver decarbonized hydrogen at costs on par with conventional systems, while reducing emissions by up to 90%; up to $1 million towards VL Energy's Field Demonstration A.I. Powered Predictive Emissions Monitoring Systems, designed to optimize processes while reducing emissions from venting, flaring and fugitives.

2.4.6 Transportation

Consumers can replace their gas and diesel-fueled cars and trucks with zero-emission vehicles (ZEVs). Freight companies, municipalities, transit agencies, and school districts can modernize their fleets with zero-emission trucks and buses. And municipalities and provinces can design efficient public transit infrastructure and take an approach to planning that supports low-emissions transportation solutions, such as locating high-density housing near transit hubs. Addressing ZEV affordability and the availability of charging stations, transitioning to clean fuels, and promoting the uptake of zero-emissions technologies for off-road vehicles and equipment, are some examples of how emissions reductions can be achieved in this sector.

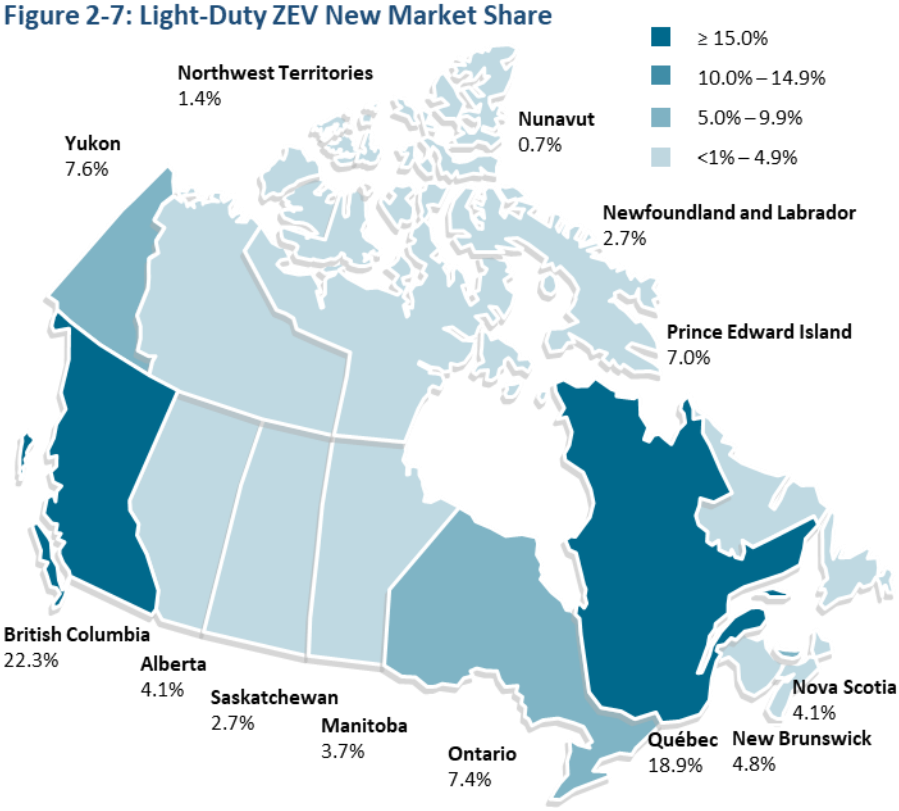
In the spotlight: Canadian Urban Transit Research & Innovation Consortium (CUTRIC)

CUTRIC is an innovative non-profit organization that designs, launches, and spearheads the development of technology and commercialization projects that advance next-generation mobility and transportation solutions across Canada. In addition, the CUTRIC develops low-cost simulation tools that help transit agencies transitioning to zero-emission fleets to predict how vehicles will operate in real time on roads and in service. The advancements coming out of their initiatives and partnerships help to grow the low-carbon and smart technology ecosystem across Canada and North America, while nurturing job growth and economic development over the long term. Some notable projects by CUTRIC include: the National Smart Vehicle Joint Procurement Initiative, which is deploying half a dozen electric autonomous shuttles in Markham; and, the Pan-Canadian Hydrogen Fuel Cell Electric Bus Demonstration and Integration Trial, deploying 10 fuel cell electric buses (FCEB) with Mississauga Transit. This program is Canada's first FCEB trial to deploy Canadian-developed hydrogen technology across the hydrogen-based transit value chain, with phase 2 launched in 2022 and inaugural sessions for phase 3 taking place in 2023.

Going further: Zero-emission vehicles

Accelerating the transition to zero-emission vehicles (ZEV) is essential to achieving net-zero emissions by 2050. More and more Canadians are choosing ZEVs each year. Canadians that are making the switch are realizing the benefit of reducing their environmental footprint and vehicle operating costs, while still meeting their transportation needs.

Figure 2-7: Light-Duty ZEV New Market Share



In 2022, demand for ZEVs outstripped supply, in part due to supply chain constraints, but also reflecting increased interest from consumers.[10] According to S&P Global Mobility, almost 11% of new light-duty vehicles registered in the first three quarters of 2023 were ZEVs, compared with 8.9% in 2022, 5.6% in 2021, 3.8% in 2020, and 3.1% in 2019.[11] By 2035, all new light-duty vehicles sold in Canada will be ZEVs. Canadians are choosing ZEVs faster than expected, realizing the benefit of reducing their environmental footprint and vehicle operating costs, while still meeting their transportation needs, and supported by an expanding network of chargers and government incentives (e.g., federal, British Columbia, Québec, Prince Edward Island, New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, and Yukon).

2.4.7 Agriculture

Federal, provincial, and territorial governments work closely to promote emissions reductions in the sector, while also supporting the competitiveness of Canadian farms and their contribution to domestic and global food security. A recent study by RBC, the BCG Centre for Canada's Future, and Arrell Food Institute, reported that annual research and development budgets from Canadian agriculture businesses have at least doubled since 2015, but more investment is required to achieve the sector's emissions reduction potential, which by their estimate could be as high as 40% by 2050.[12] According to this report, a key challenge for the sector will be the development and widespread adoption of transformative technologies, including precision fertilization, anaerobic digesters, and biotechnology that supports agricultural resilience against disease and extreme weather events. When considering emissions from agriculture and opportunities for emissions reductions, it is important to include not only those emissions related to production of crops and livestock, but also emissions from on-farm fuel use and emissions and removals from agricultural soils (for more on considerations for how emissions related to the agriculture sector are reported on, see Annex 1).

In the spotlight: Dairy Farmers of Canada

Dairy Famers of Canada (DFC) is a farmer-funded and farmer-run organization that represents the interests of almost 10,000 Canadian dairy farms. In 2022, DFC indicated their dedication to fighting climate change by committing the dairy farm sector to reaching net-zero greenhouse gas emissions by the year 2050. To do so, DFC is working with GHG reduction specialists, federal and provincial governments, dairy stakeholders, and farmers, on strategies that can be applied at the farm level to reduce and sequester emissions as they strive for continuous improvement. To help farmers along the path to net zero, DFC released its Best Management Practices Guide to Mitigate Emissions on Dairy Farms in March 2023. The guide is designed to help farmers identify and implement beneficial management practices (BMPs) on their farm, including an overview of 30 BMP opportunities for reducing emissions, increasing carbon sequestration, and improving overall environmental sustainability. Furthermore, DFC has also developed a Net-Zero strategy, which lays out current sector emissions while indicating what the industry should work on to reduce emissions. This includes focusing on more reliable measurement tools as well as research into maximizing carbon sequestration, and better use of water on dairy farms.

2.4.8 Waste

Waste management falls under the jurisdiction of provinces and territories, while the collection, diversion, and disposal of waste are typically managed by municipal authorities or private firms. A number of provinces, territories and municipalities are active in the waste sector, particularly to manage related issues such as landfill capacity.

In the spotlight: The National Zero Waste Council (NZWC)

The NZWC, an initiative of Metro Vancouver, is leading Canada's transition to a circular economy by bringing together governments, businesses, and NGOs to advance a waste prevention agenda that maximizes economic opportunities for the benefit of all Canadians. The NZWC have set out on a mission to act collaboratively with business, government, and the community, at the national and international level, as an agent of change for waste prevention and reduction in the design, production, and use of goods. In June 2022, the NZWC published their forward-looking National Zero Waste Council 2022–2025 Strategic Plan. Their 2022 priority areas of work included cities, food loss and waste, plastics, construction and demolition, and cross-sector. Their 2023–2025 priorities consist of two priority sectors and areas of work: reuse, and built environment, in addition to the five 2022 priorities. Between 2023–2025, the NZWC has indicated that they will form a new Working Group/Task Force that will lead work in the reuse sector, including advocating for consumer protections such as the right-to-repair.

2.4.9 Nature-based solutions

Indigenous Peoples play a leading role. Indigenous Science, knowledge, experiences, perspectives, and rights are essential components to building effective climate change strategies. Municipalities have the ability to preserve local carbon sinks through effective land-use planning. Provinces and territories have jurisdiction over the vast majority of the country's forests and management decisions related to forested lands. Private landowners also have an important role in making decisions on how their land is managed.

In the spotlight: Tree Canada

Tree Canada is Canada's only national non-profit organization dedicated to planting and nurturing trees in rural and urban environments in every province across the country. Through their programs, research, and educational efforts, Tree Canada has helped restore tree cover in areas hit by natural disasters, guided communities in managing their urban forests, helped green over 600 schoolyards, and organized annual urban forest conferences. To date, Tree Canada has planted more than 82 million trees. Their Community Tree Grants initiative supports community greening, innovation, and stewardship initiatives. Some recent projects include the restoration of New Brunswick's Belleisle Watershed Community; the planting of edible berry shrubs on Siksika Nation in Alberta; and, providing an opportunity for patients from the Centre intégré de santé et de services sociaux de la Montérégie-Centre to plant trees to nurture a healing environment with nature.

Going further: Municipal governments and nature-based solutions

A recent study published in the scientific journal, Nature Climate Change, identified nature-based solutions as a key tool for cities to lower carbon emissions, showing how 54 European cities could reduce carbon emissions by an average of 17.4% using nature-based solutions like urban parks, streetscaping and rooftop gardens. Municipalities in Canada are actively pursuing measures to lower GHG emissions while making communities more livable, including through nature-based solutions. Nature-based solutions use nature to reduce emissions through activities such as planting trees, restoring grasslands and wetlands, and improving agricultural land management. Examples of nature-based solutions at work include exploring the creation of a national urban park in Saskatoon, the city of Toronto committing to a canopy cover of 40% by 2050, and the Capital Region of Victoria creating a land acquisition fund in 2000 which has helped grow the regional parks system from 8,400 hectares to over 13,000 hectares.

As urban areas account for around 40% of GHG emissions in Canada, there are considerable opportunities for emissions reductions at the local level.

2.5 Enabling measures

In addition to measures that directly address emissions, enabling measures support Canada's efforts to reduce GHG emissions through technology development and deployment, innovative financing, and by building the skills required for a low-carbon economy and to support workers. Enabling measures are not expected to generate emissions reductions directly but will support emissions reductions in indirect ways and are recognized as important to achieving Canada's climate mitigation objectives; or are expected to generate emissions reductions, but those reductions are accounted for in one or more economic sectors (e.g., clean technologies that support emissions reductions in agriculture, heavy industry, electricity, etc.). While there may not be GHG emissions reductions directly associated with enabling measures in all cases, the Canadian climate change mitigation story would be incomplete without them.

To enable the transition to net-zero emissions, it is important that decision makers consider climate impacts in a rigorous, consistent, and measurable manner. These considerations should include both short and long-term climate mitigation, as well as climate resilience and adaptation. This is why the Government of Canada is developing a "climate lens" that will take into account climate and economic considerations to inform policy development and government decision-making across federal

departments. The Integrated Climate Lens was launched in the fall of 2021 and has been piloted in key departments to ensure that climate-related and economic considerations have informed major policy, program and funding decisions. Building on the lessons from the pilot, work is ongoing to ensure that climate, biodiversity and other key environmental considerations are further included in a consistent manner in decision documents from federal departments and agencies.

2.5.1 Clean technology and climate innovation

Accelerated development and adoption of clean technologies across all economic sectors will be necessary to meet Canada's climate commitments, shifting from carbon-intensive technologies to those that can significantly reduce or eliminate GHG emissions from processes and practices.

In the spotlight: Canada's clean technology industry

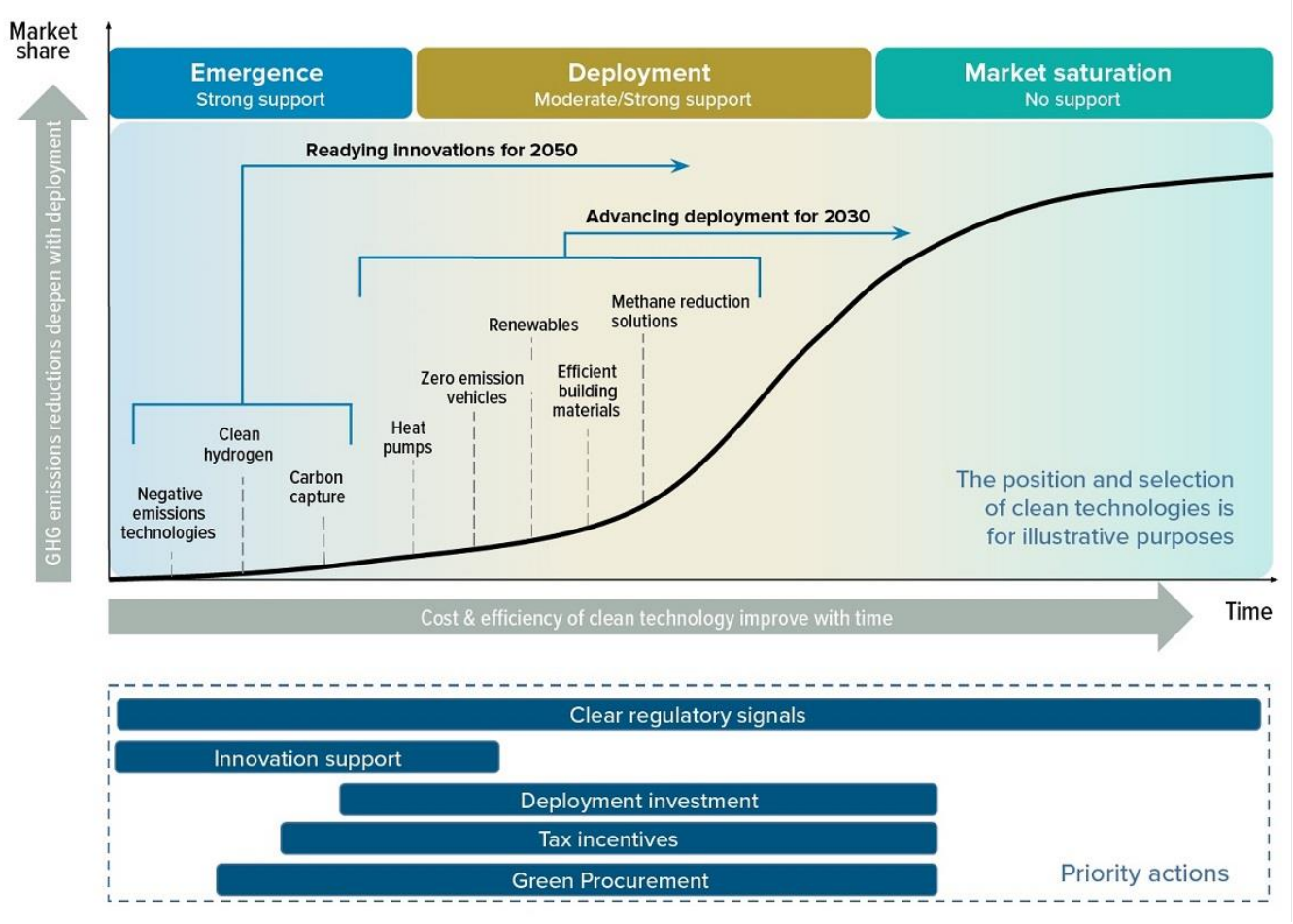
Canada's clean technology industry continues to be a driver for economic activity, contributing $34 billion to its GDP and more than 188,000 jobs to the economy in 2021.[13] This opportunity for clean growth extends across every part of the country and all sectors of the economy, from emerging high-tech industries to longstanding sectors like energy and renewables, resource development and manufacturing. Over 2,400 identified clean technology companies are actively innovating across Canada, with concentrations in Ontario, British Columbia, Québec, and Alberta. Canada continues to rank high for providing clean technology solutions to the world, with 12 Canadian companies named to this year's Global Cleantech 100 list, more than any other country after the United States.[14]

There are numerous challenges that impact the pace and scale of clean technology adoption and innovation. Clean technologies can be more expensive, incurring higher capital costs than their equivalent emissions-intensive options, which means a mix of incentives, carbon pricing, and/or regulations are needed to encourage sufficient private sector investment and public uptake. Given the relatively early stage of the transition in most sectors, clean technologies are also confronted by uneven supply chains and enabling infrastructure; these require time to build out before widespread adoption and cost reductions can take hold. Moreover, there tends to be a general lack of awareness among stakeholders about clean technology solutions or the necessity of shifting towards them.

The Government of Canada has made significant investments since 2016 to overcome these challenges and accelerate clean technology deployment and development, with investments of over $120 billion in clean growth and other emissions reduction measures. Prominent federal measures, such as the Canada Growth Fund, the Strategic Innovation Fund – Net Zero Accelerator, the Energy Innovation Program and the Low Carbon Economy Fund, are propelling clean technology research, development and demonstration (RD&D) in emerging innovations and de-risking investment in clean technology deployment to guide decarbonization across industries. Underlying regulations and investment tax credits are also providing clear signals across the innovation continuum. Beyond this, the Government continues to undertake numerous enabling actions to encourage clean technology development and adoption, including the activities of the Clean Growth Hub, Clean Technology Data Strategy, and Clean Technology and Climate Innovation Strategy.

The support to date from the Government of Canada, provinces and the private sector is supporting the development of critical technologies, but not to the point of market saturation where supports are no longer needed. The Government of Canada estimates that between $125 to $140 billion in annual private and public investment across all levels of government is needed to reach net zero by 2050, but currently, only $15 to $25 billion is being invested each year. Given the fiscal support already provided by the Government of Canada, it is increasingly important for business, investment, and financial sector leaders to respond to the strong market signals that have been put in place.

Figure 2-8 Accelerating clean technology development and adoption in Canada



In the spotlight: Canada Cleantech Alliance

Canada Cleantech Alliance is a Canadian coalition of 22 cleantech industry associations and accelerators representing over 2,000 cleantech manufacturers, innovators, investors, industry adopters and researchers across the country. They work towards making Canada the best place on earth to invest in clean technology, while opening up new opportunities for Canada's cleantech innovators. They are doing this by, among other things, sharing knowledge, making policy recommendations, trying to reduce barriers to innovation and cleantech adoption, and connecting cleantech ventures with buyers and investors. In 2022, they launched the Accelerating Cleantech Innovation in Oil & Gas program, in collaboration with the Clean Resource Innovation Network, to de-risk investments in clean technology for oil and gas companies, and ultimately help reduce the oil and gas sector's emissions and footprint from source to end use.

2.5.2 Sustainable finance

Promoting low-carbon investments from the private sector to accelerate the transition to a green economy remains a priority in Canada. To this end, the federal government, in collaboration with federal and provincial financial regulators and financial experts, has been supporting the development of the market infrastructure needed to mobilize low-carbon investments in Canada. This includes

climate-related financial disclosure to ensure risk is transparent to investors, taxonomy and net-zero capital allocation strategies to guide green and transition investments, and Federal Green Bonds to help finance the transition to net zero.

Climate-related financial disclosure is a critical element of sustainable finance that has seen progress since the release of the 2030 ERP. In March 2023, the Office of the Superintendent of Financial Institutions (OSFI) published their Guideline on Climate Risk Management, which establishes OSFI's expectations related to the federally regulated financial institutions' management of climate-related risks, including on governance and financial disclosures. This guideline is expected to be effective starting in 2024, with a gradually phased-in approach.

The Sustainable Finance Action Council (SFAC), which includes a broad representation of Canadian banks, insurance companies and pension funds, provided recommendations to the federal government on advancing climate-related disclosures in Canada. To expand the coverage of mandatory climate disclosures, the 2023 Fall Economic Statement announced that the Department of Finance; Innovation, Science and Economic Development Canada; and Environment and Climate Change Canada will develop options for making climate disclosures mandatory for private companies.

The SFAC also provided recommendations to the federal government on a Canadian green and transition taxonomy via its Taxonomy Roadmap Report submitted in November 2022. Building on this Report, the 2023 Fall Economic Statement announced that the Department of Finance will work with Environment and Climate Change Canada and Natural Resource Canada to undertake next steps, in consultation with regulators, the financial sector, industry and independent experts, to develop a taxonomy that is aligned with reaching net zero by 2050. In the coming months, the SFAC will provide additional advice to the federal government on strategies for aligning private sector capital with net zero, as well as on climate data and analytics.

Federal Green Bonds continue to be a key initiative that aims to mobilize capital in support of Canada's climate and environmental objectives. Released in March 2022, Canada's Green Bond Framework identifies expenditures that are eligible for allocation to a green bond, including in: clean transportation; living natural resources and land use; energy efficiency; terrestrial and aquatic biodiversity; renewable energy; climate change adaptation; sustainable water and wastewater management; circular economy-adapted products, production, technologies, and processes; and, pollution prevention and control. The Government of Canada successfully issued its inaugural 7.5-year, $5 billion green bond in March 2022 with the intent to issue additional green bonds in the near future.

2.5.3 Sustainable jobs, skills, and communities

The Government of Canada is committed to delivering a net-zero future that is equitable, fair, and inclusive. A net-zero emissions economy represents significant opportunities for Canadians—to secure and create jobs, to grow industries, and to lead the world with the resources and technologies it will need for generations to come. With highly skilled and dedicated workers, abundant access to the natural resources and energy sources critical for a net-zero future, and a thriving clean technology industry, Canada is uniquely positioned to seize the moment.

On June 15, 2023, the Government of Canada introduced Bill C-50, the Canadian Sustainable Jobs Act, which aims to facilitate and promote economic growth, the creation of sustainable jobs in Canada as the world advances toward a net-zero future. The bill puts workers and communities at the centre of federal policy and decision-making by establishing a framework for accountability, a governance structure and engagement mechanisms to guide effective federal action.

Subject to Parliamentary consideration, this bill would:

- Introduce guiding principles to strengthen our collective work at the federal level to create an equitable and inclusive future by supporting the creation of sustainable jobs while addressing climate action and energy security;
- Introduce a tripartite-plus Sustainable Jobs Partnership Council, tasked with providing perspectives and recommendations to government and conducting ongoing engagement with Canadians, including workers and communities, to ensure that the diverse voices of Canadians are heard and their views contribute to Canada's sustainable jobs approach over time;
- Require the Government to publish Sustainable Job Action Plans every five years beginning in 2025 to ensure that the government will continue to play an active role in supporting workers and fostering the creation of sustainable jobs across the country in a way that is transparent and accountable to Canadians;
- Require the creation of a Sustainable Jobs Secretariat within the federal government to support the implementation of the proposed Act, support the Council and coordinate work across federal departments; and,
- Require the Governor in Council to designate a Responsible Minister with overall responsibility for the Act and fulfilment of its provisions, and to designate Specified Ministers whose portfolios require their substantive engagement and input on sustainable jobs measures and actions.

This legislation and interim Sustainable Jobs Plan are the product of a comprehensive consultation process that took place over 2021-22, engaging provinces and territories, Indigenous groups, workers, key labour and industry partners, stakeholders and the Canadian public. It also took into consideration the recommendations of the Task Force on Just Transition for Canadian Coal Power Workers and Communities, as well as a report by the Commissioner of Environment and Sustainable Development.

The Government also offers a broad suite of programming to support jobseekers and workers of all ages and from a variety of socio-economic backgrounds, as well as employers, unions and training providers. Many of these programs, created in consultation with stakeholders, are already helping to advance sustainable jobs. They include:

- The **Sectoral Workforce Solutions Program**, a program that helps key sectors of the economy implement solutions to address their current and emerging workforce needs, recent investments of $145.9 million in nine projects that will help build talent for the green economy. Overall, the nine projects are expected to support over 24,000 Canadians and benefit approximately 2,100 employers across Canada.
- The **Canadian Apprenticeship Strategy**, which provides funding to help pre-apprentices, apprentices, employers, unions, and other organizations and tradespeople participate in apprenticeships and succeed in skilled trades careers. This includes recent investments to develop green skills training for workers in the trades under the sustainable jobs initiative.
- The **Skills and Partnership Fund**, a project-based fund that supports partnerships between Indigenous partners and industry employers to provide skills training for Indigenous Peoples in priority sectors, which include industries that support more efficient use and alternative sources of energy and resources. Through this Fund, Indigenous people are being trained for current and emerging job opportunities in the green economy.
- The **Youth Employment and Skills Strategy,** a horizontal initiative led by Employment and Social Development Canada and delivered in collaboration with 11 other federal departments, agencies and Crown corporations. The YESS provides funding to organizations to deliver a range of activities that help youth overcome barriers to employment and develop a broad range of skills and

knowledge to participate in the current and future labour market. Some YESS programs such as Environment and Climate Change Canada's Science Horizons Youth Internship Program, Natural Resources Canada's Science and Technology Internship Program – Green Jobs, and Parks Canada's Young Canada Works Program, focus on connecting young Canadians with careers in the sustainable jobs sector.

- The **Foreign Credential Recognition Program**, to support the labour market integration of skilled newcomers by funding projects that will make credential recognition processes faster and more efficient, and providing loans (up to $30,000), support services, and employment supports to help skilled newcomers acquire Canadian work experience, including within the low-carbon sector.

The 2022 Fall Economic Statement announced funding for the creation of a Sustainable Jobs Training Fund, also an action area under the interim Sustainable Jobs Plan. This initiative will help workers develop skills for jobs in areas that are critical for a net-zero future. It will seek to help 15,000 workers across the country upgrade or gain new skills for jobs in the low-carbon economy.

In addition, the 2022 Fall Economic Statement announced funding for a new Sustainable Jobs stream in the Union Training and Innovation Program under the Canadian Apprenticeship Strategy. This stream will aim to support unions in leading the development of green skills training for workers in the trades. It is expected that an additional 20,000 apprentices and journeypersons could benefit from this investment.

In the spotlight: Indigenous Clean Energy

Indigenous Clean Energy (ICE) is a pan-Canadian not-for-profit platform that promotes Indigenous inclusion in Canada's energy future. ICE aims to promote Indigenous leadership and accelerate First Nations, Inuit, and Métis participation in clean energy projects. They achieve this by nurturing skill development, promoting Indigenous youth leadership, building connections with governments and energy stakeholders, and sharing knowledge. Over the years, they have implemented several notable programs, such as: the 20/20 Catalyst Program, that provides participants with tools and resources to become clean energy leaders; Generation Power and ImaGENation, designed to equip youth to pursue clean energy careers and to advance their own energy projects; Charge Up, an initiative to accelerate the implementation of electric vehicle (EV) charging stations in Indigenous communities across Canada; and, Bringing it Home, supporting Indigenous, community-scale energy efficiency projects. ICE also plays a pivotal role in the Indigenous Off-Diesel Initiative, a Government of Canada initiative that supports remote Indigenous communities in reducing diesel use for heat and power, by providing training and resources to Energy Champions and the participating communities. By leveraging its expertise and connections to help communities developing clean energy projects, ICE contributes to increasing the equity and self-determination of Indigenous Peoples.

In the spotlight: The Environmental Careers Organization of Canada (ECO Canada)

ECO Canada acts as the steward for the Canadian environmental workforce spanning all industries. Working in partnership with industry, academia and practitioners, their mission is to position Canada as a global leader in innovative workforce solutions and job creation. Through job creation, wage funding, training, and labour market research, they contribute to boost future career aspirations of youth and careers of environmental professionals. They also serve as a matchmaker between environmental employers and skilled junior talent and professionals. This expertise has been acknowledged by the Government of Canada, who has chosen ECO Canada as one of the organizations in charge of placing post-secondary graduates in internship positions in environmental science, technology, engineering, and mathematics (STEM) across Canada for 2023 to 2025, as part of the Science Horizons Youth Internship Program.

Chapter 3: Working together to achieve our climate objectives

Effective action to combat climate change requires concerted effort across society, by all orders of government, and working closely with civil society and the private sector. It is imperative that we work together if we are to make the changes needed to halt and reverse the worst effects of climate change and achieve lasting emissions reductions.

This chapter addresses the whole-of-society nature of the climate crisis, considering how action can take different forms, depending on varying roles, responsibilities and capacity. The importance of individual and collective action cannot be overstated; action is needed across all of society and by all orders of government. An overview of what others are doing to advance climate action in Canada is provided, including the actions being taken by each province and territory, continued collaboration with Indigenous partners, the advice being provided by the Net-Zero Advisory Body, and efforts underway with the international community.

3.1 Whole-of-society approach

Climate change is impacting every person in Canada, whether it is through storm activity, evacuations, smoke from wildfires, drought or the increased costs associated with a changing climate. Every government, every economic sector, every business, and indeed every individual has a role to play in taking action on climate change. What that action looks like can vary widely—for many, taking action on climate change must be aligned with the other competing priorities facing Canadians, such as affordability and the rising cost of living.

3.1.1 Federal government

The Government of Canada has a key role to play in driving climate action at home and abroad. For example, the federal government has direct responsibilities for interprovincial and international trade, conducts environmental assessments of major projects, and has authority over aspects of the nuclear generation sector, electricity exports, and designated international and interprovincial transmission lines. The federal government also enacts regulations to drive innovation, create job opportunities in the low-carbon economy, and help ensure a healthy environment. In addition to direct management and regulatory roles, the Government of Canada provides extensive funding support to provinces and territories, Indigenous partners, municipalities, the private sector and individual Canadians. A detailed overview of the actions being taken by the federal government are provided in Chapter 6.

3.1.2 Provincial and territorial governments

Provincial and territorial governments have an important role in climate action given the shared responsibilities between federal and provincial and territorial governments in areas of the economy and jobs, energy, and the environment. Provinces and territories hold responsibilities over many important sources of emissions. Provincial and territorial governments manage resource ownership, royalties, land-use planning, and allocations as well as exploration, development, conservation, and use of natural resources within their boundaries. Each province and territory is responsible for electricity generation, intra-provincial transmission, and distribution within their boundaries. Provinces and territories are also responsible for the adoption of building codes and have authority over municipal government affairs. An overview of the actions being taken by each province and territory on climate change is provided in Chapter 7.

GHG targets across Canada

British Columbia: Legislated targets under *Climate Change Accountability Act* (2018): 40% below 2007 levels by 2030; 60% below 2007 levels by 2040; 80% below 2007 levels by 2050; commitment to reach net zero by 2050 will be backed by legislation (forthcoming)

Alberta: Goal of net zero by 2050 under Emissions Reduction and Energy Development Plan (2023)

Saskatchewan: No overall GHG reduction target

Manitoba: Goal of cumulative reduction of 5.6 Mt CO_2 eq from 2023 to 2027 under Carbon Savings Account; commitment to develop a roadmap to net zero by 2050

Ontario: Committed to 30% below 2005 levels by 2030 in Made-in-Ontario Environment Plan (2018)

Québec: Legislated target of 37.5% below 1990 levels by 2030 as per amendments in 2020 to *Environment Quality Act*; commitment to net zero by 2050, reiterated in 2030 Plan for a Green Economy (2020)

New Brunswick: Legislated targets under *Climate Change Act* (2018) of less than 10.7 Mt CO_2 eq by 2030 and 5 Mt CO_2 eq by 2050; net zero by 2050 in 2022 Climate Change Action Plan

Nova Scotia: Legislated targets under *Environmental Goals and Climate Change Reduction Act* (2021): 53% below 2005 levels by 2030; net-zero emissions by 2050

Prince Edward Island: Legislated targets under *Net-zero Carbon Act* (2020): less than 1.2 Mt CO_2 eq by 2030; net zero by 2040

Newfoundland and Labrador: Committed to 30% below 2005 levels by 2030 in 2019 Climate Change Action Plan; net zero by 2050

Yukon: Legislated targets under *Clean Energy Act* (2022): 45% below 2010 levels by 2030; net zero by 2050

Northwest Territories: Committed to 30% below 2005 levels by 2030 in 2018 Climate Change Strategic Framework

Nunavut: No overall GHG reduction target

3.1.3 Indigenous Peoples

Indigenous Peoples have noted that lived realities are inseparable from the effects of climate change and stress the urgency of protecting their territories, homelands, resources, languages, traditions and food systems for future generations. Canada has committed to advancing an Indigenous Climate Leadership (ICL) Agenda together with First Nations, Inuit, and Métis partners in recognition that Indigenous Peoples have long called for a renewed nation-to-nation, Inuit–Crown and Government-to-Government relationship, based on the recognition of rights, respect, cooperation, and partnership. An overview of the ICL initiative is provided later in Section 3.2.

3.1.4 Municipal governments

Municipal governments are essential partners in the fight against climate change. Municipalities have influence and control over roughly 50% of GHG emissions in Canada through their management of buildings, transportation, water, waste and land-use.[1] They have the ability to implement local

measures that reduce GHG emissions, including public transportation projects and zero-emission buses, energy retrofits, net-zero energy buildings, active transportation, and investing in natural infrastructure. Many municipalities have their own climate targets and sector-specific commitments to reduce energy use, decarbonize transportation, reduce waste, and change land-use practices.

In the spotlight: Retrofit loan programs

In addition to direct federal supports for residential energy efficiency upgrades (e.g., Canada Greener Homes Initiative), municipalities and financial institutions are actively supporting homeowners to improve the energy efficiency of their homes through retrofit loan programs. In 2021, the City of Ottawa launched a three-year pilot for a loan program for home energy efficiency retrofits, to support local residents to reduce energy consumption and greenhouse gas emissions. The program offers low-interest, 20-year loans of up to $125,000 to cover the cost of home energy improvements and climate adaptation. Eligible measures include thermal envelope upgrades, mechanical systems, renewable energy, EV chargers (Level 2), and the addition of rental suites. With low-interest, 20-year loans that are tied to the property, not the individual, the program makes it easier and more affordable for homeowners to pay for these home improvements over time. First launched in November 2021 with a total of $8 million in zero-interest loans and $4 million in low-interest loans, the City of Ottawa recapitalized the program in June 2022 by securing a $15 million loan agreement with VanCity Community Investment Bank.

In the spotlight: Municipal leadership

The Federation of Canadian Municipalities (FCM), the national voice of local governments in Canada, is taking transformative action, such as the Climate Action Accelerator to Net-Zero (CAANZero), funded by the Government of Canada and led by MaRS Discovery District, which will aid cohorts of municipalities to accelerate climate action through retrofit projects.

Municipalities across the country are taking action, including:

- The City of Medicine Hat, AB: with Project Clear Horizon is developing a CCUS hub aimed at reducing their own corporate emissions while being open to industry partners. Upon completion, the hub could permanently sequester up to 3 Mt CO_2 eq per year.
- The City of Laval, QC: in partnership with the Government of Québec, is investing $64.8 million to replace fossil fuels with renewables for 40 municipal buildings, increase the stock of car-sharing vehicles, build 140 public EV chargers, and plant 15,000 trees.
- The City of Fredericton, NB: publishes an Environmental Dashboard showcasing its accomplishments. In 2022, solar panels on city-owned buildings generated enough energy to offset 33.4 t CO_2 eq and the city has reduced emissions from municipal buildings by 500 tonnes since 2004.
- The City of Yellowknife, NT: has a Corporate and Community Energy Action Plan designed to target heating, energy, cost-effectiveness, and adaptability, and has committed to increase the share of renewable energy to 30% and to reduce community emissions by 30% below 2009 levels by 2025.
- The FCM Community Efficiency Financing initiative, delivered through the Green Municipal Fund, is a $300 million program that seeks to help municipalities deliver energy financing programs for low-rise residential properties to make homes more energy efficient and generate more renewable energy.

3.1.5 Private sector

The private sector includes businesses that directly produce emissions through industrial activity. The private sector also encompasses the investment decisions that are being made that directly impact the structure of the economy and will have an enormous impact on efforts to reduce emissions. Individual businesses, banks, institutional investors, venture capital firms and others make decisions on what to fund that directly influences the pace and scale of clean technology uptake by the private sector. A growing number of Canadian companies, including industrial sectors, are producing or adopting clean technologies to reduce emissions, drive growth, and remain competitive. These efforts often align with economic benefits, including ongoing cost savings, jobs, innovation, and improved competitiveness. Canadian businesses are also reducing emissions by using sustainable suppliers, switching company fleets to electric vehicles, and offering carbon credits to customers. Several Canadian businesses have already made net-zero pledges, including Maple Leaf Foods, Lululemon, Teck Resources, and more.

In their *Canada's Road to Net-Zero* report, RBC estimates that Canada will need to invest two trillion dollars over the next thirty years (approximately $60 billion per year, up from $15 billion per year currently) to achieve net-zero emissions. The private sector will be key to reaching the investment levels required to create low-carbon and climate-resilient communities.

In the spotlight: Canadian Alliance for Net-Zero Agri-food (CANZA)

CANZA was co-founded in 2023 by a diverse group of organizations who are committed to taking action and leveraging their extensive networks and value-chain partners to achieve a shared vision: a net-zero agri-food system for Canada. Founding partners include Nutrien, BCG, McCain, RBC, Loblaw and Maple Leaf. CANZA provides a platform for action-oriented research, thought leadership and collaboration, helping to harness the ingenuity, entrepreneurship, and resources of this complex but critical ecosystem. CANZA will coordinate and catalyze opportunities through a flexible and evolving platform of pilots, regional projects and scalable innovations. This ground-up innovation approach starts in partnership with farmers, by collaborating on solutions that meet their needs and making sure they have the support (financial or otherwise) they need to implement these solutions successfully. CANZA operates as an initiative of The Natural Step Canada, an independently incorporated charity since 1996.

In the spotlight: The Net-Zero Challenge

In August 2022, the Government of Canada launched the Net-Zero Challenge (NZC) to encourage businesses operating in Canada to develop and implement credible and effective plans to transition their facilities and operations to net-zero emissions by 2050. The NZC is open to all businesses operating in Canada. To date, over 140 companies have joined, spanning many sectors of the economy. Recent additions to the program include, for example, Pomerleau Inc., Aéroports de Montréal, Colliers Projects Leaders, Deloitte, WSP in Canada, and Canada Lands Company Limited. Participating companies are supported in their net-zero planning process through a variety of means, including technical guidance that draws on international and national guidance, protocols, and best practices. In joining, participating companies build public and investor confidence in their net-zero plans, have access to a community of practice of their peers, receive public recognition of their commitments, and benefit from simple reporting requirements. Net-Zero Challenge participants are spearheading Canada's clean industrial advantage and the path toward a sustainable future.

3.1.6 Civil society

Civil society organizations are instrumental in pushing for more ambitious climate action and holding governments and businesses accountable for their commitments. They serve as an important link between citizens, policymakers, and the private sector, helping to ensure governments take meaningful measures to combat climate change. Civil society organizations play a number of key roles including: raising awareness of climate issues; advocating for stronger climate laws, programs and policies; holding governments to account on their commitments; facilitating community-led events and initiatives; providing research, analysis, and recommendations on climate-related topics; and, participating in national and international climate forums, including climate negotiations.

In the spotlight: Canadian Climate Institute

The Canadian Climate Institute (CCI) is an independent climate change policy research organization producing analysis and evidence-based recommendations to help drive climate resilience and chart net-zero pathways towards the goal of long-term prosperity. The CCI produces policy and program scoping papers, reports on climate adaptation, clean economic growth, and climate mitigation, and case studies that highlight innovative solutions and Indigenous perspectives. Their 440 Megatonnes project tracks emissions reductions from policy measures.

3.2 Indigenous Climate Leadership

The Government of Canada recognizes that Indigenous Peoples' leadership is key to Canada achieving its climate objectives and is committed to working collaboratively with First Nations, Inuit, and Métis partners to advance distinctions-based, self-determined climate action. While GHG emissions originating from Indigenous communities—estimated at less than one megatonne per year—are modest, Indigenous Peoples' contributions to climate efforts far exceed the emissions directly attributed to their communities. The territorial stewardship of First Nations, Inuit, and Métis communities and lands, the exercise of constitutionally protected Aboriginal and Treaty Rights, and the participation in co-management regimes for natural resources and major infrastructure projects all position Indigenous Peoples as indispensable and influential contributors to climate policy and action. Further, Indigenous Knowledge Systems encompass many perspectives for understanding environmental complexity, and provide strategies to reduce, manage and adapt to environmental change in a place-based and holistic manner. In a changing climate, it is critical to prioritize Indigenous Knowledge and Science and to support self-determined climate action and initiatives.

During the development of the 2030 ERP, Indigenous Peoples, governments, and representative organizations were invited to provide submissions detailing their priorities and recommendations for Canada's climate ambition. In their submissions, Indigenous Peoples noted that the time to engage on the 2030 ERP was inadequate and highlighted the need for their early, meaningful and consistent involvement in federal climate policy and programming. They also noted the urgency of protecting their territories, homelands, resources, languages, traditions, worldviews, and food systems for future generations and that lived realities are inseparable from the effects of climate change. They emphasized that First Nations, Inuit, and Métis experience disproportionate effects of climate change, including intensified effects of wildfires and flooding, food insecurity, and health impacts. The legacies of colonization (including displacement from traditional territories) and a unique relationship with the land, waters, and ice are factors that compound the effects of climate change, leading to intensified negative cultural, social, and economic impacts for Indigenous Peoples that directly compromise their health and wellbeing. In recognition that Indigenous partners are essential contributors to climate policy

and action, and that the lived realities of First Nations, Inuit and Métis must be reflected in Canada's climate plans, submissions from the Assembly of First Nations, Inuit Tapiriit Kanatami and the Métis National Council were included as an annex to the 2030 ERP.

In order to strengthen Canada's partnership with Indigenous Peoples on climate, and in response to longstanding recommendations received from Indigenous partners, Canada committed to advancing work with First Nations, Inuit and Métis rightsholders, governments, and representative organizations to develop and implement a model of partnership that empowers self-determined climate action, implements the *United Nations Declaration on the Rights of Indigenous Peoples*, and enables Indigenous Knowledge and ways of knowing to be fully integrated in national climate policy.

To support this work, the 2030 ERP announced an investment of $29.6 million over three years, starting in 2022-23, to advance an ICL Agenda. In addition, the plan announced $180 million over seven years, starting in 2022-23, for a new Indigenous Leadership Fund under the Low Carbon Economy Fund, which supports clean energy and energy efficiency projects led by First Nations, Inuit and Métis communities and organizations. Progress on the Indigenous Leadership Fund can be found in the implementation update chapter of this report. Progress to date on the ICL initiative is detailed below.

3.2.1 The Indigenous Climate Leadership Agenda

Since time immemorial, the ability of Indigenous Peoples to adapt to and care for the land has been crucial in ensuring a flourishing way of life and rich, strong cultures. Faced with the current challenges of anthropogenic climate change, Indigenous Peoples in Canada and around the world are leaders and key drivers of climate action, at local, regional, national, and international levels. Indigenous Peoples in Canada are advancing responses to climate change in ways that reflect their Knowledge systems, legal systems, governance, values, worldviews, and nationhoods. Many Indigenous organizations, regions, and communities have developed climate change strategies and action plans to articulate their self-determined priorities. Indigenous Peoples have also called for Canada to respond meaningfully to their priorities in the climate space and to address challenges in current federal climate programming in order to make funding more accessible and equitable for First Nations, Inuit and Métis. Further, Indigenous Peoples have been calling for Canada to implement climate action that is consistent with the *Paris Agreement*, including urgent and transformative measures to slow climate change and address the impacts of a rapidly changing climate.

To support Indigenous Peoples' actions in response to their climate priorities and adaptation plans, the Government of Canada is committed to renewed nation-to-nation, Inuit–Crown and government-to-government relationships with First Nations, Inuit, and Métis, based on the recognition of rights, respect, cooperation, and partnership. Recognizing that Indigenous Knowledge systems and ways of doing must be a cornerstone of Canadian climate policy, Canada has committed to advance an ICL Agenda jointly with First Nations, Inuit, and Métis partners. The goal of the ICL Agenda is to implement a model of partnership for climate action between the federal government and Indigenous Peoples that empowers self-determined climate action; leverages the transition to a net-zero economy to support overarching efforts towards self-determination, the alleviation of socio-economic inequities, and the implementation of the *United Nations Declaration on the Rights of Indigenous Peoples*; and, supports the inclusion of Indigenous Knowledge in national climate policy through appropriate governance arrangements, the promotion of Indigenous perspectives on climate change, and the ethical and equitable consideration of both Indigenous and non-Indigenous knowledge systems and science.

Together, the federal government and Indigenous partners have made significant progress to develop a path forward for strengthening Canada's approach to investing in Indigenous climate action and engaging with Indigenous partners on climate. Prior to and following the release of the 2030 ERP, Canada has maintained strong partnerships with First Nations, Inuit, and Métis through three distinctions-based, Senior Bilateral Tables on Clean Growth and Climate Change. These tables, established to address challenges with the lack of meaningful engagement with Indigenous Peoples during the development of the *Pan-Canadian Framework on Clean Growth and Climate Change*, were announced by the Prime Minister and the national leaders of the Assembly of First Nations, Inuit Tapiriit Kanatami and the Métis National Council in 2016. More than six years later, the tables continue to be instrumental in fostering relationships between the federal government and Indigenous partners, sharing climate action that Indigenous Peoples are leading, and providing opportunities for cultural teachings and land-based learning. They are important spaces for identifying barriers, finding mutually beneficial solutions, and advancing joint climate priorities. Priorities established at these tables, as well as through First Nations, Inuit, and Métis national and regional climate change strategies, will continue to inform the ICL Agenda.

Following the release of the 2030 ERP, and building on longstanding joint priorities, Environment and Climate Change Canada and Crown–Indigenous Relations and Northern Affairs Canada launched national, regional, and community-level discussions with First Nations, Inuit, and Métis partners, with a shared objective of advancing the ICL Agenda as announced in the 2030 ERP. Recognizing that the federal government must hear directly from Indigenous partners on their vision for climate leadership, federal officials reached out to Indigenous partners in late 2022 to initiate early dialogue, which focused on laying the groundwork for a jointly developed process and setting the stage for Indigenous-led community-level engagement through to Fall 2024.

Since then, through this initiative, the Government of Canada has established partnerships with over 30 Indigenous governments and regional organizations across the country to support an inclusive process that recognizes the right to self-determination and reflects the diversity of First Nations, Inuit, and Métis realities and priorities. Canada is providing funding to many of these partners to advance unique engagement plans, each with different methods of collecting input from their citizens and communities, including targeted working groups, in-person and virtual meetings, public consultations in communities, and larger regional conferences. To date, over $20 million in contribution funding has been committed to support the efforts of these partners.

In parallel to these efforts, Environment and Climate Change Canada and Crown–Indigenous Relations and Northern Affairs Canada are working with all federal departments with responsibilities related to climate change in order to ensure programs are taking immediate action to implement best practices for meaningful engagement with Indigenous partners, and to increase Indigenous Peoples' access to federal programming through flexible and equitable program design and implementation. Further, federal efforts to advance the ICL Agenda include sharing the early results of engagement and discussing ways that the federal government can meaningfully respond to recommendations received from Indigenous partners. Three interdepartmental committees have been established to support this work, including an Assistant Deputy Minister committee to provide strategic advice to federal departments on how to implement the ICL Agenda.

As the ICL Agenda progresses, the Government of Canada will continue to work with First Nations, Inuit, and Métis rightsholders, governments, and representative organizations to advance commitments in the 2030 ERP, including creating distinctions-based agendas for climate action that establish next steps on issues such as:

- Land-based and rights-based approaches to climate change, including establishing a common approach for the implementation of the *United Nations Declaration on the Rights of Indigenous Peoples* in climate policy;
- Mechanisms to establish federal support for Indigenous-led climate strategies;
- Mobilization of Indigenous Knowledge systems in national climate initiatives; and,
- Options and pathways to transfer authorities and resources to Indigenous Peoples.

Ultimately, Canada's approach to implementing the ICL Agenda must recognize and uphold Indigenous rights and the right to self-determination. In July 2023, Canada reconfirmed this commitment in the *United Nations Declaration on the Rights of Indigenous Peoples Act* Action Plan, which includes the ICL Agenda as a key action. Measure 46 states that "Canada will partner with First Nations, Inuit, and Métis to advance an ICL Agenda, including distinctions-based strategies, that vests the resources and authorities necessary for Indigenous Peoples to fully exercise their right to self-determination on climate. This includes ensuring that First Nations, Inuit, and Métis peoples have stable, long-term financing to implement their climate actions, make climate-related decisions with the Government of Canada, and that systemic barriers to Indigenous climate leadership are addressed."

The First Nations – Canada Joint Committee on Climate Action (JCCA)

In June 2023, the Assembly of First Nations and the Government of Canada released the fifth Annual Report of the Joint Committee on Climate Action, which highlights the priorities of the committee for 2023, including a commitment to ensuring Canada's climate solutions build on First Nations Climate Leadership and promote its full inclusion in emerging climate actions. In July 2023, the Assembly of First Nations ratified their *National Climate Strategy*, which sets direction for First Nations-led climate priorities and will inform both work at the JCCA and the development of the First Nations stream of the ICL Agenda.

The Inuit – Canada Table on Clean Growth and Climate Change

In January 2023, the Inuit–Canada Table met in Ottawa and reaffirmed its focus on implementation of the *Inuit Nunangat Policy*, the *National Inuit Climate Change Strategy*, and regional strategies as they are launched, such as the *Inuvialuit Settlement Region Climate Change Strategy*. Inuit and federal representatives also committed to continued work to improve federal programming to foster holistic approaches to climate action in Inuit Nunangat and support Inuit Climate Leadership to advance the Inuit stream of the ICL Agenda.

Métis Nation – Canada Goose Moon Table on Clean Growth and Climate Change

In March 2023, the Goose Moon Table met in Métis Crossing, Alberta with a focus on finding new ways to meaningfully build relationships, highlight critical climate actions being taken, and integrate Métis Climate Leadership into climate policy and programming, particularly in sectors such as climate adaptation and emergency management, where they continue to be ineligible to access Indigenous-targeted federal programs. The Métis National Council, Les Femmes Michif Otipemisiwak, and Métis Nation's Governing Members are working on the first Métis Nation's National Climate Change Strategy, which, when it is launched in 2024, will inform priority work for the Goose Moon Table, as well as highlight top climate priorities and recommendations to further support the Métis stream of the ICL Agenda.

3.2.2 Next steps

Environment and Climate Change Canada and Crown–Indigenous Relations and Northern Affairs Canada will continue to work with First Nations, Inuit, and Métis rightsholders, governments, and representative organizations, as well as senior leaders across the federal government, to develop a

roadmap for strengthening Canada's partnership with Indigenous Peoples on climate. Increasing collaboration with Indigenous partners through a distinctions-based approach will ensure that the unique priorities and knowledge of First Nations, Inuit, and Métis underpin national climate efforts, provide a foundation for regional and community-led climate action, and are meaningfully reflected in Canada's climate plans.

3.3 Net-Zero Advisory Body

The Net-Zero Advisory Body (NZAB) was launched in February 2021 and formally established as a Governor in Council-appointed body through the CNZEAA in June 2021. Comprised of up to 15 experts from across Canada, the NZAB's role is to provide independent advice on how Canada can achieve net-zero emissions by 2050.

Since its launch in 2021, the NZAB has provided their advice through several publications including *Net-Zero Pathways: Initial Observations*, its submission to the Government of Canada's 2030 ERP, and annual report, as well as other engagements.

3.3.1 Advice for Canada's 2030 Emissions Reduction Plan

The NZAB's official submission to Canada's 2030 ERP built on their five foundational values and five design principles and marked the first year of NZAB's work. The submission provided advice on four lines of inquiry: buildings, transportation, oil and gas, and governance. The three lines of inquiry that align with specific economic sectors were chosen as they are the highest-emitting sectors in Canada. Governance was chosen as a fourth line of inquiry based on the importance of institutional capacity and internal and external relationships for delivering emissions reductions.

3.3.2 Recent activities

Since the publication of the 2030 ERP, the NZAB has continued to advance their important work through a number of activities. This has included hosting and participating in domestic and international engagement opportunities such as stakeholder roundtables to inform its 2022 annual report, discussions on implementing the NZAB's values and principles to achieve net zero by 2050, and a panel on the role of independent climate councils for climate governance and accountability, at an event organized by the International Climate Councils Network at COP27.

The NZAB also worked in partnership with the Canadian Climate Institute to organize several public conferences. In October 2022, they co-hosted 2030 in Focus: Getting the Next Decade Right on Net-Zero and in November 2023, they co-hosted Building Momentum Towards Net Zero. Discussions focused on the progress toward net zero, from a national and an international perspective. The conferences featured keynote speakers, moderated panels, and fireside conversations with national and international climate change policy experts, as well as political, business, and Indigenous leaders.

The NZAB also completed its first annual report, *Compete and Succeed in a Net-Zero Future*. The report was submitted to the Minister of Environment and Climate Change in December 2022. As per the requirements of the CNZEAA, intended to ensure transparency and accountability, the NZAB report was published on January 27, 2023, and the Minister of Environment and Climate Change publicly responded on April 19, 2023.

In the report, the NZAB provided 25 pieces of advice across three lines of inquiry: Net-Zero Governance, Net-Zero Industrial Policy, and Net-Zero Energy systems. The selection of these lines of

inquiry was guided by extensive engagement activities, review of literature, discussions with lay and expert Canadians, and early discussions with Indigenous experts and organizations.

Net-zero governance

The NZAB highlighted the need for the federal government to work with partners to implement strong governance structures and taking on a leadership role. It also highlighted the importance of, and recommendations for, best practices in monitoring progress. The advice also provided a number of recommendations for supporting effective net-zero modeling. The Minister's response to these recommendations noted a commitment to playing a leadership role in the transition to net-zero emissions; working to continuously improve its monitoring and reporting on GHG emissions; and to improving its GHG modelling.

Net-zero industrial policy

The NZAB provided guidance on setting priorities for net-zero industrial policy, and ensuring Canada draws upon its unique advantages to remain competitive in a low-carbon economy. Its report also provided advice on implementing industrial policy to help Canada secure a foothold in emerging clean technology supply and value chains. The report highlighted the importance of creating an enabling environment for net-zero industry. The NZAB also noted that a net-zero industrial policy will complement the ERP. The Minister agreed with the importance of net-zero industrial policy in securing Canada's transition to a net-zero future. He noted continued engagement with the NZAB on how to improve net-zero industrial policy engagement and committed to exploring mechanisms to improve the efficiency of the impact assessment and permitting process.

Net-zero energy systems

The NZAB highlighted the importance of net-zero energy systems in continuing to provide reliable and affordable energy to Canadians, while transitioning to a net-zero economy. It also provided advice on how to support grid decarbonization and electricity interties, through for example the Pan-Canadian Grid Council (launched as the Canada Electricity Advisory Council in May 2023). Finally, this line of inquiry provided guidance on how to create a more streamlined regulatory environment in order to facilitate timely deployment of non-emitting electricity. The Minister acknowledged the importance of a net-zero energy vision that reflects the principles outlined by the NZAB, as well as recognized ongoing efforts to work with partners to improve regulatory processes and achieve a net-zero grid.

3.3.3 Looking ahead

At the request of the Minister of Environment and Climate Change, the NZAB is developing advice on achieving Canada's 2030 emission reduction goal. This advice will encourage action that can yield additional incremental emissions reductions while considering environmental, economic, social, and technological factors and the best available scientific information and knowledge, including Indigenous knowledge, respecting climate change. Grounded in Canada's unique realities, this 2030 advice will consider the implementation risk facing many existing climate policies and if existing policies need to be strengthened or approaches altered to realize intended 2030 emissions reductions. This advice will be shared directly with the Minister of Environment and Climate Change and will be publicly available in the NZAB's 2023 Annual Report.

The NZAB's 2030 advice will be informed by insights gained from its ongoing engagement with Canadians, expert stakeholders, and Indigenous organizations, as well as NZAB's foundational values and design principles to ensure alignment with the most likely pathways for Canada to achieve net zero by 2050.

Beyond providing its 2030 advice, the NZAB is developing advice emerging from its three lines of inquiry: net-zero energy systems, net-zero governance, and net-zero industrial policy, as well as developing recommendations to inform a 2035 emission reduction target. The NZAB will continue knowledge-building and learning about Indigenous climate priorities across all lines of inquiry.

3.4 International leadership

Building on Canada's long history of stepping up to tackle global challenges, Canada has been active through the G7, G20, United Nations, and other international fora and bilateral relationships to push for increased global ambition and concrete actions to address climate change. To ensure implementation of the Paris Agreement, Canada is taking action at home and working with partners around the world to promote and facilitate global climate action everywhere. Canada is committed to supporting mitigation and climate action by developing countries.

3.4.1 International commitments and collaboration

Under the UNFCCC, Canada is committed to working with the international community to meet the objectives of the Paris Agreement and to scale up climate finance to support developing countries in their climate mitigation efforts, as well as to foster resilience among those most at-risk from the effects of climate change.

The 2015 Paris Agreement is a legally binding international treaty adopted by Parties to the UNFCCC. The Agreement aims to keep the global average temperature to well below 2.0°C above pre-industrial levels and make efforts to limit temperature increase to 1.5°C. The Agreement also seeks to enhance the ability to adapt to climate change, and make global finance flows consistent with low greenhouse gas emissions and climate-resilient development.

International Climate Finance

In 2021, Canada doubled its international climate finance commitment to $5.3 billion over five years. This commitment helps developing countries address the interconnected crises of climate change and biodiversity loss and supports their transitions to sustainable, low-carbon, climate-resilient development.

Canada is actively working to meet its targets of allocating at least 20% of funding from its $5.3 billion commitment to projects that leverage nature-based climate solutions with biodiversity co-benefits, 80% of funding to projects that incorporate gender equality considerations, and 40% of funding for climate adaptation projects to help developing countries build resilience to climate change impacts.

In addition, Canada is working to mobilize private sector capital to address climate change and support climate-resilient development. As part of its $5.3 billion climate finance commitment, Canada is aiming to increase its cumulative provision of private finance mobilized each year, reaching an overall target of $0.75 of private sector capital for every $1.00 of public funds invested.

Canada continues to work with Germany, since 2021, to demonstrate collective progress on the goal to mobilize US$100 billion per year in climate finance for developing countries, publishing the Climate Finance Delivery Plan in 2021 and its Progress Report in 2022. Ahead of COP28, Canada and Germany released an open letter referencing recently published figures from the Organisation for Economic Co-operation and Development (OECD) regarding the delivery of the US$100 billion goal. The OECD has stated that it is likely the goal has already met as of 2022.

3.4.2 Update on actions in international forums

Canada's work to support ambitious mitigation globally includes leadership of complementary initiatives and efforts, such as the Powering Past Coal Alliance, the Prime Minister's Global Carbon Pricing Challenge, the Global Methane Pledge, and through the delivery of climate finance via the Climate Investment Funds and in the replenishment of the Green Climate Fund. Canada's active participation in such initiatives and multilateral efforts and partnerships contributes to building consensus and finding solutions with other countries and partners on a range of issues.

United Nations Framework Convention on Climate Change Conference of the Parties

The United Nations Conference of the Parties (COP) takes place annually. It functions as both the UNFCCC's supreme decision-making body as well as a broader UN climate change conference bringing together more than 50,000 participants to advance global discussions and solutions for climate change.

At the 27th United Nations Climate Change Conference (COP27) in November 2022, Canada and other countries agreed to accelerate efforts toward phasing out inefficient fossil fuel subsidies and the phase-down of unabated coal power which are the single largest sources of CO_2 emissions. Canada also continued to advocate for clean energy and called for more widespread adoption of carbon pricing globally. Following Prime Minister Justin Trudeau's challenge to triple the global coverage of carbon pricing to 60% by 2030 at COP26, Canada and Chile officially launched the Global Carbon Pricing Challenge at COP27. Since then, the Republic of Korea, New Zealand, the United Kingdom, Norway, Denmark, and Germany have joined the Challenge as partners, and Côte d'Ivoire has joined as a Friend of the Challenge. Canada also worked with other Parties to examine solutions, including the creation of new financial instruments, to help vulnerable developing countries respond to loss and damage. Canada is actively involved in developing these solutions.

Canada is participating in COP28, held from November 30 to December 12, 2023, under the United Arab Emirates' (UAE) Presidency. The UAE's vision for COP28 focused on four paradigm shifts seeking to: (i) fast-track the energy transition and slashing emissions before 2030; (ii) transform climate finance; (iii) put nature, people, lives and livelihoods at the heart of climate action; and, (iv) mobilize the most inclusive COP. Of particular importance, Parties are reviewing the findings of the first Global Stocktake (GST) of the Paris Agreement, which aims to assess global progress in achieving the Paris Agreement's objectives. The outcome of the GST, negotiated at COP28, will set the direction for future climate actions needed by all countries to limit temperature increases and respond to the impacts of a warming planet.

North American Leaders Summit

In January 2023, Canada, the United States and Mexico held the North American Leaders Summit, where all three parties agreed on some commitments and approaches to increase climate ambition in the region. The most notable clean growth pledges include: reducing methane emissions by 15% below 2020 levels in the solid waste and wastewater sectors by 2030; committing to develop a North American clean hydrogen market to support the transition from fossil fuels; and, agreeing to ensure that regional supply chains are promised for semiconductors and electric vehicle batteries, to be achieved through public-private dialogues. Other commitments include advancing cooperation and alignment on SC-GHG approaches and continuing cooperation on nature-based solutions and conservation.

G7 Ministers' Meeting on Climate, Energy, and Environment

The Group of Seven (G7) is made of the world's leading economies, specifically: Canada, the United States, the United Kingdom, France, Italy, Germany, Japan, and the European Union. The G7 has

indicated its collective commitment to mitigating climate change. Canada will be the G7 President in 2025.

In 2022, G7 leaders jointly endorsed the goals of an international Climate Club to accelerate the implementation of the Paris Agreement and committed to achieving a highly decarbonised road sector by 2030, and a fully or predominantly decarbonised power sector by 2035.

In 2023, Canada and other G7 countries called for increased climate ambition through the implementation of high integrity carbon markets and initiatives like the Global Carbon Pricing Challenge, accelerating the phase-out of unabated coal power, reducing methane emissions, and using nature-based solutions. The 2023 G7 Ministers' Meeting on Climate, Energy, and Environment took place in Sapporo, Japan from April 15 to 16. The Ministers worked to support increased ambition on climate action, nature conservation, clean and efficient energy, and pollution reduction, while also advancing global energy security and seizing economic opportunities for Canadian businesses, workers, communities, and Indigenous Peoples. This was followed by the G7 Leaders' Summit in Hiroshima on May 19 to 21, where G7 Leaders also agreed to a number of outcomes on climate change and environment issues. Key Ministerial and Leader-level outcomes included:

- calling on all countries to enhance their climate ambition, including by committing to peak global emissions by 2025 and enhancing their mitigation targets by COP30 in 2025 to align with a goal of keeping a limit of 1.5°C within reach;
- agreeing to accelerate the phase-out of unabated fossil fuels so as to achieve net zero in energy systems by 2050 at the latest;
- reiterating their commitment to achieving a fully or predominantly decarbonized power sector by 2035, and prioritizing concrete and timely steps towards the goal of accelerating the phase-out of domestic unabated coal power generation, and working towards ending the construction of new unabated coal fired power generation;
- reaffirming their commitment to the elimination of inefficient fossil fuel subsidies by 2025 or sooner;
- agreeing to increase offshore wind and solar capacity, and recognizing the role of low-carbon and renewable hydrogen and its derivatives, such as ammonia;
- reaffirming their commitments to the goal of jointly mobilizing US$100 billion annually in climate finance by 2020 and through to 2025, and to fully meet this goal in 2023, and reaffirming the important role of multilateral development banks (MDBs), the private sector, and others in mobilizing increased climate finance;
- expressing their commitment to the swift and full implementation of the Kunming-Montreal Global Biodiversity Framework (KMGBF) adopted at the Convention Biological Diversity (CBD) COP15 in Montréal in December 2022; and
- committing to end plastic pollution, with the ambition to reduce additional plastic pollution to zero by 2040, and to work together toward an ambitious new international legally binding agreement on plastic pollution.

G7 Ministers of Agriculture

Recognizing that agriculture can make a vital contribution to mitigating the impacts of climate change, G7 ministers of agriculture met in 2022. They committed to greater use of policies to promote sustainable production, including enhanced mitigation efforts and steps to adapt agricultural production to climate change. Ministers further committed to scaling up efforts to achieve net-zero GHG emissions

as soon as possible, and by 2050 at the latest. A related priority was the responsible use of fertilizers while also reducing nutrient losses and halting and reversing biodiversity loss.

G7 ministers of agriculture also recognized that activities for enhanced carbon sequestration support transformation to sustainable food systems and improve climate stewardship and food security.

Ministerial Meeting on Climate Action

Ministerial meetings on climate action are co-hosted annually by Canada, China, and the European Union. They bring together key partners to advance the goals of the Paris Agreement. These meetings also provide a forum to discuss economic opportunities with global business leaders. In July 2023, participating ministers shared expectations for COP28, including the need to keep global warming to 1.5°C within reach and to work together to support people and communities experiencing severe impacts of the climate crisis. Ahead of this meeting, Canada announced its contribution to the second replenishment of the Green Climate Fund, a 50% increase when compared to its previous contribution. Canada called for new and enhanced actions to reduce emissions, its commitment to an inclusive approach to addressing climate change, the importance of responding to loss and damage experienced by developing countries at COP28, as well as its commitment to make climate and biodiversity action mutually reinforcing following the historic adoption of the Kunming-Montréal Global Biodiversity Framework during the Convention on Biological Diversity (COP15) in December 2022.

Meeting of the G20

The Group of Twenty (G20) is the primary forum for international economic cooperation among the world's leading developed and emerging economies. During the 2023 G20 meetings in India, Canada worked with its partners to push for G20 commitments that would accelerate ambitions to keep a 1.5°C temperature rise within reach, halt and reverse biodiversity loss by 2030, and end plastic pollution. At their meeting in New Delhi on September 9 and 10, G20 Leaders agreed to outcomes that: noted the requirement to peak global emissions by 2025 in order to limit global warming to 1.5°C; encouraged all countries to develop emissions reduction plans that include economy-wide targets covering all greenhouse gas emissions; and reiterated previous G20 commitments to phase-out and rationalise inefficient fossil fuel subsidies and accelerate efforts towards the phasedown of unabated coal power. G20 Leaders also committed to the swift, full and effective implementation of the KMGBF, encouraging actions to halt and reverse biodiversity loss by 2030, and calling for enhanced financial resources from all sources to support this effort; and stated their determination to end plastic pollution, welcoming the negotiations towards a new, legally-binding global instrument on plastic pollution.

Major Economies Forum on Energy and Climate

The Major Economies Forum on Energy and Climate (MEF) seeks to accelerate collective efforts to keep a 1.5°C limit on warming within reach. On April 20, 2023, U.S. President Biden convened the latest leaders-level MEF, involving Prime Minister Trudeau and the leaders of 19 other major economies. Leaders expressed support for initiatives in five priority areas: (1) decarbonizing energy; (2) ending deforestation; (3) reducing non-CO_2 emissions; (4) advancing carbon management technologies; and, (5) scaling up climate finance from multilateral development banks (MDB).

Canada supported the collective goal of over 50% of light duty vehicles (LDV) and at least 30% of medium- and heavy-duty vehicles (MHDVs) sold by 2030 to be ZEVs. Canada endorsed the decarbonizing international shipping initiative to support the adoption of 1.5°C-aligned goals for the shipping sector in the International Maritime Organization (IMO), including a goal of zero emissions from international shipping no later than 2050. Canada joined partners in launching the Methane Finance Sprint, which aimed to raise by COP28, at least $200 million in new public and philanthropic

support for methane abatement activities, with a view to developing a pipeline of projects. Canada also endorsed an initiative to encourage major economies to ratify the Kigali Agreement and support a strong replenishment of the Montreal Protocol Multilateral Fund to incentivize early action on HFCs. Canada expressed full support and in July 2023 became a co-sponsor of the Carbon Management Challenge, with the aim for countries to come forward by COP28 with concrete announcements and goals that will accelerate carbon capture, removal, use, and storage technologies.

Organization for Economic Co-operation and Development

On November 3 and 4, 2022, Ministers of agriculture from around the world and representatives from international organizations met in Paris for the OECD Meeting of Agriculture Ministers. The Meeting was co-chaired by Canada and New Zealand. As an outcome of this Meeting, all parties agreed on commitments and approaches to increase climate change mitigation efforts by reducing emissions from agriculture and food systems and effectively increasing carbon sequestration. This would contribute to the goal of achieving economy-wide net-zero GHG emission by 2050, actions and innovative policies building on existing Nationally Determined Contributions of the Paris Agreement.

These commitments include the development and implementation of policies to facilitate adaptation to climate change; investments in research, innovation and extension services that can facilitate sustainable productivity growth and offer climate change mitigation and adaptation solutions; as well as various commitments related to other, related agri-environmental priorities and benefits.

Other international-level priorities

In addition to the priorities outlined above, Canada continues to support a wide-range of international-level efforts[ii] to reduce GHG emissions and protect ecosystems and the environment, including the:

- Climate and Clean Air Coalition;
- Global Methane Initiative;
- Arctic Council Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions;
- Kigali Amendment to the Montreal Protocol;
- Ongoing negotiations to develop a new international instrument on plastic pollution, including in the marine environment through the established Intergovernmental Negotiating Committee (INC);
- Mission Innovation;
- Clean Energy Ministerial;
- Forest and Climate Leaders Partnership;
- Deforestation and sustainable land use commitments;
- Global Alliance on Circular Economy and Resource Efficiency (GACERE) and other initiatives to advance the circular economy;
- Global Research Alliance on agricultural greenhouse gases;
- The China Council For International Cooperation and Development
- The Canada – EU Green Alliance
- Roadmap for a Renewed United States-Canada Partnership and the High-Level Ministerial Dialogue on Climate Ambition; and,

[ii] A Compendium of Canada's engagement in international environmental agreements and instruments is available on the Government of Canada's website.

- The Statement on International Public Support for Clean Energy Transition (the Glasgow Statement)

3.4.3 Pursuing progress

Canada will continue to advocate for increasing global ambition and climate action from all countries to keep 1.5˚C of warming by the end of the century within reach. Canada will deliver on its international climate finance commitments, work to continuously increase the effectiveness of investments and to mobilize private resources to meet the global financing goals. At the same time, the Government of Canada is committed to supporting and enabling Indigenous climate leadership, promoting gender equality and mainstreaming gender-based analysis, and supporting developing countries with a focus on the most vulnerable and marginalized. The 2030 ERP committed to exploring additional opportunities to work with international partners and advance leadership. Efforts have been made since the release of the 2030 ERP to advance each of these opportunities.

Encouraging the use of carbon pollution pricing around the world

Canada has continued to champion the Global Carbon Pricing Challenge (GCPC) in major international forums, including at COP27, the G7 Summit, and the UN General Assembly Climate Ambition Summit. At COP27 in November 2022, Canada hosted a high-level discussion to advance carbon pricing with representatives from Chile, New Zealand, Sweden, and the UK. In September 2023, Canada's Prime Minister and Minister of the Environment and Climate Change hosted the GCPC event "Driving Global Climate Ambition", featuring political representatives and high-level officials from Côte d'Ivoire, Denmark, the European Union, the Republic of Korea, New Zealand, Norway, the United Kingdom, and Vietnam, as well as the Managing Director of the International Monetary Fund, the Special Adviser on Climate to the United Nations Secretary General, and the Executive Director of the International Energy Agency. As of September 2023, the GCPC network includes Canada, Chile, Côte d'Ivoire, Denmark, Germany, the Republic of Korea, New Zealand, Norway, and the UK. The EU has signaled its intention to join. Through the GCPC Advisory Committee and Technical Working Group, work is under way to facilitate country-to-country partnerships to support and expand carbon pricing coverage.

Global phase-out of unabated coal-power electricity and thermal coal mining

In November 2022, at COP27, Minister Guilbeault announced the release of "Powering Past Coal," the first global review of the state of coal phase-out. The report's release marked five years of progress by the Powering Past Coal Alliance (PPCA), a global alliance of governments, businesses and industry organizations co-led by Canada and the United Kingdom. The report shows that the PPCA membership has grown to more than 165 members, including national governments, sub-national governments, businesses, and finance institutions. The report shows that the end of unabated coal power is underway and is making progress. Furthermore, the report shows that the PPCA has helped ensure that over 75% of coal power in Organisation for Economic Co-operation and Development member countries has retired or is scheduled to close by 2030.

Addressing plastic pollution

In June 2023, Canada announced that it is planning to welcome the world to Ottawa in April 2024 for the fourth session of the Intergovernmental Negotiating Committee (INC-4) on a global treaty to end plastic pollution. Canada will continue to work with other leading countries to establish a new international legally binding agreement on plastic pollution that addresses the full lifecycle of plastics, to respond to the need for a coordinated approach with targeted, ambitious, and sustained action to address plastic pollution globally.

International Carbon Offsets

Following Canada's strong advocacy at COP26 for robust international rules for internationally transferred mitigation outcomes (ITMOs) to ensure environmental integrity, transparency and the avoidance of double-counting offset credits, efforts are ongoing to explore the development of federal policy on ITMOs. Negotiations of rules for the implementation of ITMOs took place at COP27 and continued to progress at COP28 in November and December 2023.

Chapter 4: Next steps

4.1 Upcoming milestones on the road to 2030 and 2050

This report, as the first progress report under the CNZEAA, represents an important milestone for the Government of Canada's commitment to ensure accountability and transparency in planning for and taking action against climate change. The report follows the first climate plan established under the Act, the 2030 ERP, that was released in March 2022. The Government of Canada is required to set progressively more ambitious GHG emissions targets for 2035, 2040, and 2045. These targets must be set by the Government no later than ten years in advance of the target date, and the 2035 target will be set no later than December 1, 2024. These future targets will take into account the best scientific information available, Canada's international commitments with respect to climate change, Indigenous Knowledge, advice from the Net-Zero Advisory Body, and input from key partners and Canadians. Emissions reduction plans must also be established for each target year at least five years in advance of the target date.

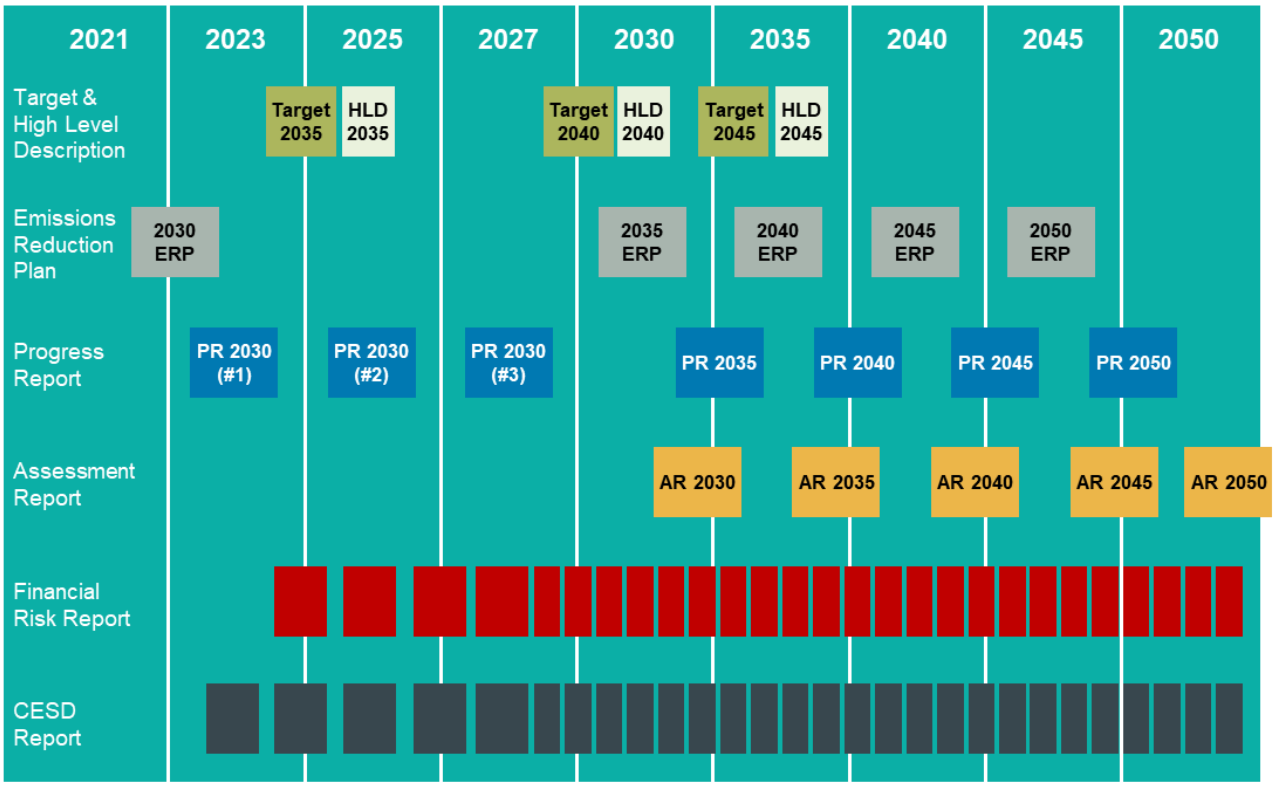
The next progress report on the implementation of the 2030 Emission Reduction Plan must be finalized by no later than the end of 2025. In accordance with the Act, the 2025 Progress Report must contain an assessment of the 2030 GHG emissions target, based on the most recent developments in science, technology and GHG emissions management, and must consider whether the target should be changed, based on those developments.

The Commissioner of the Environment and Sustainable Development (CESD) provides parliamentarians and Canadians with analysis and recommendations on the Government of Canada's efforts to protect the environment, mitigate the effects of climate change, and nurture sustainable development. The CESD is appointed by the Auditor General of Canada for a seven-year term. Under the Act, the CESD must, at least once every five years, examine and report on the Government of Canada's implementation of the measures aimed at mitigating climate change, while prescribing recommendations related to improving the effectiveness of measure implementation. The CESD released their first report under the Act on the 2030 ERP in November 2023.

Annual Financial Risk Report under the *Canadian Net-Zero Emissions Accountability Act*

On March 30, 2023, the Treasury Board approved the Order in Council that brings Section 23 of the Act into force. This section of the Act requires that the Minister of Finance, in cooperation with the Minister of Environment and Climate Change, prepare an annual report respecting key measures that the federal public administration has taken to manage its financial risks and opportunities related to climate change. The first annual report is planned to be released in 2024, to cover the 2023-24 fiscal year.

Figure 4-1: CNZEAA transparency and accountability cycle



Emissions Reduction Targets: enhanced Nationally Determined Contribution for milestone years. Subsequent targets must be set at least ten years in advance of milestone years (e.g., 2035 target must be set by December 1, 2024).

High Level Description (HLD): must be published within one year after a target is set. The content is similar to Canada's Nationally Determined Contribution submitted to the UNFCCC. The 2035 HLD is due within one year of setting the 2035 target, by no later than December 1, 2025.

Emissions Reduction Plans (ERP): The 2030 ERP was established in 2022. Future ERPs must be established at least five years before the beginning of the year to which it is about (e.g., 2035 ERP due by December 31, 2029).

Progress Reports (PR) – are intended to act as a midpoint check-in on the progress towards the related target and the implementation of the related ERP. The 2030 ERP will have three PRs associated with it (2023, 2025, and 2027). For milestone years after 2030, PRs must be prepared no later than two years before the beginning of the relevant year (e.g., 2035 PR due by December 31, 2032).

Assessment Reports (AR): must be completed within 30 days after Canada submits its National Inventory Report to determine if the target was met for the relevant milestone year.

Financial Risk Reports: The Minister of Finance must, in cooperation with the Minister of Environment and Climate Change, prepare an annual report on key measures that the federal public administration has taken to manage its financial risks and opportunities related to climate change. The first report is expected in 2024.

The **Commissioner of the Environment and Sustainable Development (CESD):** must, at least once every five years, examine and report on the implementation of the measures aimed at mitigating climate change with the first report due no later than December 31, 2024. The CESD released their first report on CNZEAA in November 2023, in which they committed to report annually.

There are many other upcoming reports that will provide additional information on climate change in Canada and the efforts being made to mitigate its impacts:

- **Canada's Changing Climate Report**: Originally released in 2019, this report assessed the state of knowledge on how and why Canada's climate has changed and what changes are projected for the future. It is national in scope and provides the Canadian context to the issue of global-scale climate change. The second installment of this report is anticipated in mid-2025.
- **The Net-Zero Advisory Body** will be releasing their annual report, with advice on reaching 2030 and 2050 targets.
- A **National Priorities for Climate Change Science and Knowledge** report is planned for publication in early 2024, which will summarize the most important scientific research and data needs that Canada's science community should undertake to help us better evaluate climate change and plan for its impacts.
- A number of non-governmental organizations, including think tanks, business groups, and environmental organizations are undertaking research and releasing reports, including the Canadian Climate Institute and the International Institute for Sustainable Development.

4.2 Conclusion

The Government of Canada remains steadfastly committed to meeting the 2030 emissions target, transitioning to a net-zero economy, and strengthening the fabric of Canadian society. This requires a wide range of regulations, programs, and initiatives which have been described in this report. Getting to this point has required the commitment of Indigenous Peoples, communities, provincial, territorial, and municipal governments, businesses, and individuals. At seven years away from 2030, Canada's projected 2030 emissions are at 36% below 2005 levels. To meet Canada's target of 40% to 45% below 2005 levels, additional emissions reductions are needed. There is more work to do.

This report outlines the more than 140 measures currently in place or in development that reduce emissions as well as the enabling measures that help support the shift to a net-zero future.

The Government of Canada recognizes the importance of finalizing policies under development and fully implementing announced policies. The Government will continue to implement measures under the 2030 ERP, including releasing the Canada Green Buildings Strategy, and implementing the Carbon Management Strategy. The government will also continue to seek new opportunities and consider a number of potential options as identified throughout this report, including exploring the potential for energy and GHG performance standards in federally funded homes and buildings programs, opportunities related to charging and hydrogen refuelling stations, the development of a Sustainable Aviation Fuels Blueprint, and approaches in the agriculture sector to help promote the adoption of beneficial management practices and increase clean technology use.

Given the central role of provinces and territories, municipalities, Indigenous Peoples and the private sector in climate action, the Government of Canada will continue to work closely with partners. Governments in Canada are being called upon by Canadians to demonstrate leadership in the fight against climate change. It is imperative that we work together to ensure that Canada does its part to reduce global emissions and protect Canadians from catastrophic climate impacts.

The Government of Canada will continue to provide updates on progress to implement the 2030 ERP and fulfill its international reporting obligations to the UNFCCC, including through the first Biennial Transparency Report to the UNFCCC that is due by the end of December 2024. The CNZEAA will

ensure that Canada's climate planning and reporting remains transparent and accountable. The Government of Canada will also continue to work closely with Indigenous Peoples, provinces and territories, municipalities, industry, and civil society. Recognizing the critical role that provinces and territories and the private sector have in achieving Canada's climate objectives and ensuring Canada is well positioned to prosper through the net-zero transition, the Government of Canada will continue to seek opportunities with partners.

Part II

Chapter 5: Canada's emissions reporting

This chapter provides an overview of Canada's recent emissions reporting, including Canada's reporting submitted under its international commitments with respect to climate change and summaries of Canada's most recent official GHG emissions inventory and Canada's most recent published GHG emissions projections. This chapter also provides an overview of Canada's approach to continuous improvement in its emissions inventory and projections modelling.

5.1 International reporting commitments

Reporting is an essential component of the UNFCCC to ensure consistent, transparent, comparable, accurate and complete information is available that will in turn support thorough review and assessment of the implementation of the Convention and monitor progress toward meeting the goals of the Convention. As a signatory to the UNFCCC, Canada has committed to a number of reporting requirements, including annual submission of a national inventory report (NIR), preparation of national communications (NC) every four years and biennial reports (BR) every two years, as well as submission of an adaptation communication, nationally determined contributions (NDC) and a long-term strategy (LTS). Canada prepares these reports in accordance with adopted guidelines.

Canada's first NIR was published in 1992 and has been published annually since 1996, with the most recent submission in April 2023 (for a summary of the most recent NIR, see below).

Canada submitted its *First National Communication* in 1994 and its *First Biennial Report* in December 2013. In December 2022, Canada submitted its *Eighth National Communication and Fifth Biennial Report* (NC8/BR5) to the UNFCCC. This was the final BR submission. As committed to through the Paris Agreement, Canada will submit its first biennial transparency report (BTR) in 2024. The NC8/BR5 provided updated emissions projections and reported on Canada's 2020 emissions target. For more information about Canada's NC8/BR5, see the full version, which is available online.

Canada submitted its first adaptation communication in July 2021, and also reported on adaptation in the NC8/BR5.

Under the Paris Agreement, Canada is required to outline and communicate post-2020 climate actions through an NDC. Canada's first NDC, on 2030, was submitted in October 2016, with a revised NDC submitted in May 2017, reflecting developments since the previous submission. An enhanced NDC was submitted in July 2021, increasing Canada's 2030 GHG emissions reduction target from 30% below 2005 levels to 40% to 45% below 2005 levels. NDCs are submitted every five years to the UNFCCC. The Paris Agreement requires that successive NDCs represent a progression compared to the previous NDC and reflect its highest possible ambition. Canada's next NDC, outlining a 2035 target, is due in 2025.

Under the Paris Agreement, Canada committed to formulating and communicating a long-term low-greenhouse-gas-emission development strategy. Canada submitted *Canada's Mid-Century Long-Term Low-Greenhouse Gas Development Strategy* to the UNFCCC in 2016. In October 2022, Canada submitted *Exploring Approaches for Canada's Transition to Net-Zero Emissions* to the UNFCCC, showing illustrative approaches to 2050 based on modelled scenarios. For more information about Canada's LTS, see the full version, which is available online.

In addition to UNFCCC reporting, Canada reports on progress toward the 2030 GHG emissions reductions target as part of Sustainable Development Goals (SDG) reporting. In July 2023, Canada presented its second Voluntary National Review at the United Nations High-Level Political Forum on Sustainable Development. The review highlights Canada's progress, lessons learned and challenges in implementing the 2030 Agenda for Sustainable Development at home and abroad since Canada's first Voluntary National Review in 2018. For more information about Canada's second Voluntary National Review, see the full version, which is available online.

5.2 Canada's greenhouse gas inventory

Canada's most recent NIR was submitted to the UNFCCC in April 2023.[1] The report covers GHG emissions from the Canadian economy from January 1, 1990 to December 31, 2021.

- In 2021, Canada's GHG emissions were 670 Mt, decreasing by 62 Mt (8.4%) from 2005. This was an increase of 12 Mt (1.8%) from 2020, but remained 53 Mt (7.4%) below pre-pandemic (2019) emission levels.
- While Canada is one of the highest per capita emitters, per capita emissions have declined since 2005 from 22.7 t CO_2 eq per capita to 17.5 t CO_2 eq per capita in 2021.
- The emissions intensity for the entire Canadian economy (GHG emissions per gross domestic product [GDP]) has declined by 29% since 2005. While the COVID-19 pandemic undoubtedly impacted recent year emissions, the decline in emissions intensity can be attributed to fuel switching, increases in efficiency, the modernization of industrial processes and structural changes in the economy.
- Since 2005, the Oil and Gas, Agriculture and Buildings economic sectors showed emission increases of 21 Mt (12%), 5.0 Mt (7.7%) and 2.3 Mt (2.7%), respectively. These increases have been more than offset by emission decreases in Electricity (-66 Mt or -56%), Heavy Industry (-12 Mt or -14%), and Waste and others (-5.1 Mt or -9.8%). Emissions from the transport sector have increased gradually, with the exception of a decrease between 2019 and 2020 largely due to fewer kilometers driven and a decrease in air traffic. Transport emissions increased between 2020 and 2021 but remained below 2005 levels (-6.7 Mt or -4.3% since 2005).
- Emissions vary significantly by province and territory as a result of factors such as population, energy sources and economic structure. Between 2005 and 2021, emissions decreased in most of the provinces and territories, including in Ontario (-53 Mt or -26%), Nova Scotia (-8.2 Mt or -36%), Québec (-8.1 Mt or -9.4%), New Brunswick (-7.7 Mt or -39%), British Columbia (-2.2 Mt or -3.6%), Newfoundland and Labrador (-1.9 Mt or -18%), Saskatchewan (-0.7 Mt or -1.0%), the Northwest Territories (-0.44 Mt or -25%), and Prince Edward Island (-0.25 Mt or -13%). Emissions have increased in Alberta (20 Mt or 8.6%), Manitoba (0.40 Mt or 2.0%), Yukon (0.09 Mt or 16%) and Nunavut (0.04 Mt or 7.2%).
- For Canada's NIR released in April 2023, significant methodological improvements were implemented in the estimation of waste landfills and transport emissions, among others, along with the inclusion of a new source, post-meter fugitive emissions. The enhanced methods use Canadian-specific studies and knowledge, facilitate the adoption of new scientific data, and better reflect evolving technologies and industry practices.

For more detailed information about Canada's greenhouse gas emissions, see the full version of Canada's NIR, which is available online.

5.3 Canada's GHG emissions projections

ECCC updates Canada's GHG emissions projections annually, reflecting the latest historical data and up-to-date future economic and energy market assumptions. As such, projections fluctuate over time because of changes in the historical data and assumptions. In years that coincide with a biennial report submission to the UNFCCC, Canada's projections are published as part of that report. In alternate years, Canada publishes projections in a standalone report.

Canada's most recent projections report, *Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2023*, published in December 2023, is available online and presents Canada's GHG and air pollutant emissions projections to 2035.[2] There are challenges associated with attributing emissions reductions to individual policies, largely due to the interaction between the various policies in the climate plan. As such, projections by measure are not available.

Projections presented in the report were developed based on a combination of two modelling approaches—a "bottom-up" approach (represented by the "Reference Case" and "Additional Measures" scenarios), and a backcasting approach, which represents an illustrative scenario which is based on all policies and measures included in the Additional Measures scenario and is calibrated to achieve the 2030 target of 40% below 2005 levels. The results from the backcasting scenario should not be construed as signaling policy intentions, but rather as an illustration of what the modelling framework suggests are economically efficient opportunities to reach pre-determined emissions reductions.

5.3.1 Reference case scenario

Projections in the Reference Case include federal, provincial, and territorial policies and measures that were in place as of August 2023 and assume no further government action. They also include the accounting contribution from the Land Use, Land Use Change and Forestry (LULUCF) sector.

To be included in the Reference Case, policies and measures must:

- Have the necessary legislative and financial support.
- Have sufficient quantifiable information available for its impact to be estimated.
- Be expected to produce meaningful reductions (at least 100 kilotonnes of CO_2 eq).

Where program funding is set to end, the projections assume that the impacts of these programs, other than those embodied in consumer behaviour, cease when the approved funding terminates.

The list of policies and measures modelled in the Reference Case scenario can be found in *Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2023.*

5.3.2 Additional measures scenario

The Additional Measures scenario includes all federal, provincial, and territorial policies and measures from the Reference Case as well as those that have been announced but have not yet been fully implemented. This scenario also includes the accounting contribution from the LULUCF sector, with the addition of the impact of the purchase of credits under the Western Climate Initiative, Nature-Based Climate Solutions and Agriculture Measures.

Where program funding is set to end, the projections assume that the impacts of these programs, other than those embodied in consumer behaviour, cease when the funding terminates.

Every effort is made to be as complete as possible in what is included in the model; however, the additional measures scenario does not include all announced measures. Measures that have not been sufficiently developed to support their inclusion in the model are not reflected in the additional measures results. Measures not included can include those where there were important decisions yet to be confirmed that would impact the emissions reductions associated with the measure. Measures that are being considered or are under development by the provinces and territories are only included if these measures have been identified by the jurisdiction for inclusion in the model, with sufficient detail to be included.

The 2023 projections do not include the proposed oil and gas sector emissions cap or post-2027 heavy-duty vehicles regulations, either in the Reference Case or Additional Measures scenarios.

The list of policies and measures modelled in the Additional Measures scenario can be found in *Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2023.*

The bottom-up projections referenced in the ERP Progress Report are from the Additional Measures scenario, as it best represents progress to Canada's 2030 target and captures most of the impact of Canada's climate policies.

The report also provides:

- An overview of the baseline data and assumptions underlying the projections, including a list of all policies included in each scenario, and a description of the assumptions used to model those policies.
- An overview of the impact of major methodological, data and policy changes on the most recent projections.
- A review of the sources of uncertainty and results from a sensitivity analysis around key drivers of GHG emissions.
- A description of the model methodology used to develop projections.

5.3.3 Projections results

Under the Additional Measures scenario, emissions in 2030 decline to 467 Mt, including contributions from LULUCF, Nature-Based Climate Solutions (NBCS) and Agricultural Measures and credits purchased under the Western Climate Initiative (WCI), or 36% below 2005 levels. This is 24 Mt below the 2030 projections from the "With Additional Measures" (WAM) projections released in *Canada's Eighth National Communication and Fifth Biennial Report to the United Nations Framework Convention on Climate Change* (NC8/BR5). Other notable results from the Additional Measures scenario include:

- In 2030, the transportation (137 Mt or 12.7% below 2005 levels) and oil and gas (128 Mt or 24.4% below 2005 levels) sectors are projected to remain Canada's largest emitters;
- By 2030, the electricity sector is projected to have the largest emissions reductions (-97 Mt), totalling 20 Mt or 82% below 2005 levels; and,
- Post-2030, the Additional Measures scenario sees emissions continuing to decline, reaching 423 Mt in 2035, or 42% reductions below 2005 levels.

Table 5-1 provides a breakdown of the projected trends in GHG emissions by economic sector.

Table 5-1: GHG emissions by economic sector (Mt CO_2 eq)

	Historical				Projected – Reference Case				Projected – Additional Measures			
	2005	2010	2015	2021	2026	2030	2035	Change 2005 to 2030	2026	2030	2035	Change 2005 to 2030
Oil and Gas	168	179	203	189	177	162	158	-6	158	128	123	-41
Electricity	118	95	79	52	38	20	13	-97	39	20	6	-97
Transportation	157	166	163	150	156	144	138	-12	155	137	116	-20
Heavy Industry	89	76	81	77	79	77	78	-12	74	63	62	-26
Buildings	85	82	85	87	80	75	73	-10	74	69	66	-16
Agriculture	64	59	65	69	67	67	67	3	66	63	63	-1
Waste and Others	52	46	47	47	46	46	47	-7	39	32	33	-20
Subtotal	*732*	*702*	*723*	*670*	*642*	*592*	*574*	*-140*	*604*	*512*	*468*	*-220*
WCI Credits	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-4	-1	0	-1
LULUCF Accounting Contribution	n.a.	10	2	-33	-27	-32	-32	n.a.	-27	-32	-32	-32
NBCS and Agriculture Measures	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-13	-13	-13
Total	**732**	**712**	**725**	**637**	**615**	**560**	**541**	**-172**	**573**	**467**	**423**	**-265**

Canadian historical GHG emissions per capita have been declining by an average of 1.6% per year over the 2005 to 2021 period. Emissions intensity is expected to decrease by 2.9% per year between 2021 and 2030 in the Reference Case, and by 4.5% per year in the Additional Measures scenario.

For more detailed information about Canada's greenhouse gas emissions projections, including results from the backcasting scenario, please see the full version of Canada's emissions projections report, which is available online.

5.4 Recent projections modelling changes

Emissions projections are updated each year to account for new measures, to address changing conditions in the domestic and global economy, and to incorporate the updated historical emissions from the most recent NIR, including the changes that result from methodological improvements to the NIR.

Historical emissions are one of the central inputs to the emissions projections. Changes to historical emissions will in turn result in changes to emissions projections. Recalculations of inventory estimates often result as a part of continuous inventory improvement activities, including refinements of methods; correction of errors; updates to activity data; inclusion of categories previously not estimated; or compliance with recommendations arising from reviews conducted under the UNFCCC. ECCC continuously consults and works with scientists and experts to improve inventory quality, including those in federal, provincial, and territorial agencies, industry, research institutions, and consultants. Improved understanding and refined or more comprehensive data are used to develop and adopt more accurate methods. The implementation of methodological improvements leads to the recalculations of previous estimates to maintain a consistent trend in emissions and removals.

The 2022 edition of the GHG inventory included recalculations that resulted in changes to previously reported emissions/removals for all IPCC sectors (Energy; Industrial Processes and Product Use [IPPU]; Agriculture; Land Use, Land-Use Change and Forestry [LULUCF]; and Waste) and Energy subsectors (Stationary Combustion, Transport and Fugitive Sources) and for all applicable years in the time series (1990 to 2019). These revisions were largely due to improved estimation methodologies as

well as updated energy data. The revisions that resulted in the most significant changes for the year 2019 were in Fugitive (+12.4 Mt), Agriculture (-5.8 Mt) and Stationary Combustion (+3.0 Mt). See the 2022 NIR for greater detail on the inventory improvements made for the 2022 NIR.

The 2023 edition of the GHG inventory incorporated methodological improvements in the estimations of waste landfills, and on-road and off-road transport emissions, among others. A new source was also included—post-meter fugitive emissions—which includes leaks from residential and commercial natural gas appliances, natural gas-fueled vehicles, and at power plants and industrial facilities that consume natural gas. Overall, the recalculations resulted in -9 Mt in 2005 and -14 Mt in 2020. See the 2023 NIR for greater detail on the inventory improvements for the 2023 NIR.

In addition to impacts from NIR revisions, emissions projections are also impacted by changes in socio-economic conditions, including changes in forecasts for GDP and population growth, changes in energy production forecasts, updates to account for new measures, and updates to revise policy assumptions about previously included measures.

For the December 2022 projections, the main drivers of change from the projections that were released in March 2022 as part of the 2030 ERP, were:

- **Economy-wide:** slightly lower real GDP growth from 2022 to 2030 led to lower emissions; an increase in expected population growth based on revised growth expectations shared by provinces and territories during the consultation process led to higher emissions.
- **Oil and gas:** methodological change led to revisions in the 2022 NIR for fugitive methane emissions in the oil and gas sector resulting in higher emissions; updated oil and gas production from the latest Canada Energy Regulator (CER) projections led to higher emissions; change in assumptions of industry adoption of CCS and solvents in the oil sands led to higher emissions.
- **Transportation:** revised policy assumptions for aviation, marine and rail measures including 6% blending of sustainable aviation fuel led to lower emissions.
- Buildings: methodological change that allows more flexibility to convert technology at the end of equipment life.
- **Agriculture:** methodological changes led to recalculations in the 2022 NIR primarily driven by revisions to emission factors used to estimate direct N_2O emissions from agricultural soils, as well as changes in nitrogen mineralization from loss of cropland soil organic carbon and revised inorganic nitrogen fertilizer activity data from Statistics Canada for the year 2019.

For the 2023 projections, the main drivers of change from the December 2022 projections were:

- **Oil and gas:** updated projections from the CER, which indicate lower oil sands but higher conventional oil, gas, and LNG production relative to the levels in the 2030 ERP projections; revisions to the hydrogen strategy modeling assumptions; less optimistic assumptions on the deployment of CCS led to higher emissions.
- **Transportation:** significant methodological change in historical data resulted in a large decrease in emissions in the freight sector. This decrease in the historic data persists through the projection period.
- **LULUCF:** increased accounting contribution, driven primarily by a greater accounting credit from “Forest Land” remaining within the “Forest Land and Harvested Wood Products” category. This increased credit is the result of some provinces submitting lower projected harvest rates due to tree mortality resulting from recent natural disturbances (excluding the 2023 wildfires).
- **Heavy industry:** revisions to the hydrogen strategy modeling assumptions and higher historical emission intensities led to higher emissions projections.

- **Buildings:** revisions to the hydrogen strategy modeling assumptions and to the assumptions on the rate of adoption of net-zero ready building codes by provinces and territories, revising to assume slower adoption than what was previously assumed to reflect more up-to-date provincial commitments, led to higher emission projections.
- **Agriculture:** lower emissions from “Crop Production” in the last historical year led to slightly lower emissions for the sector in the projection period compared to the previous year’s analysis.

For more information about changes in Canada’s greenhouse gas emissions projections, please see the full version of Canada’s emissions projections report, which is available online.

5.5 Continuous improvement

Continuous improvement is a foundational element of Canada’s approach to climate action, to ensure Canada’s inventory estimates and emissions projections are based on the best available science and data, that Canada’s climate plan is responsive and evolving as new opportunities arise, and for course correction in the implementation of federal programs, policies, and regulations. Significant improvements are anticipated in future inventory estimates, notably for managed forest land, for which a summary is provided below. See the NIR for more on planned improvements.

For emissions projections, ECCC convened an expert-led process to provide independent advice on ensuring a robust and reliable modelling regime that maximizes transparency and addresses the inherent uncertainties in all modelling processes. A summary of the modelling review outcomes is provided below. See the Emissions Projections Report for more on the independent modelling review action plan.

5.5.1 Land Use, Land-Use Change and Forestry: An update on emissions accounting

The LULUCF sector is used to report GHG emissions and removals between the atmosphere and managed lands. The sector includes Forest Land, Cropland, Grassland, Wetlands, Settlements, Other Land, as well as harvested wood products (HWP). Compared to other sectors, LULUCF is unique in that both human activities and natural events and processes (e.g., wildfire, insect infestations) affect its GHG emissions and removals. Natural forest disturbances, in particular wildfires, can cause very large GHG fluctuations from year to year. Canada’s NIR distinguishes the GHG emissions and removals in the managed forest due to human activities from those resulting from natural disturbances. To focus reporting on human impacts, Canada removes the impact of natural disturbances when calculating progress toward national emissions reduction targets.

Management actions and natural disturbances occurring over decades can have very long-term impacts on forest GHG emissions and removals. Canada, like many other countries and in line with UNFCCC approved methodologies, applies specific accounting approaches to determine how recent changes in human activity in the LULUCF sector are contributing to national emissions reduction targets. Canada currently uses reference level accounting (comparison to a business-as-usual baseline) for managed forest land and associated HWP and simple net-net (comparison to a base year) accounting for the rest of the LULUCF categories. In light of recent changes to the European Union’s (EU) LULUCF accounting framework, recommendations from a recent Commissioner of the CESD audit report, and input received from environmental groups, Natural Resources Canada (NRCan) and ECCC are conducting a review of Canada’s LULUCF emissions accounting approach, with specific focus on managed forest and HWP accounting. The Government of Canada will launch a targeted engagement by 2024 as part of this review to ensure Canada’s approach remains consistent with

international best practice and represents a scientifically credible approach to tracking progress in emissions reductions.

As stated in the 2030 ERP, the Government of Canada is committed to ensuring thorough estimates and understanding of how Canada's forests can help address climate change. Canada develops its forest-related GHG inventory estimates and emission and accounting projections using scientific and internationally recognized methodology, in accordance with the UNFCCC and guidelines of the IPCC.

5.5.2 Independent modelling review

Canada's 2030 ERP included the following commitment:

> "To both maximize transparency and address the inherent uncertainties in all modelling processes, ECCC will convene an expert-led process to provide independent advice in time for the 2023 Progress Report, ensuring a robust and reliable modelling regime to inform the basis of future ERPs."

ECCC held a two-phase process to fulfill this commitment. In Phase 1, ECCC commissioned Dr. Paul Boothe and his associates Mike Beale and Chris Frankel to lead an initial consultation process seeking input on objectives, scope, and key milestones for a formal consultation process which took place between October and November 2022. From the recommendations put forward in the resulting report, ECCC developed a modelling improvement action plan. The action plan contains both measures to be implemented by the end of 2023 as well as longer-term improvements.

In Phase 2, ECCC commissioned Mike Beale to facilitate a second round of expanded consultation, which took place in April and May 2023, on the proposed action plan and the report produced following the first phase. This consultation process informed the final report and final version of the action plan.

Phase 1 consultations highlighted that consulted experts generally hold the view that ECCC's current modelling framework is strong and that there is broad support and enthusiasm for an external review to advise on further enhancement. In addition, discussions highlighted:

- A need for mechanisms to improve transparency and for peer review.
- The recognition of policy linkages, including greater use of modelling as a tool for policy design.
- The importance of adequate modelling capacity to respond to increased demands.
- The need for analyzing long-term 2050 trajectories to net zero, and "what-if" scenarios.

Collectively, experts indicated that these themes were fundamental to the credibility and accountability of the modelling that underpins the government's climate policy measures.

Following the consultation phase, Dr. Boothe and colleagues identified the following themes to be explored in Phase 2:

- transparency;
- engagement;
- modelling processes;
- net zero 2050 pathways and scenarios; and,
- capacity/resources.

Feedback from Phase 2 interviews indicated that while ECCC's modelling team is recognized as leaders in the field and the suite of models is generally well regarded, there are concerns about the transparency and age of ENERGY2020. The draft action plan from Phase 1 was seen as ambitious, but interviewees mentioned that improvements are needed in terms of speed and depth of the proposed approach. Interviewees also called for greater transparency in underlying assumptions and impacts of

individual policies to enable external modellers to replicate ECCC's results. Interviewees suggested using more sensitivity analyses and probabilistic analyses to address uncertainties. There was broad interest in a workshop on net-zero modelling. Additionally, interviewees unanimously support establishing a Canadian version of the Stanford Energy Modelling Forum (EMF). The EMF was established at Stanford in 1976 to bring together leading experts and decision makers from government, industry, universities, and other research organizations to study important energy and environmental issues. For each study, the Forum organizes a working group to develop the study design, analyze and compare each model's results and discuss key conclusions. The EMF seeks to improve the use of energy and environmental policy models for making important corporate and government decisions by:

- harnessing the collective capabilities of multiple models to improve the understanding of important energy and associated environmental problems;
- explaining the strengths and limitations of competing approaches to the problem; and
- providing guidance for future research efforts.

Net-zero modelling workshop

In September 2023, ECCC held the Net-Zero Modelling Workshop recommended in the Phase 2 report. The workshop included roughly 70 participants including academics and government officials from the United States, Europe, and Canada. The discussions focused on:

- how models supported the development of Canada's Long-Term Strategy (November 2022);
- ECCC's long term modelling suite—focusing on the model structures, strengths and weaknesses, and how they were used to support the Long-Term Strategy analysis;
- multi-model analysis along with other tools and approaches necessary for successful net-zero modelling; and
- open-source modelling, including the relevant issues surrounding making model code, data, and documentation public.

The discussions were fruitful and led to the following key takeaways:

- There was significant support for a multi-model comparison exercise (e.g., Canadian Emissions Modelling Forum or EMF – North) that would further enhance the Canadian modelling ecosystem based partly on the U.S. approach.
- While ECCC models are "good" and "robust", there is a need for greater transparency in terms of publishing more model information, at the same time there was recognition that there are challenges with making the models open source, as models are complex and would require significant resources for training for open-source users.
- ECCC should continue its focus on using a suite of models as different models can bring different perspectives. At the same time, to support industrial/sectoral transformation ECCC should continue to benefit from the work of more detailed engineering/process models.
- ECCC models should continue to be enhanced with the focusing on increasing sector disaggregation and expanding the availability of technologies represented in the models. This would improve model resolution, which should, in turn, lead to more accurate forecasts.
- ECCC should continue to develop a forward-looking computable general equilibrium model for a more detailed analysis of the energy and economic transition required to achieve net zero to incorporate forward-looking decision making that is not in the current suite of models.

A more detailed description of ECCC's Action plan, including actions taken to date and actions to be taken in the future, is provided in *Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2023*, which is available online.

Chapter 6: Implementation update tables

This chapter provides a measure-by-measure update on all the federal strategies and measures under the 2030 ERP, including new measures developed since its release in March 2022, as well as key cooperative agreements and measures with provinces and territories, as identified in the 2030 ERP.

The 2030 ERP is organized around economic sectors, as well as categories for economy-wide measures that cut across sectors, nature-based solutions, which looks to opportunities for emissions reductions from nature, and greening government measures. Enabling measures are also included. Definitions of the sectors are included in the annex.

Measures are organized by sector based on their “best fit”, but can often impact other sectors, directly or indirectly. Organization by sector is done to support review and consideration of sectors and measures—the inclusion of a measure in one sector should not be viewed as indicating that it has no relevance or linkage to another sector. Sectors are linked and interdependent, with actions taken in one sector often having spillover effects for another sector. For example, actions taken to decarbonize Canada’s electricity sector will enable low-carbon electrification in other sectors.

Unique identifiers have been added to support effective tracking of measures over time, recognizing that program names can change. Measures have been organized into main measures and sub-measures and include:

- main measures with activities;
- main measures without activities, with all activities captured within the sub-measures (identified with a grey background in the table and not included when counting measures); and,
- sub-measures.

Only measures with activities are included when counting the number of measures.

The use of main measures and sub-measures is to reflect the relationships between the measures, and should not be considered an indication of importance—sub-measures include major initiatives.

Definitions for implementation status are provided below and examples in Figure 6-1.

Implementation status definitions

Under development (initial planning): seeking authorities; early planning, research, and analysis activities underway.

Initiated (authorized development): required authorities have been secured; drafting, program design, and initial consultations ramping up.

Ongoing (active implementation): inviting & reviewing applications; distributing funding; proceeding through legislative or regulatory approval processes.

Adopted (finalized and in effect): strategy, policy, code or plan is in place; legislation has received royal assent; regulations are published in CG II.

Concluded (no longer in effect): operations have ceased; funds fully allocated, substantially distributed and no further funding planned; measure has been repealed and/or replaced.

In addition to the above, initiatives can also be marked as “**under exploration**”. These initiatives would only enter the implementation process after being evaluated and receiving a commitment to proceed.

Figure 6-1: Implementation status assessment grid with examples

Implementation Status	Under Development	Initiated	Ongoing	Adopted	Concluded
High-Level Definitions	**Initial Planning:** Seeking authorities; early planning, research, and analysis activities underway	**Authorized development:** Required authorities have been secured; drafting, program design, and initial consultations are underway	**Active implementation:** Inviting & reviewing applications; distributing funding; proceeding through legislative or regulatory approval	**Finalized and in effect:** Policy, strategy, plan or code is approved; legislation or regulation is in force	**No longer in effect:** operations have ceased; no further funding; measure has been repealed or replaced
Examples					
Legislation or Regulations	Seeking authorities; Initial analysis and research underway to inform drafting	Policy authorities secured; consultation, drafting, revisions underway	Bill passed 2nd reading; draft regulations published in CG I	Legislation received royal assent; regulations published in CG II	Regulation or legislation repealed and no longer in effect
Policies, Plans, Strategies, Codes	Seeking authorities Early research and analysis	Policy authorities secured; drafting and consultations underway		Final approvals in place and currently in effect	Has been repealed and/or replaced; no longer in effect
Programs, Grants & Contributions	Seeking authorities Research and early design activities	Policy and funding authorities secured; program/G&C launched	Applications being reviewed; funding being distributed; operations ongoing		Funding fully allocated; operations ceased; program has ended and/or been replaced
Task Forces, Advisory Committees	Seeking authorities Research and planning underway	Relevant authorities secured; members being recruited and confirmed	Meetings scheduled; work underway (e.g., research, consultations, report drafting)		Mandate fulfilled; operations ceased; final report published, no further meetings

About the Implementation Update Tables

Implementation updates are presented in two separate tables, organized by sector. The first table provides an update on the federal measures and strategies included in the implementation annex of the 2030 ERP, as well as any additional federal 2030 ERP climate measures that have been announced since the release of the ERP. The second table provides an update on the cooperative agreements and measures with provincial and territorial governments described in the 2030 ERP.

Table 6-1: Federal measures and strategies

Economy-wide

Measure	Description	Status and implementation update
ECW-01 **Price on carbon pollution**	The Government of Canada's approach to pricing carbon pollution gives provinces and territories the flexibility to implement the type of system that makes sense for their circumstances as long as they align with minimum national stringency requirements ("federal benchmark"). The federal "backstop" carbon pricing system consists of the federal fuel charge and the federal Output-Based Pricing System (OBPS) for industrial facilities and applies in jurisdictions that requested it or whose systems do not meet the benchmark. **Lead departments: ECCC, FIN**	**Ongoing** Carbon pricing has been in place across Canada since 2019 through a mix of federal, provincial and territorial pricing systems aligned with the minimum federal benchmark requirements. In August 2021, more rigorous benchmark criteria for 2023–2030 were established following engagement with provinces, territories, and Indigenous leaders. The minimum carbon pollution price in 2023 is $65 per tonne of CO_2 eq, rising by $15 per year to $170 in 2030. As of July 1, 2023, the federal fuel charge applies in AB, SK, MB, ON, NB, NS, PE, NL, NU, and YT, and the federal OBPS applies in MB, PE, NU and YT. BC continues to have a provincial carbon price in place and is implementing a provincial OBPS starting in 2024. NT is continuing with its carbon price, QC is continuing with its linked cap-and-trade system with California, and provincial OBPS continues to apply in AB, SK, ON, NB, and NL. NS is transitioning away from its cap-and-trade system by developing and implementing a new provincial OBPS effective starting in 2023. An interim review of carbon pricing in Canada and the federal benchmark, including a second independent expert assessment, has been launched by the Government for completion by 2026, working with provinces, territories, and Indigenous Peoples.
ECW-01.1 **Guarantee the future price of carbon pollution**	To enhance long-term certainty, the Government of Canada will explore measures that help guarantee the future price of carbon pollution. **Lead departments: ECCC, FIN**	**Ongoing** The Government of Canada is supporting enhanced carbon price certainty in a number of ways. The carbon pollution price trajectory is set out to 2030, currently $65 and increasing by $15 per year to $170 in 2030. The updated minimum national stringency requirements ("federal benchmark") for carbon pollution

Measure	Description	Status and implementation update
		pricing systems in Canada (2023–2030) require carbon markets to maintain a strong price signal in line with the minimum national carbon pollution price across all covered emissions. The Government of Canada is also reinforcing the investment signals created by Canada's carbon pollution pricing systems with other tools, such as carbon contracts for difference. As announced in the 2023 Fall Economic Statement, the Canada Growth Fund will be the principal federal entity issuing carbon contracts for difference. The Canada Growth Fund will allocate, on a priority basis, up to $7B of its current $15B in capital to issue all forms of contracts for difference and offtake agreements. Carbon contracts for difference will backstop the future price of carbon and provide predictability to businesses in order to de-risk important emission-reducing projects.
ECW-01.2 **Climate Action Incentive (CAI) payments** *Part of the return of federal carbon pollution proceeds*	All direct proceeds from the federal carbon pricing system remain in the jurisdiction where they were collected. Provinces and territories that have their own carbon pricing systems use the proceeds as they see fit, including by supporting families to take further action to cut pollution in a practical and affordable way. In the provinces where the federal price on carbon pollution is in effect, the Government of Canada uses 90% of fuel charge proceeds to directly support individuals and families through CAI payments. The other 10% is used to support small businesses and Indigenous partners (see ECW-01.3 through ECW-01.6b for more details). **Lead departments: FIN, CRA**	**Ongoing** In 2023-24, AB, SK, MB, ON, NB, NS, PE, and NL households are receiving CAI payments. The government began delivering CAI payments to Canadians on a quarterly basis starting in July 2022. This approach returns fuel charge proceeds to households on a more regular basis, with 8 out of 10 households getting more money back than they pay. Low- and middle-income households in these jurisdictions benefit the most. As the carbon pollution price increases, these payments will also increase. This maintains affordability, as well as a robust price on carbon pollution and incentive to reduce emissions. Residents in small and rural communities who receive CAI payments are eligible for a 20% supplement on their payments to reflect limited access to clean transportation options.

Measure	Description	Status and implementation update
ECW-01.3 **Fuel Charge Proceeds Return Program (FCPRP)** *Part of the return of federal carbon pollution proceeds*	The FCPRP supports the return of federal fuel charge proceeds of over $2.5B as direct payments to eligible small- and medium-sized enterprises (SMEs), specifically those in emissions-intensive and trade-exposed sectors. The program will be available in jurisdictions where the federal fuel charge applies. **Lead department: ECCC**	**Ongoing** The first round of programming will target small- and medium-sized enterprises in AB, MB, ON, and SK. Total fuel charge proceeds to be returned (by jurisdiction) under the first round of the FCPRP: • AB: $718.2M • MB: $143.9M • ON: $1.336B • SK: $300.6M The Expression of Interest phase for the FCPRP closed on December 16, 2022. Applicants found eligible as part of the Expression of Interest stage will be invited to submit a Formal Proposal. Further information on the return of proceeds to SMEs in NB, NL, NS, and PE will be available in due course.
ECW-01.4 **Returning 1% of net fuel charge proceeds to Indigenous Governments** *Part of the return of federal carbon pollution proceeds*	This initiative is part of the federal government's approach to returning fuel charge proceeds that have been collected under the *Greenhouse Gas Pollution Pricing Act*. In 2020, it was announced the federal government would return 1% of federal fuel charge proceeds to Indigenous governments through a co-developed approach in jurisdictions where federal fuel charge programming is in effect. **Lead department: ECCC**	**Ongoing** ECCC is advancing a distinctions-based approach, with a focus on identifying flexible transfer payment mechanisms to return proceeds collected as of 2020-21 to First Nations and Métis in ON, MB, SK, and AB; as of July 1, 2023, to First Nations in NB, NS and PE; and as of July 1, 2023, to First Nations and Inuit in NL. ECCC is providing grant funding to support engagement with key partners on this initiative.

Measure	Description	Status and implementation update
ECW-01.5 **Return of fuel charge proceeds to farmers** *Part of the return of federal carbon pollution proceeds*	This initiative is part of the federal government's approach to returning fuel charge proceeds that have been collected under the *Greenhouse Gas Pollution Pricing Act*. Proceeds relating specifically to the use of natural gas and propane by farmers are returned directly to farmers via a refundable tax credit. **Lead departments: FIN, CRA**	**Ongoing** The refundable tax credit is available to farming businesses that operate in certain backstop provinces, starting for the 2021-22 fuel charge year.
ECW-01.6 **Output-Based Pricing System (OBPS) Proceeds Fund** *Part of the return of federal carbon pollution proceeds*	The OBPS Proceeds Fund returns collected proceeds to the jurisdiction of origin under the federal OBPS through the Decarbonization Incentive Program (DIP) and Future Electricity Fund (FEF). **Lead department: ECCC**	See below for stream-specific updates.
ECW-01.6a **Output-Based Pricing System (OBPS) Proceeds Fund: Decarbonization Incentive Program (DIP)** *Part of the return of federal carbon pollution proceeds*	DIP is a merit-based program to support clean tech projects to reduce GHG emissions in heavy industry. **Lead department: ECCC**	**Ongoing** Launched in February 2022, the stream was temporarily closed for program improvements on May 29, 2023. The program intake was re-launched on August 8, 2023, and closed on October 12, 2023. Funding decisions are expected in early 2024. As of October 24, 2023, there were 20 agreements executed.

Measure	Description	Status and implementation update
ECW-01.6b **Output-Based Pricing System (OBPS) Proceeds Fund: Future Electricity Fund (FEF)** *Part of the return of federal carbon pollution proceeds*	FEF is administered via bilateral agreements with backstop provinces to support clean electricity projects. Backstop provinces are those jurisdictions where the federal pricing system applies in whole or in part. **Lead department: ECCC**	**Ongoing** Launched in February 2022, there are ongoing conversations with implicated provinces. As of October 24, 2023, approximately $198M of pollution pricing proceeds were approved for projects in SK and approximately $20M approved for projects in NB through agreements to support clean energy projects, energy efficient technologies, and other initiatives.
ECW-02 **Canada's Greenhouse Gas (GHG) Offset Credit System**	Canada's GHG Offset Credit System encourages municipalities, Indigenous communities, foresters, farmers, and other project developers to undertake innovative projects that reduce GHG emissions. The System does so by allowing project proponents to generate federal offset credits if they implement projects meeting requirements in the Regulations and the applicable federal offset protocol. These credits can be sold and used for compliance by facilities covered in the federal OBPS or sold and used by others looking to meet voluntary climate targets. **Lead department: ECCC**	**Ongoing** The *Canadian Greenhouse Gas Offset Credit System Regulations* were published in *Canada Gazette, Part II* on June 8, 2022. ECCC is continuing to develop offset protocols, which set out the requirements for particular offset project types, on an ongoing basis. Status of federal offset protocols to date: • Final *Landfill Methane Recovery and Destruction* protocol published in June 2022; • Final *Reducing GHG Emissions from Refrigeration Systems* protocol published in February 2023; • Draft *Improved Forest Management on Private Land* protocol published for public comment in June 2023 with publication of the final protocol targeted for late 2023; and, • Draft Livestock Feed Management protocol targeting publication in late fall 2023 for public comment. ECCC is continuing to develop the following additional protocols: • Direct Air Carbon Dioxide Capture and Sequestration; • Enhanced Soil Organic Carbon; and, • Avoidance of Manure Methane Emissions through Anaerobic Digestion and Other Treatments.

Measure	Description	Status and implementation update
		ECCC will initiate the development of a protocol on Improved Forest Management on Public Land in 2024. ECCC published a GHG Offset Toolkit designed to provide Indigenous Peoples with information and resources related to carbon markets and developing offset projects. It is currently available in English, French, Ojibwe, Mi'kmaq, and Woods Cree.
ECW-03 **Clean Fuel Regulations**	Require liquid fuel (gasoline and diesel) suppliers to gradually reduce the lifecycle carbon intensity of the fuels they supply for use in Canada. **Lead department: ECCC**	**Adopted** The Clean Fuel Regulations were published in *Canada Gazette, Part II* on July 6, 2022.
ECW-04 **Clean Fuels Fund**	The Clean Fuels Fund de-risks the capital investment for building new or retrofitting or expanding existing clean fuel production facilities. This measure was launched in 2021. **Lead department: NRCan**	**Ongoing** Contribution Agreement negotiations are ongoing with several Contribution Agreements already signed under the clean fuel production capacity stream. Information about signed agreements is available online. The Clean Fuels Fund contributes to the Government's 2030 target to increase Canada's clean fuel production capacity by 10% over 2021 levels.
ECW-05 **Low Carbon Economy Fund (LCEF)**	The LCEF leverages investments in projects that generate clean growth and reduce GHG emissions, helping Canada to meet or exceed its commitments under the Paris Agreement. As of 2023, LCEF consists of 4 funding envelopes: • Leadership Fund; • Challenge Fund; • Indigenous Leadership Fund; and, • Implementation Readiness Fund. **Lead Department: ECCC**	Originally launched by Budget 2017 with $2B, the recapitalization of the LCEF was announced in the 2030 ERP and Budget 2022 to leverage further climate actions from provinces and territories, municipalities, universities, colleges, schools, hospitals, businesses, not-for-profit organizations, and Indigenous communities and organizations. The recapitalized LCEF renewed the Leadership and Challenge funds, and introduced two new streams, the Indigenous Leadership Fund and the Implementation Readiness Fund. See below for stream-specific updates.

Measure	Description	Status and implementation update
ECW-05.1 **Leadership Fund** *Part of the Low Carbon Economy Fund (LCEF)*	The LCEF Leadership Fund provides funding to provinces and territories to help them deliver on commitments to reduce emissions in support of Canada's emissions reduction targets. **Lead department: ECCC**	**Ongoing** The Leadership Fund launched in 2017 and has provided support toward 52 projects led by provinces and territories that adopted the Pan-Canadian Framework. Through the recapitalized Leadership Fund, ECCC has continued discussions with all provinces and territories on projects to access their notional allocation. As well, additional allocations are available to target transition off home heating oil for low-income households. As of October 24, 2023, four provincial projects have been approved under the recapitalized Leadership Fund, with more under review. The first of these agreements is anticipated to be signed in the fall of 2023.
ECW-05.2 **Challenge Fund** *Part of the Low Carbon Economy Fund (LCEF)*	The LCEF Challenge Fund provides funding to a wide range of recipients to implement projects that deploy proven, low-carbon technologies resulting in material GHG emissions reductions across sectors, focusing on its cost-effectiveness objective to maximize GHG emissions reductions. **Lead department: ECCC**	**Ongoing** The original Challenge Fund had two streams: Champions and Partnerships. As of October 24, 2023, the Challenge Fund has supported a total of 97 projects: 61 for Champions; and 36 for Partnerships. Champions and Partnerships have been consolidated under the recapitalized Challenge Fund. As of October 24, 2023, there were 73 projects with agreements in place, with ongoing negotiations for projects approved under the second intake of Champions stream. The first intake of the recapitalized Challenge Fund launched on November 7, 2023.
ECW-05.3 **Indigenous Leadership Fund (ILF)** *Part of the Low Carbon Economy Fund (LCEF)*	The LCEF ILF provides funding for renewable energy, energy efficiency and low-carbon heating projects led by Indigenous governments, communities and organizations. Recognizing the unique rights, interests, and circumstances of	**Ongoing** The LCEF ILF program was developed in collaboration with First Nations representatives, Inuit organizations, and Métis governments. The program launched in November 2023. As of October 30, 2023, up to $73.9M will be available for First Nations-led projects through a continuous intake process that will be open

Measure	Description	Status and implementation update
	First Nations, Inuit, Métis, and unaffiliated Indigenous governments, communities, and organizations, the ILF uses a distinctions-based approach to deliver funding to support projects. **Lead department: ECCC**	until March 31, 2027. The Métis and Inuit funding is being delivered over six years, starting from 2023, using a directed intake process.
ECW-05.4 **Implementation Readiness Fund (IRF)** *Part of the Low Carbon Economy Fund (LCEF)*	The LCEF IRF provides funding for activities and investments that increase the readiness to deploy GHG emissions reduction projects and remove barriers to low-carbon technology adoption and 2030 climate mitigation action. **Lead department: ECCC**	**Ongoing** Projects funded through the program will focus on developing and enhancing human and/or institutional resources through activities that facilitate the deployment of GHG emissions reduction technology. As of October 24, 2023, IRF is in discussion with organizations that meet the criteria for funding and expects to receive formal proposals for funding in fall 2023.
ECW-06 **Hydrogen Strategy**	Call to action that lays out an ambitious framework to position hydrogen as a key contributor to Canada's climate objectives and positions Canada as a global leader on clean renewable fuels. **Lead department: NRCan**	**Ongoing** The updated Hydrogen Strategy (Progress Report), to be published in early 2024, will include results of progress on strategy implementation since 2020, including reporting on: • Over $1B in government (federal and provincial) funding provided/dedicated across hydrogen value chain through 13 programs; • The Clean Hydrogen Investment Tax Credit announced, estimated to provide $17.7B in support to hydrogen production projects by 2035; and, • Major federal and provincial policy updates and key industry developments in hydrogen production and end use.
ECW-07 **Clean Hydrogen Investment Tax Credit**	In the 2022 Fall Economic Statement, the Government of Canada announced a refundable investment tax credit for investments made in clean hydrogen production based on the	**Under Development** The legislation will need to receive royal assent before taxpayers can claim the tax credit. Once legislated, the investment tax credit will be retroactively available to eligible property acquired and available for use on or after

Measure	Description	Status and implementation update
	lifecycle carbon intensity of hydrogen. Following consultation with stakeholders, Budget 2023 announced key design details of this measure. The 2023 Fall Economic Statement provided final design details of the investment tax credit. **Lead department: FIN**	March 28, 2023. The government is targeting to introduce legislation in Parliament in early 2024.
ECW-08 **Border Carbon Adjustments (BCAs)**	The Government of Canada is exploring whether BCAs would complement domestic carbon pricing to support greater levels of ambition and mitigation of carbon leakage risks. Generally, BCAs apply import charges and potentially export rebates to account for differences between countries in carbon costs incurred in producing emissions-intensive and trade-exposed goods. Such a policy can support ambitious carbon pollution pricing by leveling the playing field between domestic producers and their international competitors. **Lead departments: FIN, ECCC, GAC**	**Under Exploration** The Government of Canada continues to explore BCAs as a potential policy tool that could complement domestic carbon pollution pricing.
ECW-09 **Canada Infrastructure Bank (CIB)**	The CIB is a Crown corporation that operates at arm's length from the government and is governed by a Board of Directors. Within its $35B funding envelope, the CIB will be responsible for investing at least $25B to support projects in the areas of Green Infrastructure, Clean Power, and Public Transit. **Lead department: INFC**	The CIB is required to produce an annual report that provides information on how it has met objectives and achieved outcomes. The latest report is available online. See below for stream-specific updates.

Measure	Description	Status and implementation update
ECW-09.1 **Clean Power priority investment area** *Part of Canada Infrastructure Bank (CIB)*	The CIB invests in clean power projects such as interprovincial interties, renewables, district energy systems, and energy storage to achieve GHG reductions. **Lead department: INFC**	**Ongoing** As of September 2023, the CIB has made 8 investment commitments with a total capital expenditure of $5.7B, of which CIB is providing at total of $2.7B. Project examples include: • Atlin Hydroelectric Expansion; • Darlington SMR; and, • Enwave District Energy.
ECW-09.2 **Green Infrastructure priority investment area** *Part of Canada Infrastructure Bank (CIB)*	The CIB invests in green infrastructure to support Canada's clean growth economy in areas such as energy efficiency retrofits, water and wastewater management, and projects that contribute to the transition to a low-carbon future. **Lead department: INFC**	**Ongoing** As of September 2023, the CIB has made 18 investment commitments with a total capital expenditure of $3.8B, of which CIB is providing at total of $1.7B. Project examples include: • Algoma Steel Retrofit; • Enerkem Varennes Carbon Recycling; and, • Toronto Western Hospital Retrofit.
ECW-09.3 **Public Transit priority investment area** *Part of Canada Infrastructure Bank (CIB)*	The CIB invests in public transit infrastructure projects to provide citizens with cleaner and faster commutes and reduce GHG emissions. **Lead department: INFC**	**Ongoing** As of September 2023, the CIB has made 12 investment commitments with a total capital expenditure of $12B, of which CIB is providing a total of $3.2B. Project examples include: • City of Brampton Zero-Emission Buses (ZEBs); • Réseau express métropolitain; and, • York Region ZEBs.
ECW-10 **Indigenous Climate Leadership**	Consistent with the Paris Agreement's call to respect, promote and consider Indigenous rights when taking action on climate change, the Government of Canada is committed to renewed nation-to-nation, Inuit–Crown and government-to-government relationships with First Nations, Inuit, and Métis, based on the recognition of rights, respect, cooperation and	**Ongoing** Since late 2022, the Government of Canada has been working in partnership with over 30 national and regional First Nations, Inuit, and Métis governments and representative organizations to shape the Indigenous Climate Leadership Agenda. Across Canada, a distinctions- and regional-based engagement process is underway. Indigenous governments and representative organizations are leading engagement with rightsholders, citizens, and

Measure	Description	Status and implementation update
	partnership. The Government of Canada also supports the *United Nations Declaration on the Rights of Indigenous Peoples* and acknowledges that Indigenous Knowledge systems and ways of doing must be a cornerstone of Canadian climate policy. **Lead departments: CIRNAC, ECCC**	communities to help shape local, regional, and national approaches to Indigenous Climate Leadership. This engagement will culminate in 2024-25 with recommendations that will inform Canada's long-term partnership with Indigenous Peoples on climate. Meaningfully supporting Indigenous Climate Leadership means working to advance next steps on issues such as: land-based and rights-based approaches to climate change; mechanisms to establish federal support for Indigenous-led climate strategies; the mobilization of Indigenous Knowledge systems in national climate initiatives; and options and pathways to transfer authorities and resources to Indigenous Peoples.
ECW-11 **Regional Energy and Resource Tables (Regional Tables)** *Referred to as Regional Strategic Initiatives in the 2030 ERP*	The Regional Tables is a collaborative initiative that brings the federal government together with individual provinces and territories, in collaboration with Indigenous partners—and with the input of key stakeholders—to advance the top economic priorities in the energy and resource sectors in each of Canada's regions. The objective of the tables is to accelerate regional growth opportunities and energy systems transformation that will drive economic prosperity and the creation of sustainable jobs in a low-carbon future. **Lead department: NRCan**	**Ongoing** Nine tables have been formally established (BC, MB, NL, NB, NS, PE, NT, YT, and ON), with each progressing at its own pace. On June 27, 2023, the Government of Canada and the Government of British Columbia released the *Framework for Collaboration on the Path to Net-Zero.* This Framework sets out six opportunity areas that have the potential to significantly contribute to building or expanding BC's competitive advantage, as well as actions to advance them.
ECW-12 **Plan to Reduce Methane Emissions**	A plan to reduce methane emissions across the broader economy, including through regulations that reduce methane emissions from oil and gas (see OIG-02 in Table 6-1), and landfills (see WST-06 in Table 6-1).	**Ongoing** In September 2022, the Government of Canada published *Faster and Further: Canada's Methane Strategy*, which sets out the measures Canada will take to reduce domestic methane emissions by more than 35% by 2030, compared to 2020 levels.

Measure	Description	Status and implementation update
	Lead department: ECCC	The methane strategy outlines how Canada will: • Implement measures across sectors of the economy, including oil and gas, to reduce the largest sources of methane emissions; • Strengthen the clean technology sector and provide tools to industry to achieve cost-effective methane emissions reductions while creating good-paying jobs; • Advance scientific knowledge and technical capacity to improve methane detection, measurement, and reporting; • Meet international climate targets under the Paris Agreement and Global Methane Pledge; and, • Solidify its global leadership and provide funding, tools, and best practices for other countries to achieve emissions reductions. • As part of the strategy, Canada recently released draft methane regulations for consultation that aim to reduce methane emissions from the oil and gas sector by at least 75% below 2012 levels by 2030.
ECW-13 **Indigenous Natural Resource Partnerships (INRP) Program** *Part of the Canadian Critical Minerals Strategy (HVI-06)*	Increase the economic participation of Indigenous communities and organizations in the development of natural resource projects that support the transition to a clean energy future. The INRP program has $80M in contributions funding over five years, with at least $25M dedicated for Indigenous communities' capacity building to engage in critical mineral projects and to support Indigenous-led projects along the critical minerals value chain. **Lead department: NRCan**	**Ongoing** Launch Date: November 2022 (due to high demand, program is on pause as of May 22, 2023, and not accepting applications. Applications may re-open at a future date.) As of September 2023, 23 contribution agreements have been signed, totalling $29.4M for projects spanning several natural resource sectors, including many with a net-zero element. Of these, nine projects ($7.5M) focus explicitly on reducing emissions through their support of renewable energy development, climate action plans, and participation in alternative energy sources (e.g., biomass, hydrogen) that comprise Canada's clean energy mix.

Measure	Description	Status and implementation update
ECW-14 **Canada's Carbon Management Strategy** *Referred to as Carbon Capture, Utilization, and Storage (CCUS) Strategy in the 2030 ERP*	Establish a vision and plan to accelerate the carbon management industry in Canada so that it can realize its GHG reduction and commercial potential. **Lead department: NRCan**	**Ongoing** The Carbon Management Strategy, published on September 27, 2023, sets out Canada's vision and key priorities for the development of a globally competitive carbon management sector that contributes to climate and economic objectives, including reaching net zero by 2050 and growing a robust domestic sector that supports inclusive, high-value employment and a more sustainable economy. Recognizing the need for durable carbon removal across a range of sectors to complement deep emissions reductions, and guided by Canada's Carbon Management Strategy, the Government of Canada commits to exploring the potential to expand efforts to support innovation and deployment of negative emissions technologies. These innovative technologies, also referred to as carbon dioxide removal, are being developed and implemented around the world, including in Canada. For example, Canadian companies are leading development of innovative solutions for direct air carbon capture and storage (DACCS) and bioenergy with carbon capture and storage (BECCS). The Government is implementing supports to build on Canada's early leadership in this area, including through the CCUS Investment Tax Credit, Canada's GHG Offset Credit System, and direct support for technology RD&D.
ECW-15 **Investment Tax Credit for Carbon Capture, Utilization, and Storage (CCUS)**	Budget 2021 proposed the introduction of an investment tax credit for capital invested in CCUS projects, with the goal of reducing emissions by at least 15 Mt annually. Budget 2022 announced specific design details of the CCUS Investment Tax Credit, and further enhancements were announced in Budget 2023. **Lead department: FIN**	**Initiated** In August 2022, an initial consultation on draft legislation was launched, which included details on design features. In August 2023, a full package of legislative proposals was released for consultation. This consultation closed on September 8, 2023. Enacting legislation was tabled in Parliament on November 30, 2023, in Bill C-59. The legislation and regulations will need to receive royal assent before taxpayers can claim the tax

Measure	Description	Status and implementation update
		credit. Once legislated, the tax credit will be retroactively available to businesses that have incurred eligible CCUS expenses, starting in 2022.
ECW-16 **Canada Growth Fund**	The Canada Growth Fund was capitalized with $15B to help attract private capital to build Canada's clean economy by using investment instruments that absorb certain risks in order to encourage private investment in low carbon projects, technologies, businesses, and supply chains. **Lead department: FIN**	**Ongoing** The Canada Growth Fund commenced operations in summer 2023 and announced its first investment in October 2023—a $90M investment in a geothermal energy company, Calgary's Eavor Technologies Inc., helping to support good jobs for Albertans and secure a Canadian future for a company at the leading edge of the global clean economy. In the 2023 Fall Economic Statement, the Government announced that the Canada Growth Fund will be the principal federal entity issuing carbon contracts for difference. The Canada Growth Fund will allocate, on a priority basis, up to $7B of its current $15B in capital to issue all forms of contracts for difference and offtake agreements.

Buildings

Measure	Description	Status and implementation update
BDG-01 **Develop net-zero energy ready model building code and code for retrofits by 2022**	Development of increasingly stringent, performance-based model building codes, including to introduce net-zero energy-ready model codes for new construction and the code for alterations to existing buildings. **Lead departments: NRC, NRCan**	**Adopted** The 2020 edition of the National Energy Code of Canada for Buildings and of the National Building Code were published in March 2022, including energy performance tiers to provide a framework for achieving higher levels of energy efficiency in buildings and houses.

Measure	Description	Status and implementation update
BDG-02 **Develop national model code requirements for alterations to existing buildings with a focus on energy efficiency and requirements for GHG emissions for new buildings**	Development of new provisions for national model codes that support increased energy efficiency when alterations are made to existing buildings. Development of new provisions for new construction that address GHG emissions associated with building operations. **Lead departments: NRC, NRCan**	**Initiated** The NRC is leading work to develop new requirements to address energy efficient alterations to existing buildings and houses and GHG emissions from new buildings and houses, for potential inclusion in the 2025 editions of the National Model Codes. NRCan is supporting this work.
BDG-03 **Green Construction through Wood (GCWood) program**	Provides non-repayable contributions of up to 50% of a project's eligible costs (up to a total of $1.4M) for demonstration projects with high growth potential that target low-carbon, wood-based systems and technologies and advanced building bio-products. Provides non-repayable contributions for eligible costs of Accelerating Construction Transformation projects, including building capacity, advancing wood education and supporting building codes and standards. **Lead department: NRCan**	**Ongoing** The GCWood program was renewed in Budget 2023 for another $38M over three years. The program absorbed technology transfer, education, and domestic market research activities pertaining to non-traditional products previously supported under the Expanding Market Opportunities (EMO) Domestic Program. The program has also broadened its scope for eligible projects under demonstration projects to include schematic design, innovation building solutions for wood construction (including prefabrication, retrofit, and design for disassembly and adaptability) and bio-based wood products (e.g., wood-fibre insulation, wood cladding, etc.) to encourage the increased use of wood as a low-carbon building material. Funding opportunities for demonstration projects opened in August 2023. To date the program has supported: • 16 mass timber demonstration projects, including 4 tall wood buildings, 10 low-rise non-residential buildings and 2 timber bridges; • Adoption of wood curricula at 11 Canadian post-secondary institutions; • Nearly 50 wood education modules or courses for post-secondary schools; and, • Critical research that led to the inclusion of encapsulated mass timber building up to 12

Measure	Description	Status and implementation update
		storeys in the 2020 edition of the National Building Code of Canada. The program has also published a State of Mass Timber in Canada report and an interactive mass timber projects map that is updated regularly.
BDG-04 **Canada Greener Homes Initiative**	A multi-stream initiative to fight climate change, create new energy advisor jobs across Canada, and help homeowners save money. **Lead department: NRCan**	See below for stream-specific updates.
BDG-04.1 **Canada Greener Homes Grant** *Part of the Canada Greener Homes Initiative*	Funding to help homeowners make their homes more energy-efficient, create new jobs across Canada for energy advisors, grow domestic green supply chains, and fight climate change. **Lead department: NRCan**	**Ongoing** As of November 14, 2023, over 465,000 grant applications have been received through the national portal and by co-delivery partners in ON, QC, and NS. Over $444M in grant payments have been issued to homeowners in total. The program ensures Indigenous participation through continuous intake of applications for community-scale home retrofit projects. As of November 21, 2023, 53 applications have been received, and 27 Indigenous contribution agreements have been signed valued at $19.6M. Also as of November 21, 2023, the Recruitment, Training and Mentorship campaign has a total of 18 agreements (4 completed, 14 ongoing) valued at $9.7M. These contribution agreements support the recruitment, training, and mentoring of new energy advisors (EAs) and the upskilling of existing EAs, with a focus on under-served areas (e.g., remote and rural communities). Since program launch, the number of EAs in Canada has doubled.

Measure	Description	Status and implementation update
BDG-04.2 **Canada Greener Homes Loan** *Part of the Canada Greener Homes Initiative*	This program helps homeowners complete deep home retrofits through interest-free loans worth up to $40,000 that are repayable over 10 years. **Lead department: CMHC**	**Ongoing** As of August 2023, CMHC has received more than 38,000 loan applications across Canada with an average eligible loan amount approaching $24,000. Projects funded and/or launched: • 12,170 loans worth $234M fully funded as of August 2023; and, • 19,520 loans worth $69M partially funded as of August 2023. CMHC is planning to undertake an outcomes analysis, beginning early 2024. Expected to have fully funded loans representing approximately $325M in total federal funding.
BDG-04.3 **Canada Greener Affordable Housing (CGAH)** *Part of the Canada Greener Homes Initiative*	This program offers low-interest repayable and forgivable loans to help affordable housing providers complete deep energy retrofits on residential rental buildings. It also provides contributions for completing the pre-retrofit activities needed to plan, prepare, and apply for the retrofit funding. **Lead department: CMHC**	**Ongoing** CGAH includes a mix of contributions ($19.5M), forgivable loans ($500M) and repayable loans (up to $600M) to community housing providers. CGAH pre-retrofit and retrofit programs launched on June 1, 2023. Pre-retrofit funding received 248 applications totaling $34.2M in requested funding. Applications were assessed and legal agreements were issued in early September. Applicants not selected were notified. Additional information on call-out windows is available online. CGAH's retrofit window for year 1 remains open and applications are being accepted on a continuous basis until the available funding has been fully committed. To date, retrofit funding received 10 applications—8 were considered ineligible/incomplete, and 2 applications are under assessment with requested funding totaling $14.8M.

Measure	Description	Status and implementation update
BDG-04.4 **Oil to Heat Pump Affordability (OHPA) Program** *Part of the Canada Greener Homes Initiative*	The OHPA Program supports low- to median-income Canadian homeowners' transition away from oil heating to electric cold climate air source heat pumps. Funding of up to $10,000 per eligible household is available, with up to an additional $5,000 to match provincial and territorial contributions via co-delivery arrangements. This program will help homeowners save thousands of dollars on heating bills every year and reduce GHG emissions associated with the combustion of heating oil. **Lead department: NRCan**	**Ongoing** The OHPA Program is a new incentive, launched March 31, 2023, with funding available over 4 years (2023-24–2026-27). Co-delivery agreements are in place with NL, NS and PE, allowing homeowners in these provinces to seamlessly access federal and provincial grant funding through a single provincial window. As of November 21, 2023, over 12,794 applications have been received, including 1,241 applications through the national portal, and 11,553 in co-delivery jurisdictions: 2,337 applications were received in NS, 8,000 in PE, and 1,216 in NL.
BDG-05 **Green and Inclusive Community Buildings (GICB)**	Funding to support green and accessible retrofits, repairs or upgrades to existing public community buildings and construction of new publicly accessible community buildings that serve high-needs communities across Canada. At least 10% of funding for this program reserved for Indigenous projects and recipients. **Lead department: INFC**	**Ongoing** All intakes for the program have closed and applications are currently under assessment. Since the launch of the program in April 2021, close to 2,000 applications, seeking over $14B in funding were submitted to INFC. As of November 2023, more than 110 community infrastructure projects have been announced with funding of over $650M, including small, medium, and large retrofits and new community buildings. Projects announced under the program include retrofits of community centres, cultural, and recreational facilities to improve energy efficiency, accessibility, and safety, and the construction of new inclusive, accessible, net-zero carbon facilities, including Indigenous educational and long-term care facilities.

Measure	Description	Status and implementation update
BDG-06 **Energy Efficient Buildings Research, Development & Demonstration (EEB RD&D) Program**	Inform the development of national building energy codes for both new and existing net-zero energy-ready buildings through provincial/territorial collaborations, R&D, and real-world demonstration projects in all Canadian climate zones. **Lead department: NRCan**	**Ongoing** $42.3M to fund projects that will accelerate the development and adoption of net-zero energy-ready codes and cleaner technologies to promote highly energy-efficient building design and construction practices; provide cost-effective building solutions; and validate their applications with real-world demonstrations. As of 2022-23, the program has supported 20 high-efficiency demonstration projects.
BDG-07 **National Housing Strategy (NHS)**	The Strategy provides funding to help reduce homelessness and improve the affordability, availability, and quality of housing for Canadians in need. **Lead department: CMHC**	**Ongoing** Since its implementation, the NHS has created or committed 100,000 new housing units and over 120,000 housing units have been repaired or committed. The new Housing Accelerator Fund was launched in July 2023 to reduce systemic barriers to housing and promote a rapid increase in housing supply, including affordable, accessible, and climate-compatible housing.
BDG-08 **National Infrastructure Assessment**	Establish an advisory body to lead a regular National Infrastructure Assessment. **Lead department: INFC**	**Initiated** Work is ongoing to establish a Minister's advisory body, the Canadian Infrastructure Council, to carry out the Assessment, and provide impartial, expert and evidence-based advice on infrastructure challenges and opportunities for all orders of government.
BDG-09 **Canada Green Buildings Strategy**	Working with partners, the strategy will build off existing initiatives and set out new policy, programs, incentives, and standards needed to drive a massive retrofit of the existing building stock, while helping to ensure newly constructed buildings support a net-zero future. **Lead department: NRCan**	**Under development** Through 2022 and 2023, NRCan has been working closely with key stakeholders and federal partners to develop the Canada Green Buildings Strategy, with a view to achieving net zero and enhancing climate resiliency. The Strategy will take into account new actions being developed at the federal level and by provincial and territorial partners, industry and the private sector. In the summer of 2022, NRCan released the *Canada Green Buildings Strategy* Discussion

Measure	Description	Status and implementation update
		Paper and launched a public engagement process which concluded in early 2023. In summer 2023, NRCan published key learnings from this engagement with a What We Heard report and a Summary of Engagement with Indigenous Partners. See below for additional updates on specific sub-components of the Strategy.
BDG-09.1 **Low Carbon Building Materials Innovation Hub** *Part of the Canada Green Buildings Strategy*	Drives further research, building code reform, and demonstration activities, all promoting the use of lower carbon construction materials (e.g., wood, steel, cement, etc.) in the built environment. **Lead department: NRCan**	**Under development** The Low Carbon Buildings Material Innovation Hub is in the planning and development phase.
BDG-09.2 **Transition off fossil fuels for heating systems** *Part of the Canada Green Buildings Strategy*	Exploring regulatory standards and an incentive framework to support the transition off fossil fuels for heating systems. **Lead department: NRCan**	**Initiated** The Government of Canada continues to explore options to develop regulatory standards and an incentive framework to support the transition off fossil fuels for heating systems. Throughout 2022, NRCan worked to develop the evidence base to support the transition off fossil fuels via studies and surveys on economic, energy, and emissions impacts; heat pump manufacturing and supply chains; and Canadians' knowledge, attitudes, and decisions on home heating. From 2022 to the present, there has been ongoing collaboration with provinces and territories to build workforce capacity for the installation of heat pumps. In November 2022, the Oil to Heat Pump Affordability Program was announced as part of the Canada Greener Homes Initiative to support low- to median-income households transition from heating oil to high-efficiency heat pumps. More details on the program are provided under measure BDG-04.4.

Measure	Description	Status and implementation update
BDG-09.3 **EnerGuide home labeling** *Part of the Canada Green Buildings Strategy*	Developing a nationally coordinated approach to increase home labelling for energy performance and climate resilience. **Lead department: NRCan**	**Under development** The Toward Net-Zero (TNZ) Homes and Communities program was launched in September 2022 with the aim to, in part, support projects that facilitate the use of innovative home energy labelling tools and methods to reduce residential GHG emissions through retrofits. The TNZ program received 27 labelling-related proposals, of which 8 were selected. Total funding of approximately $2.7M over 3 years. In April 2023, NRCan launched a Home Labelling Working Group with federal, provincial, territorial and municipal representatives to support the development and implementation of home energy efficiency and climate resilience information labelling across Canada.
BDG-09.4 **Codes Acceleration Fund (CAF)** *Part of the Canada Green Buildings Strategy* *Referred to as the Net Zero Building Code Acceleration Fund in the 2030 ERP*	Will help build capacity and support market preparedness to help accelerate the adoption and implementation of the higher performance tiers of the 2020 national model energy codes, or other high-performance codes, and promote higher rates of compliance with adopted codes. Funding will also help pave the way for new code requirements to drive energy efficient alterations to existing buildings retrofits and net-zero emission construction. **Lead department: NRCan**	**Ongoing** The CAF was launched in January 2023. The first Call for Proposals closed in April 2023. Most provinces and territories have committed to adopting the base tier of the 2020 national model energy codes by 2024.

Measure	Description	Status and implementation update
BDG-09.5 **Climate resilience of the built environment** *Part of the Canada Green Buildings Strategy*	Developing an approach to increasing the climate resilience of the built environment. **Lead department: NRCan**	**Under development** NRCan's work to develop the Canada Green Buildings Strategy includes a focus on enhancing climate resilience in the built environment. See above for details on progress toward the Strategy. In September 2023, the call for proposals process for the Climate Change Adaptation Program closed. The Program will offer up to $15M in funding for projects that will facilitate the development, sharing, and application of knowledge, tools, and practices for communities, decision-makers, and natural resource-sector businesses in taking adaptation-informed decisions and developing and implementing adaptation actions.
BDG-09.6 **Deep Retrofit Accelerator Initiative (DRAI)** *Part of the Canada Green Buildings Strategy* *Referred to as the Retrofit Accelerator Initiative in the 2030 ERP*	Will help to transform Canada's deep retrofit market by increasing capacity for project development and implementation activities across the country. Funding to accelerator organizations and other stakeholders will help to identify and aggregate deep retrofit projects and guide building owners in the development of their projects. The initiative will also support other capacity-building activities, such as the development of tools, resources, and standardized approaches. **Lead department: NRCan**	**Ongoing** The DRAI was launched in February 2023. The first Call for Proposals closed in April 2023. Other efforts focused on the development of tools and resources to support the implementation of deep retrofit projects.
BDG-10 **Greener Neighbourhoods Pilot Program (GNPP)**	Focusing on clusters of low-rise housing, the GNPP seeks to pilot the Dutch Energiesprong model in the Canadian market. **Lead department: NRCan**	**Ongoing** The $35.5M GNPP aims to pilot the Dutch *Energiesprong* model of aggregated deep energy retrofits in up to six community housing neighbourhoods across Canada. By aggregating similar homes and buildings in an entire neighbourhood, the *Energiesprong* model creates mass demand for deep energy retrofits, which

Measure	Description	Status and implementation update
		allows leveraging of new retrofit approaches, such as the use of prefabricated exterior panels, to reduce on-site labour time and overall project costs while reducing the energy-use intensity and emissions from each building. The GNPP includes two funding calls. The first call is supporting Market Development Teams (MDTs), also known as retrofit accelerators. These organizations will convene and coordinate supply- and demand-side actors to identify opportunities for aggregated deep energy retrofit projects, find solutions to regional gaps and barriers, and drive market transformation in their regions. This call closed in April 2023, with 16 proposals received; from these, up to six MDTs will be selected to receive up to $1M each. The second call, closed on September 14, 2023, will provide up to $10M per project to fund demonstrations of whole-building deep energy retrofits in up to six community housing neighbourhoods. Eligible projects must each include at least 100 homes or housing units and target reductions of at least 50% in energy consumption and 80% in GHG emissions.
BDG-11 **Centre of Excellence in Construction Life Cycle Assessment (CECLA)** *Referred to as Establishment of a Centre of Excellence to support a decarbonized and climate-resilient construction sector in the 2030 ERP*	A newly developed CECLA at the NRC's Construction Research Centre will help guide RD&D support for low-carbon innovation in the construction industry. **Lead department: NRC**	**Initiated** Beginning in 2024, the Low Carbon Built Environment Challenge program will implement a CECLA to provide ongoing technical support to TBS, NRCan, INFC, and other federal departments to develop and promulgate low-carbon emissions procurement requirements and help to provide the industry with certainty needed for investment in low-carbon emissions technology.

Electricity

Measure	Description	Status and implementation update
ELE-01 **Phase out of conventional coal-fired power plants by 2030**	Amend existing coal-fired electricity regulations to accelerate the phase out of traditional coal-fired electricity by 2030. **Lead department: ECCC**	**Adopted** Regulations are in place. Unabated coal-fired electricity to cease as of January 1, 2030. As of fall 2023, 20 coal-fired electricity units are still operating.
ELE-02 **Regulatory performance standards for new natural gas units and converted coal-to-gas units**	Set performance standards for natural gas-fired electricity generation. **Lead department: ECCC**	**Adopted** Regulations are in place. Performance standards for new natural gas units and converted coal-to-gas units are in place to ensure efficient technology is used.
ELE-03 **Emerging Renewable Power Program (ERPP)**	Support deployment of emerging renewables not yet established commercially in Canada, such as geothermal, tidal and offshore wind. **Lead department: NRCan**	**Ongoing** Implementation of the $200M ERPP is ongoing with projects being monitored. $178M has been committed to six projects in AB, BC, SK and NS. Initiatives include bi-facial solar, geothermal, and in-stream tidal projects. Since April 2022, the Tu Deh-Kah geothermal project in BC, led by the Deh Tai Corporation, the economic development corporation of Fort Nelson First Nation, has surpassed a critical milestone with the completion of well tests in late 2022. Construction work is expected to begin by 2024 with a target operations date by 2026.
ELE-04 **Smart Renewables and Electrification Pathways Program (SREPs)**	Investments in smart renewable energy and electrical grid modernization projects. **Lead department: NRCan**	**Ongoing** SREPs has allocated all Budget 2021 and 2022 funding ($1.56B over eight years) to approved smart renewable electricity deployment and grid modernization projects. SREPs has approved 72 deployment projects and 50 capacity building projects, enabling approximately 2,700 MW of new renewable energy capacity and supporting energy storage and grid modernization to better prepare the

Measure	Description	Status and implementation update
		grid for a transition to a net-zero electricity system. These projects are expected to create over 34,000 job-years and annual GHG emissions reductions of 3.1 Mt CO_2 eq. Over half of all projects have meaningful Indigenous ownership, representing over $800M in program contributions. NRCan continues to sign contribution agreements and provide funding for approved projects. Announced projects are available online. NRCan received nearly $3B in Budget 2023, including to recapitalize SREPs, to support regional priorities and Indigenous-led projects, and add transmission projects to the program's eligibility.
ELE-05 **Wah-ila-toos: Reducing diesel in Indigenous, rural and remote communities** *Referred to as Off-diesel in rural, remote and Indigenous communities "Off-diesel Hub" in the 2030 ERP*	To ensure that rural, remote, and Indigenous communities that currently rely on diesel have the opportunity to be powered by clean, reliable energy by 2030. Includes the Indigenous Off-Diesel Initiative (IODI), Clean Energy for Rural and Remote Communities (CERRC) and Northern Responsible Energy Approach for Community Heat and Electricity (REACHE). **Lead departments: NRCan, CIRNAC**	April 2022: Establishment of Wah-ila-toos administrative unit to support the implementation and coordination of the streamlined approach, engagement pathways, and the development of a long-term strategy. October 2022: A centralized single-window approach has been implemented, which consolidates intake for CERRC, Northern REACHE, and IODI. Since then, the programs have received over 450 funding requests and new proposals arrive on a daily basis. December 2022: A distinctions-based Indigenous Council was established to support Wah-ila-toos by providing guidance and advice on programs and policy development. The Indigenous Council will also direct an engagement process and develop recommendations on a long-term strategy for the clean energy transition. Along with the Indigenous Council, the Governing Board was established to include a mix of federal officials and Indigenous Council members that will review and endorse projects, along with strategic policy direction. Since CERRC, Northern REACHE, and IODI were launched in

Measure	Description	Status and implementation update
		2018, 253 projects have been approved totalling $272M in funding. This includes 28 projects totalling $40M in funding since the Governing Board was launched. February 6, 2023: The interdepartmental initiative was gifted the name Wah-ila-toos following a sacred name gifting ceremony held by Grandmothers and Elders. The name Wah-ila-toos represents our collective responsibility to uphold our good relations with each other.
ELE-05.1 **Indigenous Off-Diesel Initiative (IODI)** *Part of Wah-ila-toos*	A clean energy training program that supports Indigenous-led climate solutions in remote Indigenous communities that currently use diesel or fossil fuels for heat and power. IODI supports a cohort of participants (called Energy Champions) in their journey from training through to project planning and development. **Lead departments: NRCan, CIRNAC**	**Ongoing** As of October 2022, the second cohort of the IODI launched and 10 Energy Champions were selected. The Energy Champions will receive up to $1.52M to lead engagement, clean energy planning, and project development within their communities. The IODI team continues to support the first cohort of 14 Energy Champions.
ELE-05.2 **Clean Energy for Rural and Remote Communities (CERRC)** *Part of Wah-ila-toos*	Support projects that reduce reliance on diesel and other fossil fuels in Canada's Indigenous, rural, and remote communities. **Lead department: NRCan**	**Ongoing** From March 31, 2022, to September 30, 2023, 20 contribution agreements and 13 grants have been signed in addition to the 114 agreements signed since the program launched in 2018. These projects are helping demonstrate and deploy community-led renewable energy projects, encouraging energy efficiency, and building skills and capacity. Projects included the St. Mary's River Energy Project, supported by $4.3M in funding from CERRC, which was successfully completed in early 2023. The project refurbished an existing 240 kW hydro system with new generating components and a modern control system and installed a 250 kW solar photovoltaic plant and 500 kW lithium-ion battery storage integrated

Measure	Description	Status and implementation update
		into the existing diesel grid at Mary's Harbour, NL. The project has demonstrated improved technical readiness of an integrated diesel microgrid including hydro, solar and battery components and is expected to reduce diesel consumption by 30%.
ELE-05.3 **Northern Responsible Energy Approach for Community Heat and Electricity (REACHE)** *Part of Wah-ila-toos*	Funding for implementing renewable energy projects in off-grid Indigenous and northern communities that rely on diesel and other fossil fuels to generate heat and power. **Lead department: CIRNAC**	**Ongoing** From April 2022 to September 2023, the Northern REACHE program has supported a total of 78 projects with an investment of $26.2M. This includes renewable energy projects (e.g., solar panel installations, wind studies, etc.) and capacity building initiatives including workshops, skills development and mentorship/networking programs. Additionally, Northern REACHE supported the feasibility and planning stages of 11 northern hydroelectricity and grid-interconnection projects with an investment of $23.2M.
ELE-06 **Indigenous Clean Energy Program**	Investments, starting in 2021-22, through the Strategic Partnerships Initiative (SPI) to build capacity for local, economically sustainable clean energy projects in First Nations, Inuit, and Métis communities and support economic development opportunities. **Lead department: ISC**	**Ongoing** Five Indigenous Clean Energy Initiatives have been provided SPI funding in BC, AB, SK, QC, and Atlantic Canada. A sixth Initiative, within MB, has been approved to use SPI's Terms & Conditions to develop a Clean Energy Initiative. Indigenous Clean Energy (ICE) continues to provide advisory, outreach, and technical support in advancing Indigenous Clean Energy initiatives across the country.
ELE-07 **Smart Grids Program**	Program to promote the modernization of grid infrastructure by funding the demonstration of promising, near-commercial smart grid technologies and the deployment of smart grid integrated systems across Canada. Funding for utility-led projects to reduce GHG emissions, better utilize existing electricity assets,	**Ongoing** NRCan completed delivery of the $100M Smart Grid Program. The program funded 22 projects, including $6.1M to NS Power and $6.2M to the NB Power Corporation to develop, deploy and pilot solutions to integrate distributed energy resources, such as rooftop and community-scale solar installations and battery storage, into the grid and to engage with communities on energy consumption and energy asset ownership.

Measure	Description	Status and implementation update
	and foster innovation and clean jobs. **Lead department: NRCan**	The Government of Canada committed an additional $45.6M over three years for the renewal of the smart demonstration stream under the Energy Innovation Program (see ENB-02 in Table 6-1) to accelerate the development of smart grids and address barriers to adoption.
ELE-08 **Strategic Interties Predevelopment Program (SIPP)**	Funding for studies to help build new interprovincial electricity transmission infrastructure projects with the support from the Canada Infrastructure Bank. **Lead department: NRCan**	**Ongoing** As of August 2023, SIPP has signed three contribution agreements to support pre-development transmissions projects in Atlantic Canada and committed $15M in funding.
ELE-09 **Small Modular Reactor (SMR) Action Plan implementation**	Canada's SMR Action Plan, released in 2020, is Canada's plan for the development, demonstration and deployment of SMRs for multiple applications at home and abroad. As one of the 27 federal actions under the plan, the Government of Canada committed to convene senior leadership. Members of the Leadership Table include senior representatives from the federal government, interested provincial and territorial governments, Indigenous communities, utilities, industry, and non-governmental organizations. **Lead department: NRCan**	**Ongoing** Since April 2022, the Deputy Minister of NRCan has held three SMR Leadership Table Meetings to discuss nuclear energy developments. Following the inaugural meeting in April 2022, NRCan committed to issuing a publicly available SMR Action Plan progress update to capture the voice of the Leadership Table, highlight discussions from the meeting, and outline future actions to support the development and deployment of SMRs in Canada. The second progress update will be published in fall 2023. Nuclear energy has experienced significant momentum both domestically and internationally over the last few years. To recognize this shift and reflect the importance of integrated planning involving all nuclear technologies—both small and large reactors—the scope of the Leadership Table has been broadened and now operates under the new name of the Nuclear Energy Leadership Table.
ELE-10 **Clean Electricity Regulations**	Set performance standards for emitting electricity generating units to support net-zero electricity by 2035 target.	**Ongoing** The draft regulations were published in the *Canada Gazette, Part I* on August 19, 2023, for

Measure	Description	Status and implementation update
	Lead department: ECCC	formal comment. The final regulations are targeted for publication in 2024.
ELE-11 **Electricity Predevelopment Program (EPP)**	Support predevelopment work of large clean electricity projects, in collaboration with provinces. **Lead department: NRCan**	**Ongoing** As of September 2023, five applications have been received and are at various stages of the project review and approval process.
ELE-12 **Canada Electricity Advisory Council** *Referred to as the Pan-Canadian Grid Council in the 2030 ERP*	External advice to the Government of Canada to promote clean electricity infrastructure investments. **Lead department: NRCan**	**Initiated** Budget 2022 allocated $2.4M for the establishment of a Pan-Canadian Grid Council, which would provide external advice in support of national and regional electricity planning. The Minister of Energy and Natural Resources engaged with provincial and territorial counterparts in summer 2022 to solicit input on the concept of the Electricity Council for consideration during its development. Departmental officials subsequently followed up with PT counterparts in bilateral engagements to solicit additional feedback. In May 2023, the Minister of Energy and Natural Resources announced the establishment of the Canada Electricity Advisory Council and its mandate. The Council was established as an independent, electricity-sector focused, expert advisory body to provide advice to the Minister of Energy and Natural Resources to accelerate investment, and promote sustainable, affordable, and reliable electricity systems. The Canada Electricity Advisory Council commenced its work in May 2023 and aims to submit its advice to the Minister in a report in spring 2024 to support and enable the transition of Canada's electricity systems towards the net-zero objectives.

Measure	Description	Status and implementation update
ELE-13 **Atlantic Loop initiative**	To help connect regions with clean power, the Government of Canada will lead engagement across Atlantic Canada to shape a clear path forward for the Atlantic Loop initiative. **Lead department: NRCan**	**Ongoing** The Governments of Canada, New Brunswick, and Nova Scotia will advance two tracks of collaborative work to support the phase out of coal-fired electricity generation by 2030 and work towards net-zero electricity by 2035 and a net-zero economy by 2050. Under the first track of work, provincial and federal governments will identify the necessary investments to support the phase out of coal-fired electricity by 2030, and the transition to clean energy. The Point Lepreau–Salisbury–Onslow Transmission Line connecting NS and NB was identified as a near-term 2030 priority. A second phase of work will advance areas of critical importance and cooperation on the path to net-zero electricity by 2035, which will include further exploring regional transmission and energy exchange opportunities in partnership with neighboring utilities, in QC, NL, and PE.
ELE-14 **Clean Electricity Investment Tax Credit**	Budget 2023 proposed to introduce a 15% refundable investment tax credit for: eligible investments in certain non-emitting electricity generation systems; abated natural gas-fired electricity generation; stationary electricity storage systems; and equipment for the transmission of electricity between provinces and territories. Both new projects and the refurbishment of existing facilities will be eligible. Both taxable and non-taxable entities, such as Crown corporations and publicly owned utilities, corporations owned by Indigenous communities, and pension funds, would be eligible for the proposed investment tax credit. **Lead department: FIN**	**Under Development** Budget 2023 announced the Government's intention to introduce a Clean Electricity Investment Tax Credit. FIN is developing the design and implementation details of the tax credit. FIN will be engaging with provinces, territories, and other relevant parties to develop the design and implementation details of the Clean Electricity Investment Tax Credit. The government is targeting to introduce legislation in Parliament in fall 2024. Enacting legislation and regulations will need to receive royal assent before the tax credit could be claimed.

Heavy industry

Measure	Description	Status and implementation update
HVI-01 **Hydrofluorocarbon (HFC) Regulations**	The HFC Regulations work to support the phase down of consumption of HFCs and prohibits the import and manufacturing of products containing or designed to contain HFCs. **Lead department: ECCC**	**Adopted** Regulations are in place.
HVI-02 **Clean Growth Program (GCP)**	Launched in 2017-18, the first-of-its-kind CGP invested in clean technology RD&D in the Canadian energy, mining, and forestry sectors. It covered five areas of focus: reducing GHG and air-polluting emissions; minimizing landscape disturbances and improving waste management; producing and using advanced materials and bioproducts; producing and using energy efficiently; and, reducing water use and impacts on aquatic ecosystems. The program aimed to advance emerging clean technologies toward commercial readiness, reduce environmental impacts, enhance competitiveness, and create jobs. **Lead department: NRCan**	**Concluded** Provided $155M to co-fund 43 clean technology RD&D projects with provinces and territories in three Canadian sectors: energy, mining, and forestry. As of 2022-23, CGP projects demonstrated advances in RD&D, with more than half of the projects advancing one or more technological readiness levels (69%), surpassing the program target of 50%. Projects filed 410 patents or licenses, informed the development of 11 codes or standards, and shared early discoveries and knowledge through production of 93 peer reviewed articles, technical reports, and other publications. In 2022-23, CGP projects have already achieved their 2027 environmental performance targets achieving annual reductions of 0.35 Mt of CO_2 eq in GHG emissions (2027 target: 0.3–0.7 Mt per year), 24,600,000 m^3 in water use (2027 target: 100,000–2,000,000 m^3 per year), and 91,000 tonnes of waste (2027 target: 20,000–30,000 tonnes per year). CGP projects had resulted in over 1,003 direct and indirect job-years of employment, including 465 direct jobs. Proponents were successful in leveraging funds by an average of $3 in contributor funds for every $1 of NRCan funding exceeding the target ratio of 1:1.

Measure	Description	Status and implementation update
HVI-03 **Strategic Innovation Fund – Net Zero Accelerator (SIF-NZA)**	Invests in projects to support Canada's largest industrial GHG emitting sectors to reduce emissions, help position key industrial sectors to be successful in the net-zero global economy of 2050, and assist in establishing Canada as a clean technology leader capitalizing on new growth opportunities, including a domestic battery ecosystem. **Lead department: ISED**	**Ongoing** Since its launch in 2021, the NZA initiative has executed a number of contribution agreements in many sectors, including fuel cells, batteries, nuclear, steel, and EV manufacturing. These projects will help Canadian industries adapt to the green economy, support the development of Canadian clean technology, and secure GHG reductions that contribute to Canada's climate objectives. The NZA also launched a Call-to-Action for large-emitters in March 2022 to identify and select large, ambitious, and innovative proposals that substantially reduce near-term GHG emissions while positioning Canada's industry to be competitive in a global low-carbon economy. Through this Call-to-Action, NZA has identified several promising large-scale decarbonization projects, most of which are currently in the due-diligence stage of the project. These projects would support Canada in meeting its emissions reduction goal for 2030. As part of efforts to reduce emissions from existing facilities, SIF is supporting key projects that will accelerate the net-zero transition of Canada's steel sector and reduce GHG intensity of steel products. The program has secured projects with Algoma Steel and ArcelorMittal Dofasco to upgrade their steel manufacturing facilities by electrifying production processes and improving product quality. Through these SIF-funded projects, the companies have also committed to a combined GHG emission reduction potential of 6 Mt in 2030.

Measure	Description	Status and implementation update
HVI-04 **Cutting corporate taxes for manufacturers and producers of zero-emissions technologies**	The Government of Canada announced in Budget 2021 that it would reduce the general corporate and small business income tax rates by half for businesses that manufacture and produce zero-emission technologies. **Lead department: FIN**	**Ongoing** Budget 2022 announced an expansion of eligible activities, which has been enacted. Budget 2023 proposed a three-year extension to this measure and a further expansion of eligible activities. Draft legislation to implement these Budget 2023 proposals was publicly released for comment in August 2023.
HVI-05 **Net-Zero Challenge (NZC)**	Supports businesses operating in Canada to develop and implement credible and effective plans to transition their facilities and operations to net-zero emissions by 2050. **Lead department: ECCC**	**Ongoing** Since the program launched in August 2022, over 140 Canadian businesses have joined. Recruitment, outreach, and engagement are ongoing. TBS announced the requirement for successful bidders on federal procurement contracts over $25M to participate in the NZC or a similar initiative or standard. The program has also committed to expanding eligibility to local governments and public entities, to encourage them to commit to net zero.
HVI-06 **Enhancing Canada's supply of critical minerals**	Create a Critical Minerals Centre of Excellence to lead the development and coordination of Canada's policies and programs on critical minerals, in collaboration with industry, provincial, territorial, Indigenous, non-governmental, international partners, and other government departments. **Lead departments: NRCan, NRC**	**Ongoing** The Critical Minerals Centre of Excellence has been established at NRCan. The Canadian Critical Minerals Strategy was launched on December 9, 2022. Implementation is underway for each initiative under the Strategy; specific details for each can be found below.

Measure	Description	Status and implementation update
HVI-06.1 **Critical Minerals Geoscience and Data (CMGD) Initiative** *Part of the Canadian Critical Minerals Strategy*	$79.2M over 4 years to accelerate public geoscience for critical minerals. The program provides funding to advance the availability of valuable data and insights on the location, quality, and economic feasibility of critical minerals resources. **Lead department: NRCan**	**Ongoing** Launch Date: Spring 2023 (Active) February 2023: Internal Geoscience Projects announced a call for proposals that eventually provided 23 projects with funding for four years totaling $9.4M. June 2023: Project proposal submissions are open for up to $500,000 per project for provinces and territories. The CMGD anticipates allocating $1M in funding towards this PT engagement initiative. These projects are designed to establish a critical mineral resource knowledge base, study and explore critical mineral systems on new and emerging sources, and prospectively model critical minerals incorporating advanced analytics and ESG principles. Summer 2023: • Indigenous engagement: Correspondence with 15 Indigenous organizations in support of CMGD fieldwork in BC, MB, ON, NB, and NS. • Communications and conferences: 10 presentations and sessions at key events. Publications: 4 published and 1 under review, including: • "Mapping Canada's Green Economic Pathways for Battery Minerals: Balancing Prospectivity Modelling with Conservation and Biodiversity Values," Earth Science, Systems and Society (2022); • "Geoscience language models and their intrinsic evaluation," Applied Computing and Geosciences, Volume 14 (2022); and, • "Applications of Natural Language Processing to Geoscience Text Data and Prospectivity Modeling," Natural Resources Research (2023).

Measure	Description	Status and implementation update
HVI-06.2 **Critical Minerals Research, Development and Demonstration (CMRDD) Program** *Part of the Canadian Critical Minerals Strategy*	The program aims to provide funding to critical mineral projects to improve the feasibility of producing or commercializing their novel technologies and innovative process designs and support the enhanced environmental and social performance of their production methods. **Lead departments: NRCan, NRC**	**Ongoing** Launch Date: Summer 2023 (Active) March 2023: Wave 1: $47.7M via Budget 2021. Six projects announced at Prospectors and Developers Association of Canada in March 2023, representing a total investment of over $14M. June 2023: Wave 2: $144.4M via Budget 2022. NRCan hosted a 2-day workshop (June 20-21, 2023) in Ottawa, with over 150 participants from industry, academia, associations, and government. July 18, 2023: The application intake for the $40M contribution program for pilot plants and demonstration projects that will help develop critical minerals value chains launched July 18, 2023, and will remain open until September 29, 2023. The program will consider projects between April 1, 2024, to March 31, 2027. Wave 2 of the program has expanded its list of eligible critical minerals to all 31 identified in Canada's critical minerals strategy, but will continue to prioritize certain critical minerals from that list to align itself closely with ISED's Strategic Innovation Fund program. Wave 2 has also expanded its priority value chains to include advance manufacturing and information and communication technologies in addition to the electric vehicles value chain included in Wave 1.
HVI-06.3 **Critical minerals target, Strategic Innovation Fund (SIF)** *Part of the Canadian Critical Minerals Strategy*	Increase the supply of responsibly sourced critical minerals and support the development of domestic and global value chains for the green and digital economy. $1.5B in funding is projected for critical mineral projects from 2023-24 to 2029-30. **Lead department: ISED**	**Ongoing** Launch Date: Summer 2023 (Active) July 14, 2023: A Critical Minerals Investment Framework to guide project assessment and prioritization was developed and guidance was released by ISED. July 2023: two supported projects ($249M) • $27M to E3 Lithium for a lithium extraction project from brines.

Measure	Description	Status and implementation update
		• $222M to Rio Tinto Fer et Titane (RTFT) to increase production of critical minerals as well as the decarbonization of operations (up to 70% reduction of GHG emissions of RTFT's titanium dioxide, steel and metal powders business).
HVI-06.4 **Critical mineral concierge service** *Part of the Canadian Critical Minerals Strategy*	$21.5M to support the Critical Minerals Centre of Excellence (CMCE) to develop federal policies and programs on critical minerals and to assist project developers in navigating regulatory processes and federal support measures. **Lead department: NRCan**	**Ongoing** Launch Date: December 2022 (Active) Winter 2023: Support for critical mineral developers: Since December, the CMCE received over 300 requests from industry partners for information or assistance navigating federal support measures for mineral projects. Over 30 proposals were referred to other federal partners for potential funding opportunities. The CMCE has developed a number of tools and mechanisms to facilitate funding opportunities with other federal partners, including the use of software tools as well as creating internal committees to explore co-investment.
HVI-06.5 **Global partnerships** *Part of the Canadian Critical Minerals Strategy*	Support Canada's international commitments and engagements in critical minerals related to geoscience, R&D, trade and investment attraction, and transparency and sustainability initiatives. **Lead department: NRCan**	**Ongoing** Launch Date: Spring 2023 (Active) March 2023: Launch of Canada–UK Critical Minerals Supply Chain Dialogue at Prospectors and Developers Association of Canada (PDAC) May 2022: UK innovation mission to Canada. June 2022: Canada's High Commission in the UK organized a research and innovation mission to the UK, which included discussions on critical minerals. May 2023: MOU signed with South Korea to enhance bilateral collaboration on critical minerals supply chains. Summer 2023: Under an MOU between the Geological Survey of Canada (GSC) and the Korea Institute of Geoscience and Mineral Resources (KIGAM), four new geoscience

Measure	Description	Status and implementation update
		projects in critical minerals are under way (as of July 20, 2023).
HVI-06.6 **Northern regulatory affairs** *Part of the Canadian Critical Minerals Strategy*	$40M to advance Canada's northern and territorial critical minerals agenda by supporting regulatory dialogue, regional studies, land-use planning, impact assessments and Indigenous consultation. The program aims to reduce uncertainty and risk associated with incomplete or unsupported elements of northern regulatory systems, increase confidence and efficiencies, and further support meaningful Indigenous participation in northern resource management processes. **Lead department: CIRNAC**	**Ongoing** Launch Date: Spring 2023 (Active) Regulatory Dialogues ($3.78M over 7 years): Establish and maintain Regulatory Dialogue forums in the YT, NT, and NU. Regional Studies ($14.60M over 7 years): Conduct regional studies (or regional cumulative effects studies) in high critical mineral potential regions in the territories. Land Use Planning ($10.11M over 7 years): Provide financial support for currently unfunded Indigenous governments and organizations to participate in land-use-planning processes. Impact Assessment and Crown Consultation ($11.52M over 7 years): Provide financial support to Indigenous governments and organizations to ensure comprehensive and meaningful participation in all phases of impact assessment processes; conduct a review (diagnostic and options paper) to improve Crown consultation in northern resource management.
HVI-06.7 **Critical Mineral Infrastructure Fund (CMIF)** *Part of the Canadian Critical Minerals Strategy*	The CMIF will support clean energy and transportation infrastructure projects necessary to develop and expand Canada's critical mineral production. **Lead department: NRCan**	**Initiated** Announced in March 2023, the CMIF will provide $1.5B via Budget 2022 (over 7 years starting in 2023-24) to support clean energy and transportation infrastructure projects necessary to develop and expand Canada's critical mineral production. The call for proposals for the fund was launched on November 20, 2023.

Measure	Description	Status and implementation update
HVI-07 **Green Industrial Facilities and Manufacturing Program (GIFMP)** *Referred to as Industrial Energy Management System in the 2030 ERP*	The GIFMP helps industrial facilities realize energy savings and related cost savings, which contributes to improving competitiveness and sustainability. These savings will support Canada in its efforts to reduce energy consumption and associated GHG emissions. **Lead department: NRCan**	**Ongoing** The GIFMP launched in February 2023. An initial Call for Proposals for the Energy Efficiency Solutions Track (Track 1) targeting provinces, territories, utilities, and other organizations closed in March 2023. A Call for Proposals for the Industrial Facility Track (Track 2) closed in July 2023.
HVI-08 **Buy Clean Strategy**	The Government has committed to introducing a new Buy Clean Strategy to support and prioritize the use of made-in-Canada low-carbon products in Canadian infrastructure projects. **Lead departments: NRCan, INFC, PSPC**	**Under Development** Through 2022 and 2023, NRCan, INFC, and PSPC have been working with federal partners, including TBS' Centre for Greening Government, ISED, NRC, and ECCC, to develop a Buy Clean Strategy. In late summer 2022, departments held a series of engagement sessions with stakeholders.

Oil and gas

Measure	Description	Status and implementation update
OIG-01 **Emissions Reduction Fund (ERF)**	Funding to support capital investments, clean technology deployment, and RD&D to reduce methane and other GHG emissions reductions from onshore and offshore oil and gas operations. The fund has three streams: • Onshore Deployment; • Offshore Deployment; and, • Offshore RD&D. **Lead department: NRCan**	Program funding ended in fiscal year 2022-23. All projects will be complete by March 31, 2024. See below for stream-specific updates.

Measure	Description	Status and implementation update
OIG-01.1 **Emissions Reduction Fund: Onshore Deployment**	The Onshore Deployment Program was a $675M investment supporting the deployment of clean technologies and infrastructure to reduce or eliminate methane emissions from upstream and midstream oil and gas operations. **Lead department: NRCan**	**Ongoing** The program committed $254M by program close in March 2023. As of fall 2023, $180M has been dispersed to proponents. Projects will be completed by March 31, 2024.
OIG-01.2 **Emissions Reduction Fund: Offshore Deployment**	The Offshore Deployment Program was a $42M investment supporting capital projects designed to either reduce offshore GHGs or improve the environmental performance of offshore oil spill monitoring, detection and response activities. **Lead department: NRCan**	**Concluded** All funding under the Offshore Deployment Program was allocated as of March 2023.
OIG-01.3 **Emissions Reduction Fund: Offshore RD&D Program**	The Offshore RD&D Program was a $33M investment supporting RD&D projects that advance solutions to decarbonize NL's offshore industry. It was delivered by NRCan in collaboration with Energy Research & Innovation Newfoundland & Labrador. **Lead department: NRCan**	**Concluded** The Offshore RD&D Program funded 18 applied RD&D projects that will help to reduce emissions in the offshore oil and gas sector. Projects were successfully completed by March 2023.
OIG-02 **Oil and gas methane regulations**	Current federal regulations require the oil and gas sector to reduce methane emissions by 40–45% below 2012 levels by 2025. The Government has committed to develop measures to further reduce methane emissions from the oil and gas sector by at least 75% of 2012 levels by 2030. **Lead department: ECCC**	**Ongoing** Proposed regulatory framework released November 2022. A September 2023 update to the framework outlined the proposed path forward to exceed the 75% target. Canada recently released draft methane regulations for consultation that aim to reduce methane emissions from the oil and gas sector by at least 75% below 2012 levels by 2030.The final regulations are targeted for publication in 2024.

Measure	Description	Status and implementation update
OIG-03 **Oil and gas emissions cap**	Cap oil and gas sector emissions and ensure that the sector makes an ambitious and achievable contribution to meeting the country's 2030 climate goals. Reduce emissions at a pace and scale needed to align with the achievement of net-zero emissions by 2050, with five-year targets to stay on track. **Lead departments: ECCC, NRCan**	**Initiated** Since the discussion paper on options to cap and reduce GHG emissions from the oil and gas sector was published in July 2022, ECCC and NRCan have engaged provinces and stakeholders and have received extensive information to guide the design of the cap. The Government received over 150 written submissions from stakeholders and over 25,000 submissions from the general public as part of email campaigns. Close to 100 multilateral and bilateral meetings and information webinars were held. Input received included submissions from provinces and territories, Indigenous partners, industry, environmental non-governmental organizations, academics, and members of the public. The Government of Canada is publishing a regulatory framework for a cap on emissions from the production of oil and gas in fall 2023.
OIG-04 **Phasing out inefficient fossil fuel subsidies**	In 2009, G20 leaders committed to "rationalize and phase out over the medium-term inefficient fossil fuel subsidies." At the North American Leaders' Summit on June 29, 2016, Canada agreed to implement this commitment by 2025. As directed in the mandate letters for the Ministers of Environment and Climate Change and Finance, Canada subsequently committed to an accelerated timeline to eliminate inefficient fossil fuel subsidies by 2023, and to develop a plan to phase out public financing of the fossil fuel sector, including by federal Crown corporations. **Lead departments: ECCC, FIN, NRCan**	**Adopted** On July 24, 2023, the Government of Canada released the Inefficient Fossil Fuel Subsidies Government of Canada – Self-Review Assessment Framework and the Inefficient Fossil Fuel Subsidies Guidelines. The Assessment Framework is the tool that determines which tax and non-tax measures constitute an inefficient fossil fuel subsidy. Fossil fuel subsidies are considered inefficient unless they meet one or more of six specific criteria. The Guidelines, which have been in effect since their release, direct federal departments and agencies to align all future government supports with the Assessment Framework. The Guidelines can be updated at any point to better reflect new policy developments and enable increased stringency, and may be formally reviewed periodically. As part of its work on inefficient fossil fuel subsidies, FIN, with the support of ECCC, will

Measure	Description	Status and implementation update
		develop a self-review report, which will form the basis upon which an international expert review panel will assess Canada (i.e., the peer review process). This report will be made public once the peer review is finalized. Canada is also committed to develop a plan to phase out public financing of the fossil fuel sector. The Government's work will identify current public financing by 2024 and announce by fall 2024 the implementation plan to phase out public financing of the fossil fuel sector.

Transportation

Measure	Description	Status and implementation update
TRN-01 **Light-Duty On-Road Vehicle Emission Regulations**	Align pre-2026 regulations to more stringent U.S. standards. Amendments to ensure post-2025 regulations are aligned with U.S. regulations. **Lead department: ECCC**	**Ongoing** Proposed regulations for pre-2026 model years were published in the *Canada Gazette, Part I*, on December 31, 2022, for public comment. Ongoing stakeholder consultations are being conducted. Pre-2026 final amendments are expected to be published by the end of 2023. Post-2026 draft regulations are expected to be published in 2024, following the U.S. Final Rule publication.
TRN-02 **Regulated light-duty zero-emission vehicle (ZEV) sales targets**	Requirements for at least 20% of all new light-duty vehicles offered for sale be ZEVs by 2026, at least 60% by 2030, and 100% by 2035. **Lead department: ECCC**	**Ongoing** Proposed regulations were published in the *Canada Gazette, Part I*, on December 31, 2022, for public comment. Ongoing stakeholder consultations are being conducted. Final regulations are expected to be published by the end of 2023.

Measure	Description	Status and implementation update
TRN-03 **Incentives for Zero-Emission Vehicles (iZEV) Program**	The iZEV Program helps make new light-duty ZEVs more affordable by offering point-of-sale incentives to individuals and businesses, supporting adoption of ZEVs across Canada. **Lead department: TC**	**Ongoing** The iZEV Program has incentivized the purchase of over 300,000 ZEVs since its launch in May 2019.
TRN-04 **Heavy-duty on-road vehicle emission regulations**	Amendments to ensure post-2025 regulations are aligned with the most stringent standards in North America. **Lead department: ECCC**	**Under Development** Proposed amendments to increase stringency of air-pollutant and GHG-emission standards for heavy-duty vehicles in alignment with the U.S. EPA are targeted for publication in the *Canada Gazette, Part I* after the finalization of zero-emission vehicle requirements (see TRN-05.1).
TRN-05 **Strategy to reduce emissions from medium- and heavy-duty vehicles (MHDVs)**	An integrated strategy that aims for 35% of total MHDV sales to be ZEVs by 2030. **Lead department: TC**	**Ongoing** Strategy has been launched, including new programs and new funding, such as: • The $547.5M Incentives for Medium- and Heavy-Duty Zero-Emission Vehicles (iMHZEV) Program, launched on July 11, 2022; • $75.8M over five years, starting in 2022-23, to the Zero-Emission Trucking Program; • The Green Freight Program to help fleets reduce their fuel consumption and GHG emissions from on-road freight; and, • The continuation of the Zero Emission Transit Fund, a $2.75B program that offers support to public transit and school bus operators across Canada who are electrifying their fleets (see TRN-11.2 for more details). More details on each of these programs can be found below. Lastly, the Government of Canada is engaging with many stakeholders, including industry, non-governmental organizations, and provinces and territories, to share best practices, exchange information, and identify solutions for

Measure	Description	Status and implementation update
		cleaner freight transportation, including through various working groups and via the newly launched Zero-emission Vehicles Council.
TRN-05.1 **Medium- and heavy-duty zero-emission vehicles (ZEV) sales regulations** *Part of the Strategy to reduce emissions from medium- and heavy-duty vehicles (MHDVs)*	Requirements for 100% MHDV sales to be ZEVs by 2040 for a subset of vehicle types based on feasibility, with interim 2030 regulated sales requirements that would vary for different vehicle categories based on feasibility, and explore interim targets for the mid-2020s. **Lead department: ECCC**	**Under development** Proposed regulatory framework for establishing zero-emission requirements for medium- and heavy-duty vehicles targeted for fall 2023. Publication in *Canada Gazette, Part I* is targeted for 2024. The final regulations are targeted for publication in 2025.
TRN-05.2 **Incentives for Medium- and Heavy-Duty Zero-Emission Vehicles (iMHZEV) Program** *Part of the Strategy to reduce emissions from medium- and heavy-duty vehicles (MHDVs)*	The iMHZEV Program helps make medium- and heavy-duty zero-emission vehicles more affordable by offering point-of-sale incentives for Canadian organizations and businesses who buy or lease an eligible MHZEV. There are many different makes and models of eligible zero-emission vehicles for purchase or lease with incentives of up to $200,000 per vehicle. **Lead department: TC**	**Ongoing** As of October 31, 2023, iMHZEV has received 1,276 incentive requests (1,276 medium- and heavy-duty zero-emissions vehicles) for a value of $34.85M.

Measure	Description	Status and implementation update
TRN-05.3 **Zero Emission Trucking Program (ZETP)** *Part of the Strategy to reduce emissions from medium- and heavy-duty vehicles (MHDVs)* *Referred to as Hydrogen Trucking Demonstration Projects in the 2030 ERP*	Address barriers to zero-emission trucking commercialization through deployments, supporting provincial and territorial readiness, and directed research. **Lead department: TC**	**Ongoing** Issued a call for proposals to support readiness for medium- and heavy-duty zero-emission vehicles across the provinces and territories. Over $1.3M in contribution funding was approved to gather data on zero-emission truck performance, development of training materials, and provincial planning to support the safe deployment of zero-emission trucking technologies. Issued a $1.5M Trucking Testbed contract to deploy heavy-duty zero-emission trucks into Canadian commercial freight haul operations to demonstrate the technology in Canadian conditions, gather data, and increase hands on experience with the technology. Funded research on Battery Technologies for Electric Long-Haul Trucking, emerging aerodynamic trailer technologies, and Canadian trucking route datasets. Partnered with Industry to host three Zero-Emission Trucking Workshops, attended by nearly 300 participants from the federal, provincial and territorial governments, industry, and academia, to share information and guide future program activities.
TRN-06 **Zero Emission Vehicle Infrastructure Program (ZEVIP)**	The ZEVIP supports building electric vehicle (EV) chargers and hydrogen refuelling stations across Canada. **Lead department: NRCan**	**Ongoing** Budget 2022 recapitalized the ZEVIP with an additional $400M, extending the program to 2027. Budget 2022 also announced that the CIB will invest $500M in large-scale charging and refueling infrastructure. As of June 2023, 42,592 electric chargers and 16 hydrogen refuelling stations have been selected for funding under ZEVIP. Of those selected for funding, 6,697 of the EV chargers are installed and open. Launched the continuous intake pilot for Indigenous streams of ZEVIP and Awareness programs on April 20, 2023.

Measure	Description	Status and implementation update
		New Request for Proposals to be launched in spring 2024. CIB announced its first project on April 26, 2023, with FLO to build 2,000 public EV fast-chargers at 400 locations across Canada.
TRN-07 **Green Freight Assessment Program (GFAP)**	The GFAP was launched in 2018 to help companies make data-driven investment decisions to reduce their emissions and fuel costs. **Lead department: NRCan**	**Concluded** Between 2018 and 2022, the GFAP invested $3.4M to address financial and awareness barriers faced by freight companies. The program was sunset in March 2022. The following were some of its key results: • Number of assessment projects: 34 • Number of trucks assessed: 5,874 • Number of retrofit projects: 11 • Number of fuel-switching projects: 7 • Number of retrofits completed: 2,826 • Drivers trained: 578 • Number of NG trucks funded: 20 The program has been recapitalized to create the Green Freight Program under the integrated strategy to reduce emissions from medium- and heavy-duty vehicles (see measure TRN-08).
TRN-08 **Green Freight Program (GFP)**	The GFP was launched to help fleets reduce their fuel consumption and GHG emissions from on-road freight through fleet energy assessments, fleet retrofits, engine repowers, best-practice implementation and the purchase of low-carbon vehicles. The program provides funding through two streams: Stream 1 offers grant funding to Canadian fleet operators to undertake third-party energy assessments, and to implement retrofits that would result in lower GHG emissions. Stream 2 provides contribution funding for projects that repower existing medium- and heavy-duty	**Ongoing** Stream 1 was launched December 12, 2022, and is accepting applications through open intake until March 31, 2027. For Fleet Energy Assessments, the program will provide up to 50% per company, to a maximum of $40,000. For Truck/Trailer Equipment Retrofits, the program has established a list of eligible technologies and will provide up to 50% per device. The maximum amount payable for eligible activities under Stream 1 is $250,000 per applicant. Stream 2 launched on August 18, 2023, and will be accepting applications for funding until November 16, 2023. The program will contribute up to 50% of the total project costs up to a maximum of $5M per project.

Measure	Description	Status and implementation update
	fleets (e.g., to fully or partially switch the fuel used by a truck to a lower carbon alternative) and helps offset the incremental cost of the purchase of a new truck that is fueled by lower carbon alternatives (e.g., biodiesel, renewable natural gas). **Lead department: NRCan**	Another call for applications is targeted for winter 2024.
TRN-09 **Clean Transportation RD&D Program**	Advances multi-modal research, development and testing of clean technology solutions for Canada's transportation system. **Lead department: TC**	See below for stream-specific updates.
TRN-09.1 **Clean Transportation RD&D Program – Marine**	Advances research, development and testing of clean technology solutions for Canada's marine transportation system. **Lead department: TC**	**Ongoing** Advancing projects, awarded under the third call for proposals, demonstrating battery-electric and low carbon propulsion technologies for Canada's marine sector such as: • Demonstration of Low-Carbon Hydrogen-Derived Renewable Diesel (HDRD) Fuel for Commercial Tugboat Fleets Operating (Seaspan); • Design and deployment of a Battery Electric Tugboat for Canada (Robert Allan); • Cruise Vessel Fuel Cell Marine Safety Assessment (Capilano Marine Design); • Deployment of biodiesel B100 on laker vessel (Canada Steamship Lines); and, • Development and testing of a Functional Solar Cell for Fishing vessel (Rayleigh Solar tech).
TRN-09.2 **Clean Transportation RD&D Program – Rail**	Advances research, development and testing of clean technology solutions for Canada's rail transportation system. **Lead department: TC**	**Ongoing** Advancing projects, awarded under the third call for proposals, demonstrating battery-electric and low carbon propulsion technologies for Canada's rail sector such as: • Developing technical specifications/ standards for battery electric and hydrogen

Measure	Description	Status and implementation update
		fuel cell rail propulsion systems (CSA Group); • Conducting a quantitative risk assessment on the use of hydrogen in rail operations (Canadian Nuclear Laboratories); • Testing biodiesel (B100) to validate performance and emissions profile (Southern Railway of BC); • Conducting a techno-economic analysis of fuel cell and battery retrofits for rail propulsion systems (University of British Columbia); and, • Conducting a feasibility study on replacing diesel-powered auxiliary demands with hydrogen fuel cell power (Ballard Power Systems).
TRN-09.3 **Clean Transportation RD&D Program – Aviation**	Advances research, development and testing of clean technology solutions for Canada's aviation transportation system. **Lead department: TC**	**Ongoing** Advancing projects, awarded under the third call for proposals, demonstrating novel technologies and supply chain operating practices for Canada's aviation sector such as: • Demonstration of a new real-time calibration technology to improve the measurement standard for aviation emission regulations (University of Alberta); • Integrating regionally produced SAF into the new Fraser River Marine Jet Fuel Facility to supply Vancouver's YVR International Airport (Waterfall Advisors Group Ltd.); and, • Development and evaluation of next-generation aircraft technology concepts for reducing CO_2 emissions from aviation (University of Toronto Institute for Aerospace Studies).
TRN-10 **Decarbonization of the rail sector – Memorandum of Understanding (MOU)**	MOU with the Railway Association of Canada to reduce locomotive emissions. **Lead department: TC**	**Adopted** TC and the Railway Association of Canada renewed the MOU in fall 2023, to establish a framework to collaborate to reduce rail sector emissions. The MOU includes ambitious yet attainable goals for reducing Class 1 railway emissions by 2030, increasing clean fuel usage in the existing locomotive fleet, and

Measure	Description	Status and implementation update
		accelerating the retrofitting and upgrading of locomotives to advance net-zero technology.
TRN-11 **Permanent public transit funding**	Support the expansion of large urban transit systems, the electrification of public transit fleets, active transportation infrastructure and transit solutions for rural communities while establishing the federal government's permanent commitment to transit funding. **Lead department: INFC**	Through the Permanent Public Transit Program (PPTP), announced in February 2021, the Government of Canada is providing significant funding under the Zero Emission Transit Fund (ZETF), the Active Transportation Fund (ATF) and the Rural Transit Solutions Fund (RTSF). These programs, which represent well over $2B in funding are active now with ongoing intakes and approvals that will see hundreds of projects built in the near-term across the country. The second phase of permanent funding begins in 2026-27 and will see tens of billions in funding to support public transit and active transportation infrastructure in communities across the country. This transit funding builds on the $20.1B in transit funding provided through the Investing in Canada Infrastructure Programs, the $3.4B provided through the Public Transit Infrastructure Fund, transit's eligibility under the $2.4B annual Canada Community-Building Fund, and financing available through the CIB. These investments support a cleaner environment, healthy lifestyles, and improved mobility of Canadians by investing in public transit solutions in communities and building new and expanded networks of pathways, bike lanes, trails, and pedestrian bridges. Investments in public transit are part of the development of complete, inclusive, and transit-oriented communities. See below for stream-specific updates.
TRN-11.1 **Rural Transit Solutions Fund (RTSF)** *Part of permanent public transit funding*	The RTSF addresses unique mobility challenges in rural, remote, and Indigenous communities by supporting planning and deployment of locally tailored mobility solutions, including support to assess the	**Ongoing** As of November 2023, INFC has announced funding for more than a dozen projects under the purview of the RTSF, committing a total of more than $5M.

Measure	Description	Status and implementation update
	viability of new approaches to mobility. **Lead department: INFC**	
TRN-11.2 **Zero Emission Transit Fund (ZETF)** *Part of permanent public transit funding*	The ZETF aims to advance the Government of Canada's commitment to help procure zero emission public transit and school buses across Canada. **Lead department: INFC**	**Ongoing** As of November 2023, 15 projects have been announced under the ZETF, representing a cumulative contribution of $1.3B.
TRN-11.3 **Active Transportation Fund (ATF)** *Part of permanent public transit funding*	The ATF aims to expand and enhance active transportation networks in communities of all types and sizes, while also supporting the National Active Transportation Strategy. **Lead department: INFC**	**Ongoing** As of November 2023, the ATF has approved and announced more than 180 projects with a total program contribution of more than $100M.
TRN-12 **Collaboration at the International Maritime Organization (IMO)**	Address emissions from maritime shipping by developing new international standards and recommended practices for marine vessels, and development and implementation of new Canadian regulations. **Lead department: TC**	**Under Development** The IMO's short-term measures to improve the carbon intensity of shipping entered into force on January 1, 2023. Work continues on developing an approach to reduce GHGs from the domestic trading fleet based on the IMO's short-term measures. Canada participated in and actively supported negotiations at the IMO, during which a new 2023 GHG Strategy was approved, with enhanced GHG reduction targets (net-zero GHG emissions by or around 2050, with indicative checkpoints in 2030 and 2040), as well as new guidelines for marine-fuel-life-cycle assessment. It also agreed to develop, by 2025, mid-term measures to deliver on the new targets, including a fuel-GHG-intensity standard and a GHG-pollution-pricing- mechanism.

Measure	Description	Status and implementation update
TRN-13 **Collaboration with aviation sector through Canada's Aviation Climate Action Plan** *Referred to as Canada's Action Plan to Reduce GHG Emissions from Aviation in the 2030 ERP*	This government-industry initiative identifies key ongoing and planned initiatives to reduce GHGs on a path to net-zero emissions by 2050. The plan also includes an ambitious aspirational sustainable aviation fuels (SAF) use target of 10% by 2030. **Lead department: TC**	**Ongoing** Canada's Aviation Climate Action Plan was published in September 2022. TC is working with other government departments and the private sector to implement the new 2022–2030 Aviation Climate Action Plan. Through a new Sustainable Aviation Task Force, TC has brought together federal departments, provincial and territorial governments, the private sector, academia, and non-governmental organizations to oversee the implementation of the plan and produce an update by 2025. This will include the identification of interim GHG reduction targets and the development of a SAF Blueprint, which will identify how to create a SAF market in Canada capable of meeting the 2030 target. The updated plan will also focus on driving down emissions from the entire aviation ecosystem, including airport operations.
TRN-14 **Supporting Decarbonization at the International Civil Aviation Organization (ICAO)/Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**	Development and maintenance of international standards and recommended practices to reduce emissions, and domestic implementation. The CORSIA is a way to manage emissions from the international aviation industry and is one way the ICAO is working toward net-zero emissions. **Lead department: TC**	**Adopted** At the 41st Assembly (fall 2022), ICAO member states (including Canada) agreed to a long-term aspirational goal (LTAG) for international aviation of net zero by 2050. Canada continues to lead technical work with ICAO to support emissions reductions from international aviation, including through maintenance of the CORSIA Standards and Recommended Practices. Canada will further advance decarbonization of international aviation through ongoing discussions at ICAO on the development of a Global Framework for Aviation Cleaner Energies.

Measure	Description	Status and implementation update
TRN-15 **Off-road zero-emissions equipment regulations**	Set zero-emissions standards for air pollutants from small off-road engines such as lawnmowers, trimmers, and generator sets. **Lead department: ECCC**	**Initiated** Exploring options for zero-emission off-road equipment.
TRN-16 **Green Shipping Corridor Program (GSCP)**	The GSCP aims to advance the Government of Canada's commitment to facilitate the establishment of green shipping corridors in support of accelerating marine sector decarbonization. **Lead department: TC**	**Ongoing** Budget 2023 announced $165.4M for TC starting in 2023-24 to establish the GSCP. TC engaged with marine stakeholders over summer 2023 and launched the program on December 1, 2023. The program consists of: • The Clean Ports stream, which will primarily provide funding to support the adoption of clean technology and infrastructure at ports and terminals; and • The Clean Vessel Demonstration stream, which will primarily provide funding to study, test and pilot clean fuel propulsion systems for shipping vessels. A call for proposals opened in December 2023.

Agriculture

Measure	Description	Status and implementation update
AGR-01 **Agricultural Climate Solutions (ACS) program** *Part of the Natural Climate Solutions Fund*	ACS is a multi-stream program that will help to develop and implement farming practices to tackle climate change. By developing, evaluating, adopting, and surveying agricultural technologies and practices, ACS is focused on sequestering carbon, reducing GHG emissions and delivering environmental benefits. **Lead department: AAFC**	See below for stream-specific updates.

Measure	Description	Status and implementation update
AGR-01.1 **Agricultural Climate Solutions: Living Labs Stream** *Part of the Natural Climate Solutions Fund*	Provides funding for the co-development, testing, adoption, dissemination, and monitoring of technologies and practices, including beneficial management practices (BMPs), that sequester carbon and/or mitigate GHG emissions. **Lead department: AAFC**	**Ongoing** Since inception, the program has approved 14 projects spanning all provinces and establishing a Canada-wide network of living labs to co-develop, test and monitor BMPs and technologies in a real-life context on Canadian farms. As of the end of July 2023, the program has committed a total of $55.4M in funding, with $10.83M in funds distributed. As of March 31, 2023, living labs began work to develop or improve 79 different BMPs: 45 BMPs are intended to increase carbon sequestration and 34 BMPs are intended to reduce GHG emissions. Over 300 producers are participating in the Living Labs projects. The Living Labs have held over 80 knowledge transfer events to increase producer participation and adoption of BMPs that are developed or improved under the projects, through field demonstrations, outreach and peer-to-peer learning events. About 9,000 producer attendees participated in these events.
AGR-01.2 **Agricultural Climate Solutions: On-Farm Climate Action Fund** *Part of the Natural Climate Solutions Fund*	The On-Farm Climate Action Fund awards funding to recipient organizations nationwide to help producers adopt and implement immediate on-farm beneficial management practices (BMPs) with the greatest potential to store carbon and reduce GHG emissions. **Lead department: AAFC**	**Ongoing** As of the end of July 2023, the program has approved 13 projects, committing a total of $194.8M. $124.8M from these funds have been distributed. As of March 31, 2023, recipients have reported supporting over 4,300 producers to implement BMPs, resulting in approximately 1.3M ha of land under improved management practices including soil testing, agronomic services and/or rotational grazing plans. Recipients have also reported supporting the training over 1,000 professionals such as agronomists and held many peer-to-peer learning and on-farm demonstration events, with over 14,000 producer attendees. The program received funding through Budget 2022 to top up successful existing projects and extend the program to 2028. Budget 2023

Measure	Description	Status and implementation update
		proposed an additional $34.1M to further support producers in Eastern Canada (ON, QC, NB, NS, PE, and NL) to adopt nitrogen management BMPs to optimize fertilizer use and contribute to the achievement of Canada's 2030 economy-wide and fertilizer emissions targets.
AGR-02 **Agricultural Clean Technology Program**	Provides funding for research, innovation and adoption of clean technology that will support a low carbon economy and drive sustainable growth in the agriculture sector. **Lead department: AAFC**	**Ongoing** The program supports the adoption and development of clean technologies that reduce GHG emissions. As of the end of July 2023, the program has approved 366 projects and committed a total of $140.1M. $79.2M from these funds have been distributed as of August 2023. The program is supporting the work of the recently announced $12M Agricultural Methane Reduction Challenge to advance innovation solutions that contribute to the reduction of enteric methane emissions from the cattle sector.
AGR-02.1 **Agricultural Clean Technology Program: Adoption Stream**	The Adoption Stream supports the purchase and installation of commercially available clean technology or equipment upgrades that will reduce GHG emissions. **Lead department: AAFC**	**Ongoing** As of March 31, 2023, a total of 154 agricultural clean technologies have been adopted. The 109 adoption projects completed to date have reduced GHG emissions by an estimated 14,147 t CO_2 eq per year and reduced energy use, including electricity by 1,969 MWh, diesel by 1.04M litres and propane by 1.5M litres.
AGR-02.2 **Agricultural Clean Technology Program: Research and Innovation Stream**	The Research and Innovation Stream supports pre-market innovation, including research, development, demonstration and commercialization activities, to develop transformative clean technologies and enable the expansion of current technologies in three priority areas: Green energy and energy efficiency; Precision agriculture; and Bioeconomy. **Lead department: AAFC**	**Ongoing** As of March 31, 2023, a cumulative total of 44 agricultural clean technologies have been developed, assessed, or demonstrated. The stream has also resulted in 76 knowledge transfer events and obtained intellectual property protection for 17 technologies. The program has received an additional $330M in funds as proposed in the 2030 ERP and Budget 2022.

Measure	Description	Status and implementation update
AGR-03a **Canadian Agricultural Partnership (CAP)**	Funding provided to strengthen the agriculture, agri-food and agri-based products sector, helping to promote continued innovation, growth and prosperity. Launched in 2018, CAP was a five-year $3B FPT investment which included $1B in federal-only programing and $2B for programming that was cost-shared 60:40 by the federal, provincial, and territorial governments to support region-specific agriculture programs and services that focused on six priority areas tailored to meet regional needs. **Lead department: AAFC**	**Concluded** Under the Partnership, cost-shared on-farm environmental stewardship programs were delivered by provinces and territories to support Environmental Farm Plans and adoption of beneficial management practices (BMPs) which had multiple environmental benefits, including soil and water conservation, reductions in emissions and emission intensity, and climate resilience. For the first three years of the framework: • 19,687 environmental risk assessments (e.g., Environmental Farm Plans or equivalent) were developed or updated by the sector; and, • 18,076 on-farm and 46 agri-food processor BMPs projects were completed. In the first three years, $272,633,092 was funded by the federal, provincial and territorial governments under the Environmental Sustainability and Climate Change priority area. The CAP ended March 31, 2023.
AGR-03b **Sustainable Canadian Agricultural Partnership (Sustainable CAP)**	Funding provided to strengthen the competitiveness, innovation, and resiliency of the agriculture, agri-food and agri-based products sector. Launched in April 2023, Sustainable CAP is a five-year $3.5B investment that includes $1B for federal programming and $2.5B for programming that is cost-shared 60:40 by the federal, provincial and territorial governments to focus on five priority areas, including the Climate Change and Environment priority area which specifically addresses climate change and advancing environmental sustainability. This includes the	**Ongoing** The Sustainable CAP was launched on April 1, 2023. Under the Sustainable CAP, parties agreed to a cumulative emissions reduction target of 3–5 Mt by supporting the adoption of practices and technologies that will support climate change adaptation and mitigation, including reducing GHG emissions and improving carbon sequestration. The provinces and territories have started to receive, assess, and approve applications from recipients. The performance results along with other results information, will be reported for year 1, covering the period from April 1, 2023, to March 31, 2024, will be available in the fall of 2024. To support the new climate change and environment priority area, the AgriScience Program made changes to program

Measure	Description	Status and implementation update
	Resilient Agriculture Landscapes Program (RALP). **Lead department: AAFC**	parameters, requiring a 30% mandatory minimum investment in activities that focus primarily on this priority area with a 15% carve out for GHG reduction or carbon sequestration.
AGR-03.1 **Resilient Agricultural Landscapes Program (RALP)** *Part of the Sustainable Canadian Agricultural Partnership*	The RALP is an FPT cost-shared program that supports on-farm adoption using an ecological goods and services program approach and has been designed and delivered by provinces and territories in collaboration with AAFC in order to reflect local conditions and regional needs. The RALP supports producers to conserve and enhance the resiliency of agricultural landscapes by accelerating the adoption of on-farm land-use and management practices such as restoring and maintaining grasslands, wetlands, agroforestry, riparian areas and other regionally relevant practices. **Lead department: AAFC**	**Under Development** The RALP was launched on April 1, 2023, as a new program under the Sustainable Canadian Agricultural Partnership. Most jurisdictions, including YT, BC, AB, SK, MB, QC, NS, NL, and PE have launched their RALP and have started to receive, assess, and approve applications from proponents. The remaining provinces and territories will be aiming to launch their RALP within the 2023-24 fiscal year. Year 1 performance results covering the period from April 1, 2023, to March 31, 2024, will be available in the fall of 2024, with subsequent annual results to follow.
AGR-04 **Fertilizer emission reduction target**	Under Canada's strengthened climate plan, the Government of Canada committed to setting a national fertilizer-emission-reduction target of 30% below 2020 levels by 2030 and to work with fertilizer manufacturers, farmers, provinces, and territories to develop an approach to meet it. **Lead department: AAFC**	**Initiated** Official consultations through Simplesurvey for the Fertilizer Target were held from April 2022 to August 31, 2022. Technical workshops were then held in fall 2022. The Government of Canada received over two thousand responses during the consultation period, and published a What We Heard report summarizing the feedback received throughout the engagement process on March 22, 2023. A Fertilizer Working Group was launched in March 2023, as part of the Sustainable Agriculture Strategy Advisory Committee, with a term running until May 2024, with a possibility of extension. This Working Group is comprised of representatives from government, academia, and the sector who will provide expert advice on the development of the federal government's

Measure	Description	Status and implementation update
		strategy to reduce emissions from fertilizers by 30% below 2020 levels by 2030.
AGR-05 **Sustainable agriculture and agri-food innovation for a net-zero economy** *Referred to as Transformative science for a sustainable sector in the 2030 ERP*	Investment in transformative science for a sustainable sector in an uncertain climate and net-zero economy for 2050. Funding will support fundamental and applied research supporting a path to net-zero emissions, knowledge transfer, and developing metrics. **Lead departments: NSERC, SSHRC**	**Ongoing** The Sustainable Agriculture Research initiative was launched on March 20, 2023. The deadline for applications was November 8, 2023. 105 applications for preparatory funding to facilitate partnerships and build multidisciplinary and multi-sectoral collaborations were received by the granting agencies which announced 53 awards totalling approximately $1.75M in June 2023. The SSHRC Network on Sustainable Agriculture in a Net-Zero Economy funding opportunity was launched on May 10, 2023, and the application deadline was October 20, 2023. Network proposals received include between 33 and 81 co-applicants, partners, and collaborators.
AGR-06 **Sustainable Agriculture Strategy** *Referred to as the Green Agricultural Plan for Canada in the 2030 ERP*	Establish a long-term vision and approach to agri-environmental issues in order to advance the sustainability, competitiveness, and vitality of the sector. **Lead department: AAFC**	**Under Development** Broad stakeholder engagement ran from December 12, 2022 to March 31, 2023, including the release of a discussion paper. Sustainable Agriculture Strategy Advisory Committee established December 2022.

Waste

Measure	Description	Status and implementation update
WST-01 **Food Waste Reduction Challenge**	A five-year challenge to incentivize developing and deploying innovative new solutions to reduce food waste across the supply chain. **Lead department: AAFC**	**Ongoing** Innovative business models stream: 10 finalists submitted applications for the grand prize in May 2023. These applications are under review, with announcements of two

Measure	Description	Status and implementation update
		grand prize winners expected in winter 2023-24. Innovative technologies stream: Six finalists are in the final stage. The deadline to submit applications for the grand prize was December 5, 2023. Announcements of 2 grand prize winners are expected in spring 2024.
WST-02 **Zero plastic waste**	Comprehensive approach towards Canada's goal of zero plastic waste by 2030 that includes investing in research through Canada's Plastics Science Agenda, innovation through Canadian Plastics Innovation Challenges, support to industry-led plastic waste reduction initiatives, community action to prevent, reduce, and remove plastic pollution, and the implementation of the Canada-wide Action Plan on Zero Plastic Waste. **Lead department: ECCC**	**Ongoing** Seven federal organizations (ECCC, CIRNAC, DFO, HC, NRC, STC, and TC) received funding in Budget 2022 to work in five priority areas: expanding knowledge on plastics in the environment and the economy; developing and implementing management measures; supporting innovation and market transformation; preventing and reducing plastic pollution; and, reducing plastic waste from federal operations. Work continues with provincial and territorial partners through the Canadian Council of Ministers of the Environment to implement the Canada-wide Action Plan on Zero Plastic Waste, including developing guidance for more consistent plastic product recycling programs. GHG emissions reductions are expected as some virgin resins are replaced by the recycled plastics from these programs in packaging (see WST-03 below).
WST-03 **Minimum recycled content regulations for certain plastic manufactured items**	Government of Canada's commitment to develop new regulations that will set minimum recycled content requirements and establish rules for recyclability and compostability labelling for certain single-use plastic products and packaging. **Lead department: ECCC**	**Ongoing** Public consultations on a regulatory framework paper were held in April/May 2023.

Measure	Description	Status and implementation update
WST-04 ***Single-use Plastics Prohibition Regulations (SUPPR)***	The Government of Canada introduced SUPPR to phase out six categories of harmful single-use plastic items that have readily available alternatives. **Lead department: ECCC**	**Adopted** Published in *Canada Gazette, Part II* on June 20, 2022. Businesses across the country have stepped up and successfully transitioned to sustainable alternatives. This has already led to significant reductions in plastic pollution.
WST-05 **International legally binding agreement on plastic pollution**	The Government of Canada will continue to play a leadership role on plastic pollution internationally, particularly in the development of a new international legally binding agreement on plastic pollution. **Lead department: ECCC**	**Ongoing** In November/December 2022 and May/June 2023, Canada participated in the first two sessions of the Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution with the goal of completing negotiation by the end of 2024. Canada is demonstrating leadership by providing $4M to UNEP in 2023 to support inclusive, equitable, and transparent negotiations and is an inaugural member of the High Ambition Coalition to End Plastic Pollution—a group of 60 governments striving for an ambitious instrument to end plastic pollution by 2040. Canada will also host the fourth negotiation session (INC-4) in Ottawa in April 2024.
WST-06 **New regulations on reducing methane emissions from landfills**	Government of Canada commitment in the strengthened climate plan to develop new federal regulations to increase number of landfills that take action to reduce methane emissions. **Lead department: ECCC**	**Initiated** Proposed regulatory framework was released in April 2023. Draft regulations are under development and will be published in *Canada Gazette, Part I* for public comment by winter 2024.

Nature-based solutions

Measure	Description	Status and implementation update
NBS-01 **Natural Climate Solutions Fund (NCSF)**	With an investment of $5.469B over 10 years, this horizontal initiative led by NRCan includes three separate, but related, programs:	For program-specific updates, please see the associated sub-measures:

Measure	Description	Status and implementation update
	• ECCC's Nature Smart Climate Solutions Fund; • NRCan's 2 Billion Trees program; and, • AAFC's Agricultural Climate Solutions Program. The Nature Based Climate Solutions Advisory Committee provides advice on the delivery of the NCSF. **Lead departments: NRCan, ECCC, AAFC**	• Nature Smart Climate Solutions Fund (NBS-01.1); • 2 Billion Trees program (NBS-01.2); • Nature Based Climate Solutions Advisory Committee (NBS-01.3); and, • Agricultural Climate Solutions Program (AGR-01).
NBS-01.1 **Nature Smart Climate Solutions Fund (NSCSF)** *Part of the Natural Climate Solutions Fund*	Provides funding for projects that conserve, restore, and enhance forests, wetlands, peatlands, and grasslands to store and capture carbon. **Lead department: ECCC**	**Ongoing** Additional funding of $780M invested, for a total of $1.4B in funds to deliver emissions reductions from nature-based climate solutions. $191.9M has been allocated so far for projects that will conserve over 40,000 hectares of carbon-rich ecosystems such as grasslands, forests, wetlands, and peatlands. This funding will also support the restoration of over 20,000 hectares of wetlands, peatlands, and grasslands. In addition, several projects to support the implementation of natural-climate-solution policies and programs have advanced. Examples include: the review of wetland policies across Canada to determine opportunities to reduce wetland loss through policy changes; the integration of climate mitigation from land use and reclamation into a provincial mining regulatory system; and implementation of new types of municipal bylaws related to the preservation of carbon-rich habitats. Additional funding intakes are planned for 2023.

Measure	Description	Status and implementation update
NBS-01.1a **Indigenous-led Natural Climate Solutions Initiative** *Part of the Nature Smart Climate Solutions Fund and the Natural Climate Solutions Fund*	Within the NSCSF, up to $76.9M has been set aside for Indigenous-led Natural Climate Solutions, to provide targeted support to Indigenous Nations, communities and organizations to engage as leaders in natural climate solutions. This funding further supports the Government of Canada's commitment to Reconciliation. **Lead department: ECCC**	**Ongoing** In December 2022, $5.8M in funding was announced for 14 Indigenous-led initiatives, as part of the Indigenous-led Natural Climate Solutions initiative. This includes the initiative of the Cree Nation of Chisasibi in northern QC, where they are training Indigenous land users on best practices for nature-smart climate solutions to complete restoration and enhancement of coastal ecosystems.
NBS-01.2 **2 Billion Trees Program (2BT)** *Part of the Natural Climate Solutions Fund*	Provides funding to support tree-planting efforts by provinces, territories, third party organizations and Indigenous partners to support the Government of Canada' commitment to plant 2 billion trees across the country. **Lead department: NRCan**	**Ongoing** Since the 2 Billion Trees Program was launched in 2021, the Government of Canada has supported the planting of over 110 million trees, including 54 million trees planted through ECCC's Low Carbon Economy Fund (LCEF). In total, the 179 2BT-funded projects planted over 220 species at more than 2,900 sites. In addition, 76 communities have been directly supported and 1 in 5 projects funded by 2BT were Indigenous led. In summer 2023, NRCan announced that it would deliver $500M in funding for Indigenous-led projects using a distinctions-based approach. The 2BT program has notionally allocated funding for First Nations, Inuit, Métis and unaffiliated or cross-distinctions groups.
NBS-01.3 **Nature-Based Climate Solutions Advisory Committee**	Provides expert advice to NRCan, ECCC, and AAFC on Natural Climate Solution Fund's delivery of programs to ensure the achievement of maximum emissions reductions, while also delivering biodiversity and human well-being co-benefits. **Lead department: NRCan-led Secretariat**	**Ongoing** New co-chairs appointed in January 2023 and five members' terms expired in June 2023. Potential areas of work for the group include input into ECCC's human wellbeing reporting framework, and opportunities to provide advice on the role of NRCan's 2 Billion Trees program in the context of historical wildfires in 2023.

Measure	Description	Status and implementation update
NBS-02 **Indigenous Protected and Conserved Areas (IPCAs)**	Lands, waters, and ice where Indigenous leadership is a defining attribute in the decisions and actions that protect and conserve an area. These projects help to improve connectivity, advance Indigenous-led conservation and reconciliation, and have co-benefits for at-risk species and carbon storage. **Lead departments: ECCC, CIRNAC, PC, DFO**	**Ongoing** Inclusive reporting of protected and conserved areas in Canada continues to improve/increase. Over 60 Indigenous-led conservation projects have been funded since 2019, including 34 Indigenous-led Target 1 Challenge projects for the planning and establishment of protected and conserved areas across Canada, including IPCAs.
NBS-03 **25 by 25 and 30 by 30**	The Government of Canada is committed to conserving 25% of Canada's lands and 25% of its oceans by 2025 and 30% of each by 2030. **Lead departments: ECCC, DFO**	**Ongoing** As of the end of 2022, 13.6% of Canada's terrestrial and inland water area is conserved and 14.7% of Canada's oceans are conserved. Inclusive reporting of protected and conserved areas in Canada continues to improve/increase. For example, local government protected and conserved areas reported to Canadian Protected and Conserved Areas Database (CPCAD) increased by three areas in 2020, 29 in 2021 and 45 in 2022. Since the pan-Canadian definition for Other Effective area-based Conservation Measures (OECMs) was finalized in 2019, pan-Canadian reporting on OECM continues to increase. As of the end of 2022, Canada's conservation network includes 210 terrestrial OECMs with 90,953 km^2 of area (0.91% of terrestrial Canada) and 59 marine OECMs with 318,517 km^2 of area (5.54% of marine Canada). As of the end of 2022, all 19 Biosphere Reserves in Canada have received financial investments to qualify areas as OECMs, increasing protected and conserved areas reported to CPCAD.

Measure	Description	Status and implementation update
NBS-04 **Natural Infrastructure Fund**	Supports projects that use natural or hybrid approaches to protect the natural environment, support healthy and resilient communities, contribute to economic growth, and improve access to nature for Canadians. **Lead department: INFC**	**Ongoing** Intake for the Small Projects Stream was launched in July 2022, and closed in Fall 2022 with more than 550 applications received. Applications are currently under review. Up until November 2023, 5 projects have been announced with a federal contribution of $46M. These projects include increasing the tree canopy in downtown Winnipeg, supporting the restoration of coastal ecosystems and reduction of coastal erosion in Halifax, preventing flooding and improving water quality in Vancouver, and revitalizing green spaces such as parks and urban forests in Saskatoon.

Greening government

Measure	Description	Status and implementation update
GRG-01 **Greening Government Strategy updated targets and policies**	Outlines how the Government of Canada will transition to net-zero carbon and climate-resilient operations, and reduce environmental impacts on waste, water, and biodiversity. Targets: • New federal buildings are net-zero emissions and major building retrofits require a GHG reduction life-cycle cost analysis to determine the optimal GHG savings using a shadow carbon price of $300 per tonne; • Reduce embodied carbon of structural materials in construction projects by 30% starting in 2025; • By 2030, 75% of domestic office floor space (new leases and lease renewals) will be in net-zero carbon climate-resilient buildings;	**Ongoing** The Government of Canada continues its efforts at reducing its scope 1 and 2 emissions from real property and conventional fleet operations. In 2022-23, these emissions were 39.8% below 2005-06 levels. The Government is on track to meet its short-term net-zero carbon emissions targets for real property and its conventional fleet. The proportion of green vehicles (hybrid-electric or zero-emission) in the Government of Canada's light-duty conventional fleet continues to grow. In 2022-23, 14% of the light-duty conventional fleet was green vehicles. In 2022-23, TBS strengthened the Policy on Green Procurement by completing 2 new standards: • The Standard on Embodied Carbon in Construction requires service providers to disclose and reduce the carbon footprint related to major government construction projects, starting with a 10% reduction for

Measure	Description	Status and implementation update
	• Leverage the Government of Canada's purchasing power to motivate suppliers of goods and services that have a high environmental impact to address GHG emissions reduction, sustainable plastics and broader environmental benefits; and, • Ensure 100% of light duty fleet is zero-emission by 2030. **Lead department: TBS**	ready-mix concrete compared to the regional average, and is an important step towards implementing a Buy Clean approach in federal government procurement of structural construction materials for internal operations; and, • The Standard on the Disclosure of Greenhouse Gas Emissions and the Setting of Reduction Targets ensures that the process for procurements over $25M induces suppliers to measure and disclose their GHG emissions and adopt a science-based target to reduce GHG emissions. A full update on greening government progress is available online.
GRG-02 **Federal Low-Carbon Fuel Procurement Program (LCFPP)**	Supports the purchase and use of low-carbon intensity liquid fuels by federal departments for the operations of their air and marine fleets. **Lead department: TBS**	**Ongoing** The LCFPP was established in 2022 and accepted its first fuel deliveries in the summer of 2023. Three standing offers for the procurement of marine low-carbon fuels have been established with the Canadian Coast Guard in BC and several procurements are currently in progress for marine and aviation low-carbon fuel deliveries for the Coast Guard, the Royal Canadian Navy and the Royal Canadian Air Force in jurisdictions across Canada.
GRG-03 **Federal Clean Electricity Fund**	PSPC is implementing, on behalf of the Government of Canada, a procurement strategy to provide clean electricity to the federal community in order to address the Greening Government Strategy's commitment to use 100% clean electricity by 2025 at the latest. **Lead department: PSPC**	**Ongoing** Contract awarded in AB with Electricity Retailer to supply approximately 250,000 MWh of electricity annually from new renewable clean electricity infrastructure. The contract is for 23 years, with the new infrastructure expected to be operational by 2025. An agreement was signed in SK with SaskPower (Crown corporation) to supply approximately 87,000 MWh of electricity annually from new renewable clean electricity infrastructure. 25% of the annual consumption is currently operational, with the remaining 75% expected to be operational by 2024.

Measure	Description	Status and implementation update
		An agreement was signed with the Province of Nova Scotia to supply federal facilities with approximately 200,000 MWh of clean electricity through its Green Choice Program (GCP) procurement. NS, through its Independent Procurement Administrator, is issuing a competitive Request for Proposals for new, clean renewable electricity infrastructure in Q4 of 2023. The GCP will help NS reach its objective of generating 80% of its electricity from renewable energy projects, and phase out the use of coal by 2030. Contract awarded with Indigenous Business to supply 6,400 Renewable Energy Certificates (RECs) annually for 20 years from new renewable clean electricity infrastructure. Request for Proposals for National Renewable Energy Certificates closed on September 26, 2023.

Enabling measures

Measure	Description	Status and implementation update
ENB-01 **Clean Growth Hub**	A whole-of-government focal point for clean technology. The Hub helps clean tech innovators and adopters navigate the federal system of funding and services while enhancing coordination on federal clean tech programs. **Lead departments: NRCan, ISED**	**Ongoing** The Clean Growth Hub is fulfilling three key functions: 1) help clean technology stakeholders identify and navigate federal programs and services most relevant to their needs; 2) improve federal clean technology program coordination; and 3) strengthen federal capacity to track clean technology outcomes. The Hub is focused on delivering on its mandates as the federal clean technology focal point, specifically helping stakeholders navigate the available federal programs and supports across 18 departments and agencies that help advance clean technology innovation and adoption. The Hub has supported over 2,750 clients since implementation through its single-window service, including by proactively engaging

Measure	Description	Status and implementation update
		clean tech companies that are poised to be leaders in the clean technology sector. The Hub also maintains ongoing relationships with provincial and regional partners to exchange information and facilitate collaboration on clean technology.
ENB-02 **Energy Innovation Program (EIP)**	The EIP has core funding of $116M per year to advance clean energy technologies that will help Canada meet its climate-change targets, while supporting the transition to a low-carbon economy. It funds RD&D projects, and other related scientific activities that advance clean energy technologies in priority areas including energy efficiency, electrification, transportation, cleaner fuels, and reduction of GHG and methane emissions. Additionally, the EIP received targeted time-limited funding to advance key priority areas: Budget 2023 provided $45.6M over 3 years for dedicated smart grid RD&D; and Budget 2021 provided $319M for CCUS RD&D (see ENB-02.1 below). The EIP target is to reduce 4.25 Mt CO_2 eq per year by 2030. **Lead department: NRCan**	**Ongoing** In 2023, the EIP launched an On-Road Transportation Call for Proposals for RD&D related to zero/low-emission on-road medium- and heavy-duty vehicles. The program also selected projects to receive up to $53M for RD&D in industrial fuel switching, clean fuels production, and hydrogen codes and standards for hard-to-abate segments of industry. It also funded the Canadian Emissions Reduction Innovation Network (CERIN) with Alberta Innovates, to accelerate the development, validation, and deployment of technologies that reduce methane emissions in the Canadian upstream oil and gas sector, and invested in methane detection R&D in federal laboratories (approximately $10M over 5 years). In 2022-23, EIP-funded projects made advances in RD&D, with proponents filing for 49 patents or other intellectual property, influencing 56 codes and standards, and producing 136 scientific publications, technical reports, tools, and other knowledge products. EIP projects also leveraged federal investments at a ratio of 2:1, supported 1,191 direct and indirect job-years of employment, and are on track to meet 2030 GHG reduction targets, achieving 2.6 Mt of direct GHG reductions in 2022-23.

Measure	Description	Status and implementation update
ENB-02.1 **EIP Carbon Capture, Utilization, and Storage (CCUS) Stream** *Part of the Energy Innovation Program*	Supports RD&D to improve the commercial viability of CCUS technologies. Budget 2021 invested $319M over seven years to fund RD&D related to CCUS. **Lead department: NRCan**	**Ongoing** The EIP CCUS Stream launched two external funding calls: • The CCUS Front End Engineering Design (FEED) funding call, which was open to studies for CCUS, including carbon dioxide removal technologies, applied to existing facilities and new industrial facilities. The call has signed up to $50M in funding agreements. • An $81.5M funding call for CCUS RD&D projects to reduce the cost and increase the performance of innovative early-stage CCUS technologies. The call includes three focus areas: Capture; Storage and Transportation; and Utilization. The first two streams opened in 2022-23, while the third is scheduled to open in fall 2023. NRCan also invested in critical applied CCUS research in federal laboratories and research centres. Between 2021 and 2023, 89 intramural RD&D CCUS projects were completed at federal labs to support the commercialization of CCUS. In 2023, strategic planning for the next five years was completed, with 52 new CCUS projects selected and initiated in federal laboratories.
ENB-03 **Federal support to Sustainable Development Technology Canada (SDTC)**	To support start-ups and to scale up companies to enable pre-commercial clean technologies to successfully demonstrate feasibility and enable early commercialization efforts. **Lead department: ISED**	**Ongoing** SDTC continues to identify and support transformative Canadian companies that develop and deploy globally competitive clean technology solutions that address environmental challenges related to climate change, clean air, clean water, and clean soil. In 2022-23, SDTC invested $134M in 115 new projects from across Canada. This included 46 start-up and scale-up projects and 69 firms through SDTC's Seed Fund. SDTC also continues to work with its regional and federal partners to strengthen and support the Canadian cleantech ecosystem.

Measure	Description	Status and implementation update
ENB-04 **Just Transition for Canadian Coal Power Workers and Communities: Task Force**	The Task Force was asked to report on how to make the transition away from coal-fired electricity a fair one for Canadian coal workers and communities. **Lead department: ECCC**	**Concluded** The Task Force completed its mandate in 2019 when it provided two reports to the Government of Canada.
ENB-05 **Sustainable Jobs legislation (Bill C-50) and comprehensive action** *Referred to as Just Transition legislation and comprehensive action in the 2030 ERP*	Support the future and livelihood of workers and their communities in the shift to a low-carbon economy. **Lead departments: NRCan, ESDC**	**Ongoing** In February 2023, the Government of Canada released an interim Sustainable Jobs Plan for 2023–2025, which outlined the government's approach to building a more prosperous low-carbon future for all Canadians. This plan outlined 10 concrete actions, including the commitment to introduce sustainable jobs legislation. On June 15, 2023, the Government of Canada delivered on this legislative commitment by introducing Bill C-50, the *Canadian Sustainable Jobs Act*, which aims to facilitate and promote the creation of sustainable jobs and support workers and communities in Canada as the world advances toward a net-zero future. The bill puts workers and communities at the centre of federal policy and decision making by establishing a framework for accountability, a governance structure, and engagement mechanisms to guide effective federal action. Building on existing investments to advance a sustainable economy and support Canadian workers and communities, the 2022 Fall Economic Statement earmarked $250M over five years, starting in 2023-24, to help Canadian workers thrive in a changing global economy. Specific measures included support for: 1) the Sustainable Jobs Training Centre (now labeled the Sustainable Jobs Training Fund); 2) a new sustainable jobs stream under the Union Training and Innovation Program; and, 3) the Sustainable Jobs Secretariat and the Sustainable Jobs Planning Council.

Measure	Description	Status and implementation update
ENB-06 **Green Bonds**	Support investments that pursue environmental objectives benefitting all Canadians, which could include projects that support climate mitigation, adaptation, biodiversity and conservation, and pollution prevention and control. **Lead departments: FIN, ECCC**	**Ongoing** Consistent with the Green Bonds Framework, in 2023, the Government of Canada released an allocation report for its inaugural green bond. The first impact report will be published in fiscal year 2023-24.
ENB-07 **Climate Action and Awareness Fund (CAAF)**	To support projects that help build capacity and raise awareness in an effort to reduce Canada's GHG emissions. The CAAF has three main priorities: • Support youth awareness and community-based climate action; • Support climate research at Canadian think tanks and in academia; and, • Advance climate change science and technology. **Lead department: ECCC**	Under the CAAF, funding was provided in 2021-22 and 2022-23 for projects under the following pillars: • Community-based climate action; • Climate research at Canadian think tanks and in academia; and, • Climate change science and technology. Applicants have been notified of funding decisions by the program, and approved projects are ongoing. See below for stream-specific updates.
ENB-07.1 **Community-based climate action** *Part of the Climate Action and Awareness Fund (CAAF)*	The CAAF Community-based climate action stream provides funding to support projects that provide knowledge, tools and/or skills that lead to or engage communities in climate action. **Lead department: ECCC**	**Ongoing** Second intake closed winter 2022: 10 projects (approximately $3.7M) were approved. One additional CAAF intake of $12.5M was launched on October 4, 2023, to support projects that will increase environmental literacy of young Canadians as part of the long-term solutions to tackle climate change. Of this funding, $2.5M is dedicated to fund Indigenous-led initiatives to enhance environmental literacy that can build capacity to deal with the triple threat of climate change, biodiversity loss, and pollution.

Measure	Description	Status and implementation update
ENB-07.2 **Climate research at Canadian think tanks and in academia** *Part of the Climate Action and Awareness Fund (CAAF)*	The CAAF Climate research at Canadian think tanks and in academia stream provides funding to support projects focused on identifying, accelerating, and evaluating climate mitigation solutions and strategies that will contribute to achieving net-zero GHG emissions in Canada. **Lead department: ECCC**	**Ongoing** Call for proposals closed summer 2022: 16 projects (approximately $10M) were approved.
ENB-07.3 **Climate science and technology** *Part of the Climate Action and Awareness Fund (CAAF)*	The CAAF Climate science and technology stream provides funding for advancing climate change science and technology projects that strengthen Canada's science capacity to identify, accelerate, and evaluate mitigation actions towards achieving net-zero GHG emissions by 2050 in Canada. **Lead department: ECCC**	**Ongoing** Closed spring 2021: 24 projects (approximately $58.4M) were approved.
ENB-08 **Investment Tax Credit for Clean Technology Manufacturing**	Budget 2023 proposed to introduce a refundable tax credit equal to 30% of the cost of investments in new machinery and equipment used to manufacture or process key clean technologies, and extract, process, or recycle key critical minerals. The 2023 Fall Economic Statement provided additional details on the delivery timeline. **Lead department: FIN**	**Under Development** FIN is developing specific design details for the tax credit. The 2023 Fall Economic Statement announced that draft legislation will be released for public comment and consultations before the end of fall 2023. The legislation and regulations will need to receive royal assent before businesses can claim the tax credit.
ENB-09 **Clean Technology Investment Tax Credit**	In the 2022 Fall Economic Statement, the Government proposed to introduce a 30% refundable investment tax credit for business investments in certain electricity generation equipment, stationary electricity	**Initiated** The 2022 Fall Economic Statement and Budget 2023 announced design details of the Clean Technology Investment Tax Credit.

Measure	Description	Status and implementation update
	storage, low-carbon heating, and non-road zero-emission vehicles and related charging and refuelling infrastructure. Budget 2023 further proposed to expand eligibility to include certain geothermal energy equipment. **Lead department: FIN**	In August 2023, a package of legislative proposals was released for consultation. This consultation closed on September 8. Enacting legislation was tabled in Parliament on November 30, 2023, in Bill C-59. Once legislated, the tax credit will be retroactively available to businesses that have incurred eligible expenses, as of March 28, 2023.
ENB-10 **Clean Technology Data Strategy (CTDS)**	Established in 2017, the CTDS is a joint initiative, led by NRCan, ISED, and the Clean Growth Hub, that supports the collection of data and regular reporting on clean technology activity. **Lead departments: NRCan, ISED**	**Ongoing** Relevant departments continue to collaborate on providing the latest information to measure the economic, environmental and social contributions of the clean technology industry in Canada.
ENB-11 **Clean Technology and Climate Innovation Strategy**	In the 2030 ERP, the Government committed to strengthening federal coordination on clean technology and climate innovation with a particular focus on innovation support, investment in deployment, regulatory signals, tax incentives, and procurement. **Lead departments: ECCC, NRCan, ISED**	**Ongoing** Building on existing progress, relevant departments continue to work towards strengthening federal coordination on clean technology and climate innovation by comprehensively mapping federal clean technology measures and identifying strategic opportunities for additional action to enhance alignment.

Table 6-2: Cooperative agreements and measures

The cooperative agreements table is comprised of those measures that were identified by provinces and territories as key cooperative agreements in their submissions during the development of the 2030 ERP. These submissions can be found in Annex 1 of the 2030 ERP. There is a wide variety in the types of measures captured as “cooperative agreements and measures”—this includes formal agreements and memoranda of understanding, policy frameworks and partnerships, cooperation in international fora, and funding supports to achieve shared climate objectives with provincial and territorial governments. For funding supports, this can include federal initiatives that occur in a jurisdiction as well as federal initiatives where provinces and territories have a role in receiving and/or distributing funding. Note that the PT list in the description is to identify which provinces and territories participate in the cooperative agreement or measure. In a number of cases, all provinces and territories are eligible to apply for funding, and negotiations for participation may be ongoing, but only where there is confirmed participation, such as through a publicly announced agreement, is the province or territory listed. Participating jurisdictions can change over time.

Economy-wide

Measure	Description	Status and Implementation update
COA-01 **Price on carbon pollution – provincial and territorial systems**	The Government of Canada’s approach to pricing carbon pollution gives provinces and territories the flexibility to implement the type of system that makes sense for their circumstances as long as they align with minimum national stringency requirements (“federal benchmark”). The federal “backstop” carbon pricing system consists of the federal fuel charge and/or the federal Output-Based Pricing System for industrial facilities and applies in jurisdictions who requested it or whose systems do not meet the benchmark. **PTs: All**	**Ongoing** See measure ECW-01 in Table 6-1.
COA-02 **Return of proceeds from the federal carbon pricing system**	All direct proceeds from the federal carbon pricing system remain in the jurisdiction where they were collected. Provinces and territories that have their own carbon pricing systems use the proceeds as they see fit.	**Ongoing** See measures ECW-01.2, ECW-01.3, ECW-01.4, ECW-01.5, ECW-01.6a and ECW-01.6b in Table 6-1.

Measure	Description	Status and Implementation update
	In the provinces where the federal price on carbon pollution is in effect, the Government of Canada uses 90% of fuel charge proceeds to directly support individuals and families through Climate Action Incentive payments. The other 10% is used to support small businesses and Indigenous partners. Proceeds collected through the federal Output-Based Pricing System (OBPS) will be returned to provinces and territories that have requested it via direct transfer. Proceeds collected from all other jurisdictions where the federal OBPS has been applied will be returned through the OBPS Proceeds Fund, which was launched in February 2022. **PTs: AB, SK, MB, ON, NB, NS, PE, NL, YK, NU**	
COA-03 **Climate Action Incentive Fund (CAIF)**	In 2019-20 and 2020-21, the Government of Canada returned a portion of the 2019-20 federal fuel charge proceeds through federal programming, including CAIF. Proceeds were used to provide support to schools as well as small- and medium-sized businesses through CAIF in provinces and territories that did not meet federal stringency requirements. **PTs: SK, MB, ON, NB**	**Concluded** A new program, the Fuel Charge Proceeds Return Program, is being implemented to return a portion of fuel charge proceeds to small- and medium-sized enterprises in emissions-intensive, trade-exposed sectors, including a portion of the proceeds collected in 2019-20 that were not returned through CAIF.

Measure	Description	Status and Implementation update
COA-04 **List of Recognized Offset Programs and Protocols for the Federal Output-Based Pricing System (OBPS)**	Provincial or territorial offset programs and offset protocols that meet the specific eligibility criteria outlined in the OBPS Regulations are specified on the List of Recognized Offset Programs and Protocols for the Federal OBPS, if the province or territory agrees to let their credits be used as recognized units. Offset credits generated under recognized protocols can be sold and used for compliance by facilities covered in the federal OBPS. The list currently includes two programs: the British Columbia Greenhouse Gas Emission Offset System and the Alberta Emission Offset System. **PTs: BC, AB**	**Ongoing** The British Columbia Greenhouse Gas Emission Offset System and the Alberta Emission Offset System have been recognized offset programs since August 2020. Currently five recognized offset protocols from AB are eligible to generate offset credit that may be remitted as recognized units, subject to credit-specific criteria in the federal OBPS Regulations. For the 2021 compliance period, 30,000 tonnes of AB emission offset credits were remitted as recognized units for compensation under the federal OBPS.
COA-05 **Low Carbon Economy Fund (LCEF)**	The LCEF supports projects that help to reduce Canada's GHG emissions, generate clean growth, build resilient communities, and create good jobs for Canadians. The fund is an important part of Canada's clean growth and climate action plans, including the Pan-Canadian Framework and the 2030 ERP. The LCEF has four streams: the Leadership Fund; the Challenge Fund; the Indigenous Leadership Fund; and the Implementation Readiness Fund. The Leadership Fund includes the $250M Home Heating Oil Transition funding envelope. **PTs: All**	**Ongoing** See measures ECW-05, ECW-05.1, ECW-05.2, ECW-05.3 and ECW-05.4 in Table 6-1.

Measure	Description	Status and Implementation update
COA-06 **Federal Policy on the Use of International Carbon Credits** *Referred to as Article 6 negotiations in the 2030 ERP*	Under the Glasgow Climate Pact at COP26 in 2021, Parties reached agreement on outstanding aspects of the Paris Rulebook, including rules on international voluntary cooperative approaches under Article 6. Along with further guidance and procedures adopted at COP27 in 2022, these Article 6 rules will ensure environmental integrity, transparency, and robust accounting for the international trading of carbon credits. **PTs: All**	**Under Development** Provinces and territories make important contributions towards Canada's international engagement on climate change and were engaged in the Article 6 negotiations. Following Canada's strong advocacy of robust international rules for internationally transferred mitigation outcomes (ITMOs) to ensure environmental integrity, transparency, and the avoidance of double counting at COP26 and COP27, efforts are ongoing to develop a federal policy on authorization and use of ITMOs in the Canadian context.
COA-07 **Pan-Canadian Framework on Clean Growth and Climate Change (PCF)**	Endorsed in 2016, the PCF was Canada's first-ever national climate plan, developed with the provinces and territories and in consultation with Indigenous Peoples. **PTs: BC, AB, MB, ON, QC, NB, NS, PE, NL, YT, NT, NU**	**Adopted** PCF implementation is ongoing. A report on 2020 actions was released in 2022.
COA-08 **Federal–Provincial–Territorial (FPT) ministerial tables**	There are a number of FPT ministerial tables of relevance to climate change and climate mitigation, including the Canadian Council of Ministers of the Environment (CCME), the Canadian Council of Forest Ministers (CCFM), the Ministers responsible for Conservation, Wildlife, and Biodiversity (CWB), the Canadian Council of Ministers of Aquaculture and Fisheries, and the Energy and Mines Ministers' Conference (EMMC). The CCME is the primary minister-led intergovernmental forum for collective action on environmental issues of national and international concern, with other tables also contributing to important sector-specific issues	**Ongoing** Most Ministerial tables meet on an annual basis and have working-level committees that meet on a regular basis to address specific issues. The Council of Ministers of the CCME met in August 2022 and July 2023 to continue ongoing conversations on climate change. The CCME's various committees and working groups meet on an ongoing basis. The CCFM endorsed the Renewed Forest Bioeconomy Framework in fall 2022 to help maximize the forest sector's contribution to the transition to net zero. The EMMC is an annual gathering of FPT ministers responsible for energy and mining portfolios. The EMMC met in July 2022 and September 2023 to discuss priorities in the

Measure	Description	Status and Implementation update
	(e.g., energy, forests, agriculture, biodiversity, fisheries). **PTs: All**	context of a global transition to net-zero emissions.
COA-09 **Strategic Innovation Fund (SIF)**	SIF provides transformative investments in all sectors of the economy to help Canada prosper in a global, knowledge-based economy. SIF's Net Zero Accelerator (NZA) initiative will provide up to $8B to support large-scale investments in key industrial sectors across the country to ensure that Canada remains competitive in a net-zero economy and reduces GHG emissions. SIF-NZA supports investments that are aligned with provincial and territorial decarbonization priorities and considers regional environmental, industrial and economic needs. For additional information on SIF-NZA, see measure HVI-03 in Table 6-1. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, PE, NL**	**Ongoing** As of September 2023, $8.2B of SIF funding has been allocated to 117 projects. Budget 2023 announced that SIF will focus on clean technologies, critical minerals, and industrial transformation projects as its investment priorities.
COA-10 **Investing in Canada Infrastructure Program**	The Investing in Canada Infrastructure Program delivers infrastructure investments across several streams, including the Green Infrastructure stream. **PTs: All**	**Ongoing** To help deliver funding, the Government of Canada has negotiated and signed Integrated Bilateral Agreements with the 13 provinces and territories. The provincial intake for the Program closed on March 31, 2023. Territories have until March 31, 2025, to submit their projects.
COA-11 **Green Infrastructure Fund**	The Green Infrastructure Fund supported environmental infrastructure projects that promote reduced GHG emissions, cleaner air, cleaner water, and cleaner land. By providing up to 50% federal funding on a cost-	**Concluded** The Green Infrastructure Fund started in 2009-10. All funding available under this program has been committed. An evaluation of the Green Infrastructure Fund is available online.

Measure	Description	Status and Implementation update
	shared basis, the fund leveraged additional investments from other partners, including provinces and territories. **PTs: BC, MB, ON, QC, PE, YT**	
COA-12 **Green Infrastructure priority investment area** *Part of Canada Infrastructure Bank (CIB)*	The CIB works with provinces and territories to develop the next generation of green infrastructure. **PTs: All**	**Ongoing** See measure ECW-09.2 in Table 6-1. More information on CIB's partnerships is available online.

Buildings

Measure	Description	Implementation update
COA-13 **Canada Greener Homes Grant Program** *Part of the Canada Greener Homes Initiative*	Homeowners in all provinces and territories are eligible to receive $125 to $5,000 towards the costs of energy-efficient retrofits including insulation, windows and doors, heat pumps, and solar photovoltaic systems. In some provinces, NRCan co-delivers the program with provincial partners, including Enbridge Gas's Home Efficiency Rebate Plus (HER+) program in ON, the Government of Québec's Rénoclimat program, and Efficiency Nova Scotia's Home Energy Assessment (HEA) program. Homeowners in northern and off-grid communities are eligible for additional insulation measures as well as an additional 30% for some retrofits. **PTs: All**	**Ongoing** See measure BDG-04.1 in Table 6-1.

Measure	Description	Implementation update
COA-14 **Canada Greener Homes Loan Program** *Part of the Canada Greener Homes Initiative*	Homeowners in all provinces and territories can receive $5,000 to $40,000 of interest-free financing in addition to the Canada Greener Homes Grant to help complete more major retrofits recommended by an energy advisor. **PTs: All**	**Ongoing** See measure BDG-04.2 in Table 6-1.
COA-15 **Oil to Heat Pump Affordability (OHPA) Program** *Part of the Canada Greener Homes Initiative*	The OHPA Program helps homeowners who are currently heating their homes with oil to transition to electric cold climate air source heat pumps. Low- and median-income homeowners can receive an upfront payment of up to $10,000, with up to an additional $5,000 to match provincial and territorial contributions via co-delivery arrangements. In some provinces, NRCan co-delivers the program with provincial partners, including Efficiency Nova Scotia, the Government of Newfoundland and Labrador, and the Government of Prince Edward Island's Free Heat Pump Program. **PTs: All**	**Ongoing** See measure BDG-04.4 in Table 6-1.
COA-16 **PACE Maritimes**	The Federation of Canadian Municipalities and the Government of Canada provided $14M of funding through the Green Municipal Fund for PACE Maritimes, a financing program to help homeowners make energy efficiency retrofits in Charlottetown and Stratford, PE and in Wolfville, NS. **PTs: NS, PE**	**Ongoing** From the launch of the program in July 2021 until January 2023, the Switch PEI programs: • Involved over 1,200 participants; • Completed over 400 projects, with another 150 in progress; • Invested a total of $8.5M in energy efficiency projects; and, • Reduced GHG emissions from the properties involved by over 40% on average. As of September 2022, Switch Wolfville had completed 35 projects resulting in a reduction of 268.67 t CO_2 eq.

Electricity

Measure	Description	Status and Implementation update
COA-17 **Smart Renewables and Electrification Pathways Program (SREPs)**	Proponents are eligible to apply for up to $25M to support the construction of renewable energy and grid modernization projects. All provinces and territories are eligible to apply for funding. **PTs: BC, AB, SK, ON, QC, NB, NS**	**Ongoing** See measure ELE-04 in Table 6-1. More information on announced projects is available online.
COA-18 **Clean Power Roadmap for Atlantic Canada**	In 2019, the Government of Canada, with the Atlantic provincial governments and their respective utilities, formed the Atlantic Clean Power Committee. The Government of Québec and Québec Hydro participated as observers. The Committee developed a roadmap for how jurisdictions can work together over the coming decades to achieve a clean power future for the region. **PTs: QC, NB, NS, PE, NL**	**Ongoing** The work of the Atlantic Clean Power Committee has concluded with the publication of the final report in March 2022. The roadmap continues to provide direction for current and future work.
COA-19 **Atlantic Loop initiative**	The federal government is committed to advancing interprovincial connections in Atlantic Canada—and is currently negotiating with provinces and utilities to identify a clear path to deliver the first phase of the project by 2030. **PTs: QC, NB, NS, PE, NL**	**Ongoing** See measure ELE-13 in Table 6-1.
COA-20 **Wataynikaneyap Power Project**	In 2019, Wataynikaneyap Power and the Government of Canada signed agreements that formalized $1.6B to support the Northern Ontario Grid Connection Project. The Government of Ontario is supporting the construction of the project through a loan of up to $1.34B for its construction costs. **PTs: ON**	**Ongoing** The first of two phases—a 300 km, 230 kV line from Dinorwic to Pickle Lake, ON—was completed in August 2022. The entire line is expected to be fully operational by late 2024.

Oil and gas

Measure	Description	Implementation update
COA-21 **Offshore Emissions Reduction Fund (ERF)**	The Offshore ERF is a federal initiative that operated in NL, comprised of two components: the Offshore Deployment Program; and, the Offshore RD&D Program, which was delivered by NRCan in collaboration with Energy Research & Innovation Newfoundland & Labrador. **PT: NL**	**Concluded** See measures OIG-01.2 and OIG-01.3 in Table 6-1. The initiative concluded in March 2023.
COA-22 **Equivalency agreements respecting the release of methane from the oil and gas sector**	In October 2020, the Government of Canada signed equivalency agreements on methane emissions from the oil and gas sector with the Governments of Alberta, British Columbia and Saskatchewan. **PTs: BC, AB, SK**	**Adopted** The equivalency agreement with AB will be in effect for five years, until 2025. AB's second annual progress report, for the 2021 reporting year, was published in April 2023 and shows that methane emissions from the oil and gas sector decreased by about 44% between 2014 and 2021. The equivalency agreement with BC will be in effect for five years, until 2025. On its oil and gas sector methane emission reductions, BC has signalled that it is on track to achieve its 2025 target of a 45% reduction below 2014 levels. Progress is also reported through the Climate Change Accountability Report, which BC releases annually. The equivalency agreement with SK will be in effect for up to five years, until the end of 2024. SK estimates that oil and gas methane emissions have been reduced by over 60% from 2015 levels. ECCC remains open to requests from interested jurisdictions for equivalency agreements in future.

Measure	Description	Implementation update
COA-23 **Canada–British Columbia MOU on the Electrification of the Natural Gas Sector**	In 2019, the Government of Canada and the Government of British Columbia signed an MOU agreeing to take joint actions to advance the electrification of natural gas facilities. **PT: BC**	**Adopted** The MOU will be in effect for five years, until 2024. Electrification remains a key pathway to decarbonize industrial emissions and new clean growth opportunities.

Transportation

Measure	Description	Implementation update
COA-24 **Zero Emission Vehicle Infrastructure Program (ZEVIP)**	ZEVIP provides funding towards the deployment of electric vehicle chargers and hydrogen refuelling stations across Canada. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, PE, NL, YT, NT**	**Ongoing** See measure TRN-06 in Table 6-1.
COA-25 **British Columbia Specified Purpose Agreement for Investment in Public Charging Infrastructure**	BC and NRCan have a Specified Purpose Agreement. Its purpose is to provide financial assistance from the Governments of Canada and British Columbia to projects that promote the deployment of electric vehicle (EV) charging stations in BC. ZEVIP is responsible for delivering $16M of BC funds for the deployment of EV chargers in BC through a Special Purpose Account. Through this agreement, the CleanBC Go Electric public charger program provides up to 25% of the cost of construction, up to a maximum of $25,000 per fast-charging station. Upon successful approval through ZEVIP, EV fast-charger projects located in BC are automatically eligible for the provincial top-up funding. Participants in ZEVIP receive up to 50% of total project costs, up to a maximum of $100,000 per charger (Indigenous businesses and communities can receive up to $150,000). **PT: BC**	**Ongoing** The agreement has been in place since 2017 and expires March 31, 2029. There will be no claims paid for incurred eligible expenditures provided after March 31, 2027. As of November 2023, 57 EV infrastructure deployment projects in BC have qualified to receive funding through this mechanism, totaling over $14M in provincial funds.

Measure	Description	Implementation update
COA-26 **Active Transportation Fund (ATF)**	The ATF is a federal initiative that will provide $400M over five years to support a modal shift away from cars and toward active transportation, in support of Canada's National Active Transportation Strategy. The ATF will invest in projects that build new and expanded networks of pathways, bike lanes, trails and pedestrian bridges, in addition to supporting active transportation planning and stakeholder engagement activities. Provinces and territories are eligible to apply for funding. **PTs: All PTs eligible to apply**	**Ongoing** See measure TRN-11.3 in Table 6-1.
COA-27 **Efficient Trucking Program**	Applicants are eligible to receive a rebate of 50% on fuel-saving devices and technologies for heavy-duty vehicles that can result in GHG reductions. The Efficient Trucking Program was launched in 2019. The Government of Canada invested $5.9M through the Low Carbon Economy Fund, and the Government of Manitoba contributed an additional $5.9M. **PT: MB**	**Ongoing** In May 2023, the Government of Canada announced an investment of an additional $3.6M to support a new intake of applications. The Government of Manitoba also provided $3.3M and MB's trucking sector contributed $6.6M.
COA-28 **Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative (EVAFIDI)**	EVAFIDI provided funding to organizations to establish infrastructure to help Canadians make the switch to low- or zero-emissions vehicles, including: a coast-to-coast network of E fast-chargers along core routes and highways; natural gas refuelling sites along key freight corridors; and hydrogen refuelling sites in major cities. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, PE, NL**	**Concluded** EVAFIDI ended in 2022. The program is no longer launching Requests for Proposals. The program surpassed its target of 1,000 chargers.
COA-29 **Public Transit Infrastructure Fund (PTIF)**	The PTIF is providing over $2.9B of short-term funding to help accelerate municipal investments to support the rehabilitation of transit systems, new capital projects, and planning and	**Concluded** Since the program began in 2016-17, more than 1,100 projects with a federal

Measure	Description	Implementation update
	studies for future transit expansion to foster long-term transit plans. Canada signed Bilateral Agreements with provinces and territories to deliver the PTIF. **PTs: All PTs eligible to apply**	contribution of over $2.9B and total value of over $6B have been approved. More than 98% of approved projects have already been completed, including public transit and active transportation projects. No additional project proposals are being accepted under this program. INFC continues to work with jurisdictions to flow final payments under this fund.
COA-30 **National Trade Corridors Fund (NTCF)**	The NTCF funds transportation infrastructure projects, including projects that help the transportation system to withstand the effects of climate change and better adapt to new technologies and innovations. $4.6B of funding will be spread out over 11 years, ending in March 2028. Provincial and territorial governments are eligible to apply for funding. The NTCF has funded projects in all provinces and territories. **PTs: All**	**Ongoing** Budget 2022 provided the NTCF with an additional $450M over five years, bringing the total NTCF envelope to $4.6B. A call for proposals for projects that will strengthen digital infrastructure to enhance the efficiency and reliability of transportation supply chains closed in April 2023.

Agriculture

Measure	Description	Status and Implementation update
COA-31 **Agricultural Climate Solutions (ACS)** *Part of the Natural Climate Solutions Fund*	ACS is a multi-stream program that will help to develop and implement farming practices to tackle climate change. The Living Labs program provides funding for the co-development, testing, adoption, dissemination, and monitoring of technologies and practices, including beneficial management practices (BMPs), that sequester carbon and/or mitigate GHG emissions. This 10-year program was announced in 2021 and builds on the success of the Living Laboratories Initiative (2018–2023). The On-Farm Climate Action Fund awards funding to recipient organizations	**Ongoing** See measures AGR-01.1 and AGR-01.2 in Table 6-1.

Measure	Description	Status and Implementation update
	nationwide to help producers adopt and implement immediate on-farm BMPs with the greatest potential to store carbon and reduce GHG emissions. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, PE, NL**	
COA-32 **Canadian Agricultural Partnership (CAP)**	The CAP was a $3B five-year (2018–2023) investment by federal, provincial, and territorial governments to strengthen and grow Canada's agriculture and agri-food sector. Programs tailored to meet regional needs were cost-shared, with the federal government contributing 60% of costs and the provincial/territorial government contributing 40%. Programs were developed and delivered by the provinces and territories. The programs' parameters and priorities were jointly defined by federal, provincial, and territorial governments. **PTs: All**	**Concluded** See measure AGR-03a in Table 6-1.
COA-33 **Sustainable Canadian Agricultural Partnership (Sustainable CAP)** *Referred to as the Next Policy Framework in the 2030 ERP*	The Sustainable CAP is a $3.5B five-year (2023–2028) investment by federal, provincial, and territorial governments to strengthen and grow Canada's agriculture and agri-food sector. The Sustainable CAP is investing $2.5B to support region-specific agriculture programs and services. These programs are cost-shared, with the federal government contributing 60% of costs and the provincial/territorial government contributing 40%. Programs are developed and delivered by the provinces and territories. The programs' parameters and priorities are jointly defined by federal, provincial, and territorial governments. **PTs: All**	**Ongoing** See measure AGR-03b in Table 6-1.

Measure	Description	Status and Implementation update
COA-34 **Sustainable Agriculture Strategy (SAS)** *Referred to as the Green Agricultural Plan in the 2030 ERP*	The SAS will establish a long-term plan to bring together action on priority environment and climate issues in the agriculture sector and help set a shared direction for collective action to improve environmental performance and enhanced resilience to climate change. The SAS was initially introduced in the 2030 ERP as the Green Agricultural Plan. **PTs: All**	**Initiated** See measure AGR-06 in Table 6-1.

Nature-based solutions

Measure	Description	Status and Implementation update
COA-35 **Nature Smart Climate Solutions Fund (NSCSF)** *Part of the Natural Climate Solutions Fund*	The NSCSF seeks to reduce GHG emissions by supporting projects that conserve, restore and enhance forests, wetlands, peatlands, and grasslands to store and capture carbon. Provinces and territories are eligible to apply for funding. **PTs: All**	**Ongoing** See measure NBS-01.1 in Table 6-1.
COA-36 **2 Billion Trees Program** *Part of the Natural Climate Solutions Fund*	The 2 Billion Trees program has committed to funding provinces and territories to support planting approximately one billion trees, out of the two billion goal, by 2031. In order to advance this work, the federal government is signing Agreements in Principle (AiPs) with provinces and territories. **PTs: BC, AB, MB, NS, PE, YT, NT**	**Ongoing** See measure NBS-01.2 in Table 6-1. As of September 2023, seven AiPs have been signed, followed by funding agreements. Negotiations of additional AiPs and funding agreements are ongoing.
COA-37 **Canada Nature Fund – Spaces stream**	The Spaces stream of the Canada Nature Fund provides resources that enable partners to drive progress toward Canada's biodiversity commitments. This stream currently consists of two core components: the Pathway to Canada Target 1 Challenge, which supports the creation of protected areas on	**Ongoing** The Spaces stream of the Canada Nature Fund is ongoing until 2026, as part of Budget 2021's historic investment of $2.3B in Canada's Enhanced Nature Legacy program. In December 2022, Canada announced an investment of up to $90M over

Measure	Description	Status and Implementation update
	provincial, territorial, municipal, and Indigenous lands; and the Natural Heritage Conservation Program, which supports the creation of protected areas on private lands. The Canada Nature Fund supports Canada's goal of conserving 25% of Canada's lands, inland waters, and oceans by 2025, and working toward 30% of each by 2030. For additional information, see measure NBS-03 in Table 6-1. **PTs: All**	three years to extend the Natural Heritage Conservation Program.
COA-38 **Tripartite Framework Agreement on Nature Conservation** *Referred to as the BC–Canada Nature Agreement in the 2030 ERP*	Canada, BC, and the BC First Nations Leadership Council developed a tripartite nature agreement to value Indigenous leadership in conservation and to collaboratively achieve ambitious and sustained action on the conservation, protection, restoration, recovery, and enhancement of the province's diverse ecosystems, including old growth forests and other habitats, and to support species at risk protection and recovery. The agreement is a governance framework to recognize First Nations leadership in ecosystem stewardship and to improve alignment and coordination of actions and funding for positive conservation outcomes. It is aligned with BC's priorities such as: biodiversity and ecosystem health; Together for Wildlife; modernized Land Use Planning; the Collaborative Indigenous Stewardship Framework; conserving 30% of lands and water by 2030; watershed security; and, climate change resilience. **PT: BC**	**Adopted** The agreement was signed on November 3, 2023. Canada is committed to working with BC and the First Nations Leadership Council to begin implementation of the agreement by the end of 2023.

Measure	Description	Status and Implementation update
COA-39 **National Forest Carbon Monitoring, Reporting and Accounting System (NFCMARS)**	The NFCMARS is Canada's forest carbon reporting system. Its purpose is to estimate forest carbon stocks, changes in carbon stocks, and emissions of non-CO_2 GHGs in Canada's managed forests. Provincial and territorial forestry agencies are involved as partners. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, PE, NL, YT, NT**	**Ongoing** Federal, provincial, and territorial partners work together on an ongoing basis to determine the annual forest sector contributions to Canada's National Inventory Report and to improve carbon accounting methodologies. The new Forest Systems Information and Technology Enhancement (ForSITE) program, part of the Budget 2023 "Investing in Canada's Forest Economy", is an investment in core operations to improve Canadian Forest Service capacity on national forest monitoring data and reporting to improve information on forest carbon and forest health, support Canada's reputation and actions for sustainability, and facilitate market access for forest products.
COA-40 **Fisheries and Aquaculture Clean Technology Adoption Program (FACTAP)**	FACTAP is a national contribution program that is investing $35M over seven years (2017–2024) to assist Canada's fisheries and aquaculture industries in improving their environmental performance. Applicants must provide a letter of support from the lead provincial agency/ministry where the project is to take place. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, NL**	**Ongoing** Applications for projects that will be completed by March 31, 2024, were accepted until July 31, 2023.

Measure	Description	Status and Implementation update
COA-41 **Clean Fuel Regulations – Legislative recognition of compliance with land-use and biodiversity criteria** *Referred to as federal recognition of sustainable forestry practices in the 2030 ERP*	Legislative recognition (LR) serves as a mechanism to demonstrate compliance with the Land Use and Biodiversity (LUB) Criteria for feedstock harvested to be used in the creation of compliance credits under the Clean Fuel Regulations (CFR). National and subnational jurisdictions have the option to submit an application, identifying any legislation they enforce that achieves the same outcomes as one or more of the LUB criteria. A public list of jurisdictions and the LR granted and associated LUB criteria will be published on the CFR website. **PTs: All**	**Initiated** As of May 30, 2023, all provinces and territories have been provided with a draft template that can be used to start their LR application. ECCC has met with provinces and territories regarding applications for legislative recognition.

Enabling measures

Measure	Description	Status and Implementation update
COA-42 **Climate Action Fund (CAF)**	In 2018-19 and 2019-20, the CAF leveraged $5.3M in funding to support 44 climate action projects. The objective of the program was to raise awareness of climate change and to build capacity in order to increase climate actions that contribute to Canada's clean growth and climate change plans (the Pan-Canadian Framework and Canada's strengthened climate plan). In September 2020, contributions from the existing CAF were redirected to create the Climate Action and Awareness Fund (see COA-43 below). **PTs: All**	**Concluded** All projects supported by the CAF were completed as of March 31, 2022. Details on announced projects are available online.

Measure	Description	Status and Implementation update
COA-43 **Climate Action and Awareness Fund (CAAF)**	The CAAF supports youth climate awareness and community-based climate action, funds climate research at Canadian think tanks and in academia, and advances climate change science and technology. **PTs: All**	**Ongoing** See measure ENB-07 in Table 6-1.
COA-44 **Buyers for Climate Action** *Referred to as the Coalition of Green Buyers in the 2030 ERP*	Buyers for Climate Action is a coalition of large green buyers who purchase a significant volume of goods and services in procurement categories with high environmental impact. In 2021, the coalition was established to help drive the transition to a green, net-zero carbon economy by collaborating on green procurement. Members include: the Government of Canada, the Government of British Columbia, the Government of Québec, the City of Vancouver, the City of Toronto, and the City of Montréal. **PTs: BC, QC**	**Ongoing** The coalition is funded through the Greening Government Fund and work is ongoing to share best practices on greening procurement related to greener buildings and construction, fleet and IT.
COA-45 **BC Centre for Innovation and Clean Energy (CICE)**	The CICE offers funding programs targeted at low-carbon innovations. CICE was established in 2021 with the help of $105M raised through public/private member partnerships and grants including the Government of British Columbia, Shell Canada and the Government of Canada ($35M through the Energy Innovation Program). For additional information on the Energy Innovation Program, see measure ENB-02 in Table 6-1. **PT: BC**	**Ongoing** In June 2023, the CICE announced $5.2M in funding for projects in battery and energy storage, low-carbon fuels, and low-carbon hydrogen. The CICE also accepted proposals focused on Forestry Residue Management in summer 2023.
COA-46 **Canada–Yukon Funding Agreement**	In Budget 2021, the Government of Canada committed to investing $25M to support YT's climate mitigation and adaptation priorities. The investment was delivered as a one-time grant, providing the Government of Yukon	**Concluded** The grant funding was transferred to the Government of Yukon in a lump sum in March 2022. YT allocated the funding to

Measure	Description	Status and Implementation update
	autonomy in determining specific projects and measures. Projects are aligned with the broader objectives of the Arctic and Northern Policy Framework and federal climate policy including Canada's strengthened climate plan. **PT: YT**	five clean-energy projects and four climate-change-adaptation projects. YT directed funding to climate-change initiatives that directly support the goals of the territory's *Our Clean Future* climate strategy, through building technical capacity, infrastructure, and renewable energy supply. Project funding is in place up to 2024-25. Projects include: Atlin Hydro expansion project; a flood forecasting, mapping and resiliency program; a Kluane Wind Power project; medium- and heavy-duty electric vehicle pilots; investment in food security infrastructure; hazard identification, emergency planning and incidence response; permafrost and geohazard monitoring; energy efficiency retrofit programming; and transition of off-grid Government of Yukon buildings to renewable electricity.

Adaptation

Adaptation is outside the scope of the 2030 ERP Progress Report; however, implementation updates on select measures are included here. A number of adaptation measures were identified by provincial and territorial governments as key agreements and measures, recognizing the strong linkages between adaptation and climate mitigation actions. Reporting on adaptation is addressed comprehensively through other reporting mechanisms. For example, the Government of Canada Adaptation Action Plan (GOCAAP) outlines the federal government's policy and program framework and provides a comprehensive inventory of all federal programs on climate change adaptation, including the examples reported in the table below.

Measure	Description	Status and Implementation update
COA-47 **National Adaptation Strategy (NAS)**	Canada's first National Adaptation Strategy was released in June 2023. **PTs: All**	**Ongoing** In November 2022, the Government of Canada released the Government of Canada Adaptation Action Plan (GOCAAP). This document outlines how the Government of Canada is contributing to achieving the goals, objectives, and targets laid out in the NAS.

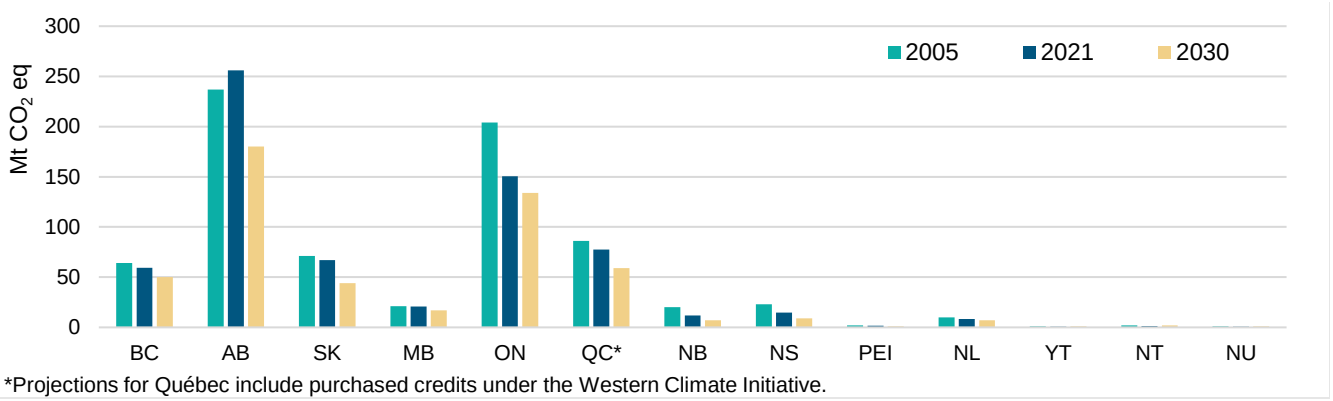
Measure	Description	Status and Implementation update
		Implementation of the Strategy will include federal-provincial and federal-territorial action plans. More details on the status of implementation are available online.
COA-48 **Disaster Mitigation and Adaptation Fund (DMAF)**	The DMAF invests in structural and natural infrastructure projects to increase the resilience of communities that are impacted by natural disasters triggered by climate change. All provinces and territories are eligible to apply for funding. **PTs: All PTs eligible to apply**	**Ongoing** Applications for new projects were accepted from January to July 2023 and are under review.
COA-49 **Arctic and Northern Policy Framework (ANPF)**	The ANPF sets out a long-term, strategic vision that will guide the Government of Canada's activities and investments in the Arctic to 2030 and beyond, and align arctic policy objectives with the priorities of Indigenous Peoples and Arctic and Northern residents. **PTs: MB, QC, NL, YT, NT, NU**	**Ongoing** Published in 2019, the framework provides direction for current and future work. More details on the ANPF are available online
COA-50 **Climate Services Organizations**	Canada has five climate services organizations that provide access to information and services to help Canadians increase their resilience to climate change. **PTs: BC, AB, SK, MB, QC, NB, NS, PE, NL**	**Ongoing** For more on the regional climate services organizations, see: the Canadian Centre for Climate Services; the Pacific Climate Impacts Consortium; ClimateWest; Ouranos; and, CLIMAtlantic.
COA-51 **Building Regional Adaptation Capacity and Expertise (BRACE)**	The BRACE program invested in training, knowledge-exchange activities and practical action to increase climate change adaptation actions. From 2017 to 2022, 20 projects were co-funded by the Government of Canada and provincial governments, non-governmental organizations, academic institutions, and professional associations. **PTs: BC, AB, SK, MB, ON, QC, NB, NS, PE, NL**	**Concluded** The BRACE program concluded in 2022. More information on the status of federal climate change adaptation programs is available online.

Measure	Description	Status and Implementation update
COA-52 **Municipalities for Climate Innovation Program (MCIP)**	MCIP was a five-year $75M program delivered by the Federation of Canadian Municipalities and funded by the Government of Canada. From 2017 to 2022, MCIP helped more than 600 municipalities by providing funding, training and sharing information with the aim of encouraging municipalities to better prepare for and adapt to the new realities of climate change. **PTs: All PTs eligible to apply**	**Concluded** MCIP concluded in 2022.

Chapter 7: Provinces and territories

This chapter provides an overview of each province and territory, including the economic and emissions profile, emissions reduction targets and climate plans, recent action, and what is next. The chapter opens with a summary of provinces and territories “at a glance”.

Figure 7-1: GHG emissions in each province and territory, 2005, 2021 and (projected) 2030



*Projections for Québec include purchased credits under the Western Climate Initiative.

Figure 7-2: Population by province/territory, 2023[1]

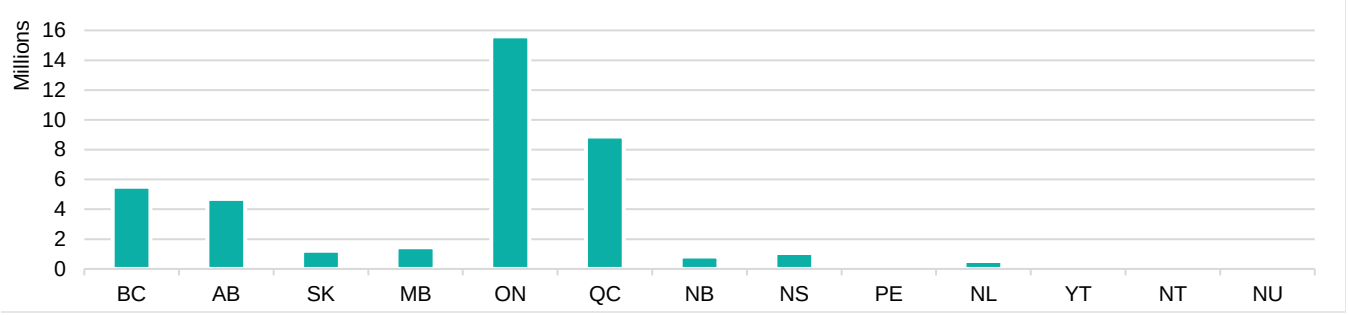


Figure 7-3: GDP by province/territory, 2022[3]

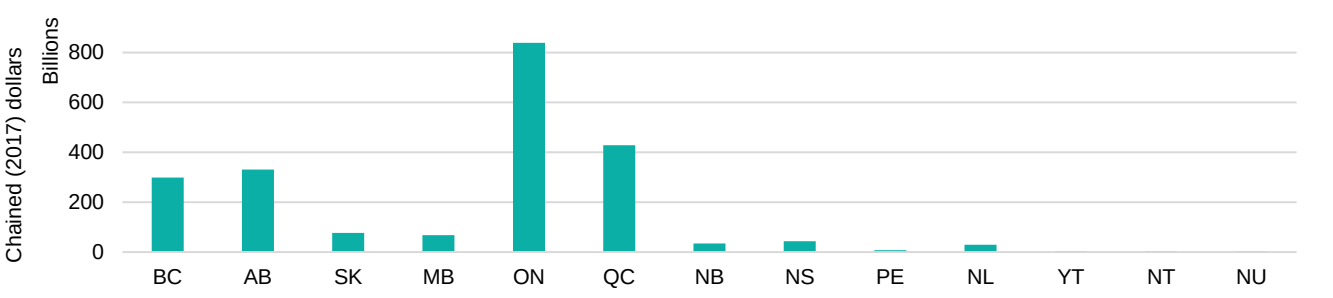


Figure 7-4: GHG emissions per capita by jurisdiction, 2021[1,4]

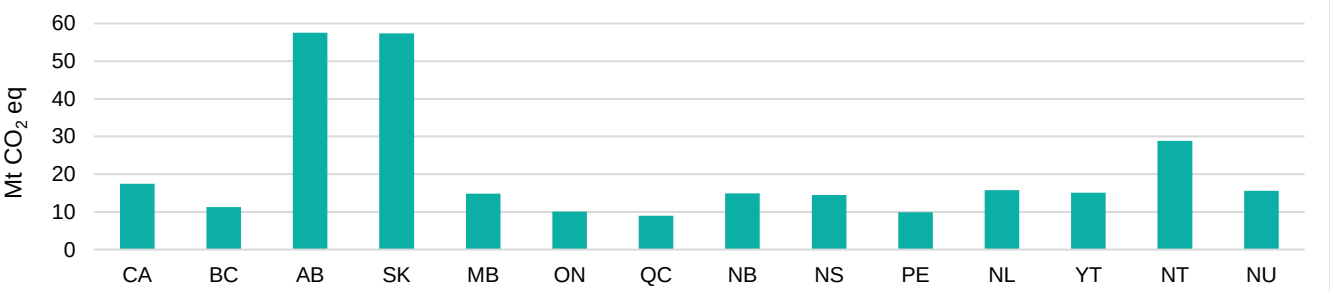
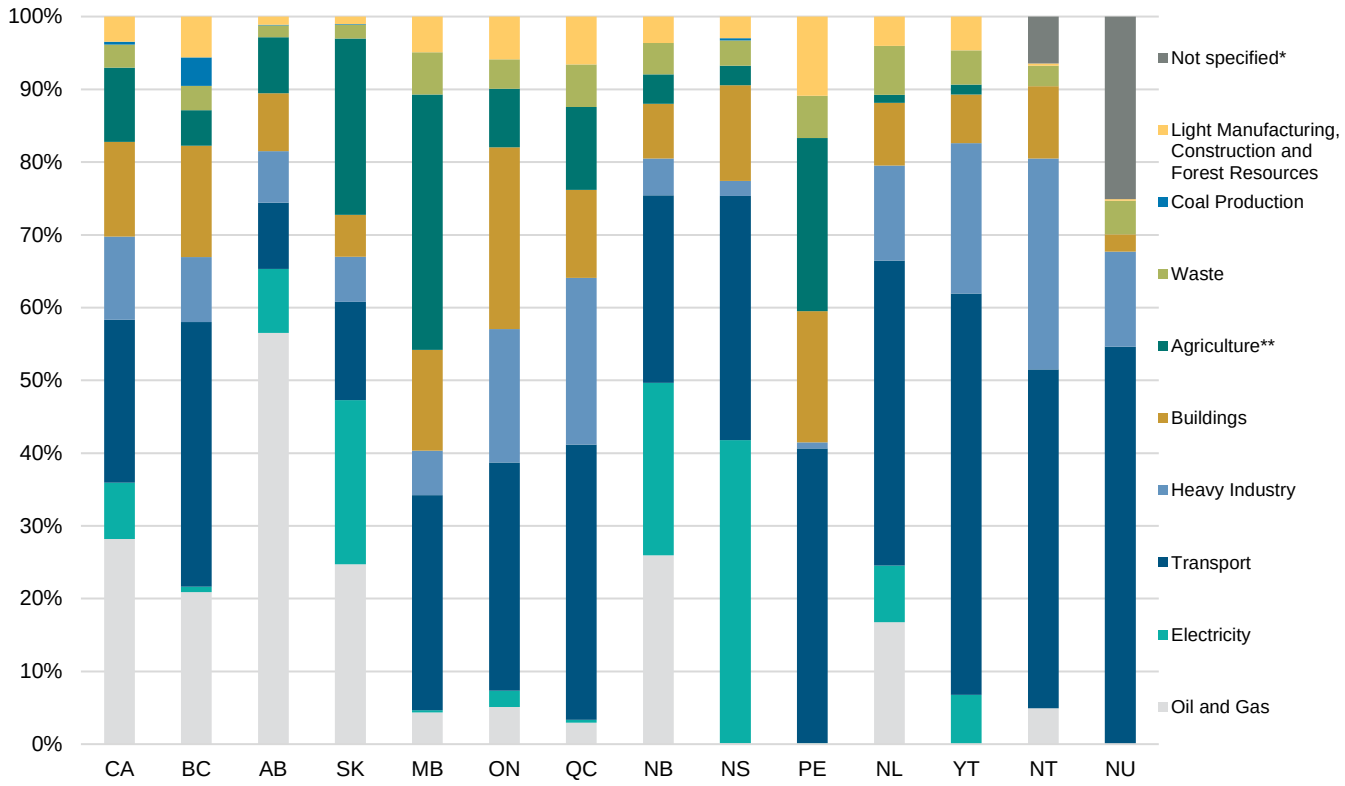
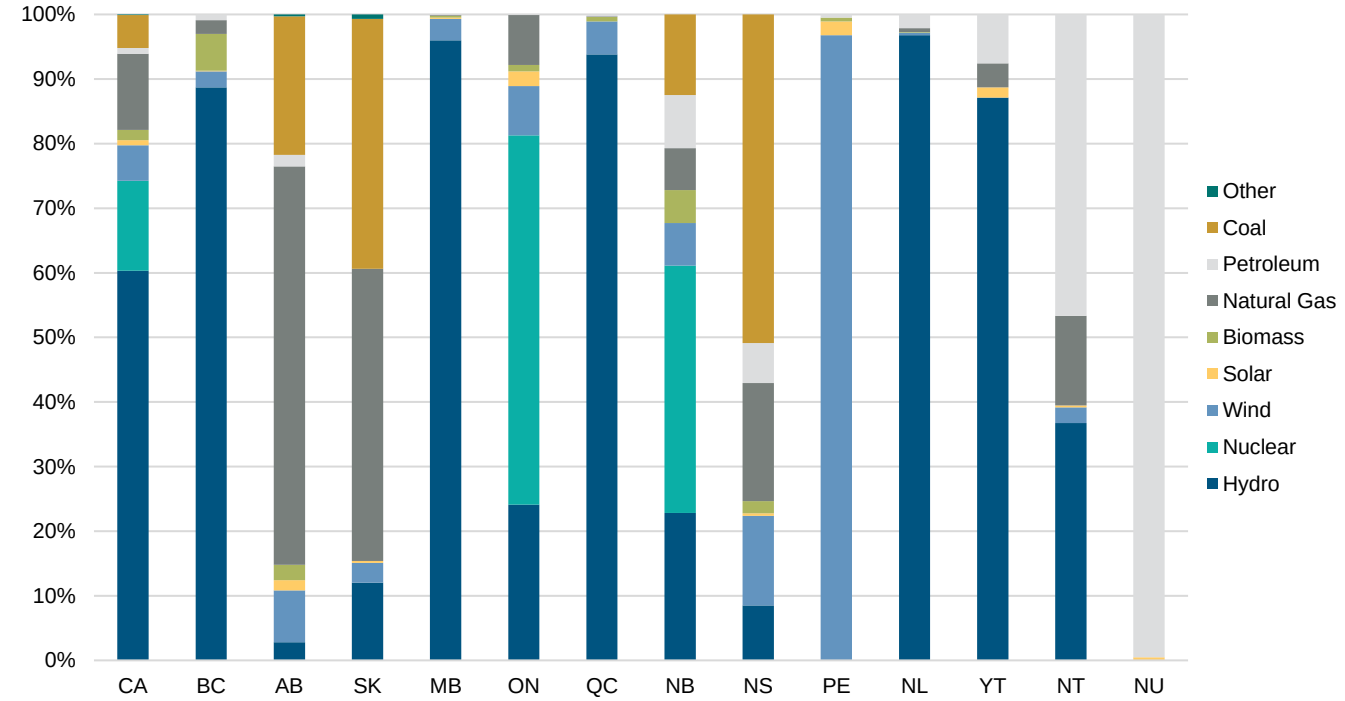


Figure 7-5: GHG emissions by jurisdiction and economic sector, 2021[4]



*Data on emissions from Electricity and Construction for NT and NU were not specified in the NIR to respect confidentiality.
**Emissions and sequestration from agricultural soils are reported under the LULUCF sector. Sequestration from agricultural soils has contributed to net removals in the land sector in recent years.

Figure 7-6: Electricity generation* by jurisdiction and source, 2021[5]



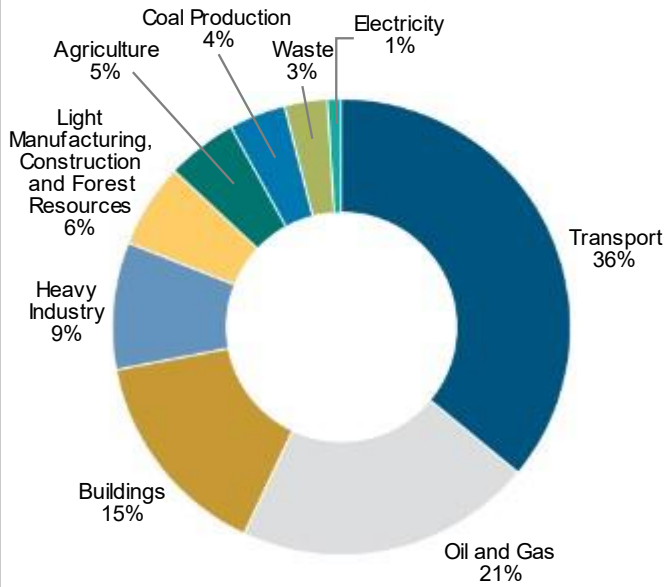
*This chart represents electricity generation only. Some jurisdictions are significant importers/exporters of electricity. See individual jurisdiction profiles for further details.

7.1 British Columbia

Provincial profile

- **Population (2023)[1]:** 5,519,013
- **Median income (2020)[2]:** $40,800
- **GDP (2022)[3]:** $299.3 billion, with largest contributions from real estate and rental and leasing (17.52%), construction (9.76%), and professional, scientific and technical services (7.51%)
- **GHG emissions (2021)[4]:** 59.44 Mt CO_2 eq or 8.87% of the national total
- **GHG emissions per capita (2021)[1,4]:** 11.28 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transport (36%), oil and gas (21%), and buildings (15%)
- **Electricity generation (2021)[5,6]:** 88.7% from hydro, 5.7% from biomass, 2.5% from wind, 2.1% from natural gas, 0.9% from petroleum, and 0.1% from solar. British Columbia has electricity interconnections with Alberta and the western United States.

Figure 7-7: British Columbia emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

British Columbia's *Climate Change Accountability Act* came into force in November 2007, setting legislated targets and reporting requirements. British Columbia released its CleanBC climate plan in 2018 and its *CleanBC Roadmap to 2030* in October 2021, setting out a strengthened plan to meet the province's legislated climate action targets.

British Columbia has committed to a series of emissions reductions targets, most of which are legislated targets:

- 16% below 2007 levels by 2025 (interim target);
- 40% reduction in carbon emissions below 2007 levels by 2030;
- 60% reduction below 2007 levels by 2040; and,
- 80% reduction below 2007 levels by 2050.

To help meet these targets, the province also established 2030 emission reduction targets for four sectors, with 2007 as the baseline: transportation (27% to 32%); industry (38% to 43%); oil and gas (33% to 38%); and, buildings and communities (59% to 64%). These serve as guideposts to inform policy development, assess progress, and provide further transparency.

The *CleanBC Roadmap to 2030* states the intention to reach net zero by 2050 and that British Columbia's commitment to a net-zero future will be backed by legislation.

Highlights of recent mitigation action

As part of the *CleanBC Roadmap to 2030*, the province committed to increasing the 2030 carbon-intensity reduction target for diesel and gasoline fuel pools from 20% to 30% under British Columbia's Low Carbon Fuel Standard (LCFS). Effective as of January 1, 2023, amendments to British Columbia's *Renewable and Low Carbon Fuel Requirements Regulation* now require fuel suppliers to reduce the average carbon intensity of transportation fuels supplied in the province to reach an overall reduction of 30% by 2030, relative to 2010 levels. In addition, the province intends to modernize the legislation governing the LCFS in January 2024, including expanding the scope to include jet fuel and changing the low carbon fuel requirements beyond the current purview of transportation fuel use to all fuel use. The LCFS is among the largest contributors to the CleanBC emissions reduction goals.

The CleanBC Industry Fund supports the development, trial and deployment of projects that reduce greenhouse gas emissions from large industrial operations. The Fund has supported innovative projects since 2019 and underwent a transition in 2023 to align with the new British Columbia output-based pricing system. A relaunch of this fund is planned for spring 2024.

British Columbia's Budget 2023 included $100 million to support more active transportation investments, $85 million to increase emergency management capacity in the province and to provide new investments in disaster risk assessment, preparedness, and mitigation, and $44 million to continue to support British Columbia's transition to a zero-emission economy.

In the spotlight: B.C. Centre for Innovation and Clean Energy

In partnership with Canada, British Columbia has established the B.C. Centre for Innovation and Clean Energy (CICE), which operates as an independent, not-for-profit corporation dedicated to scaling B.C.'s most impactful decarbonization solutions—from Canada to the world. The CICE is funded by British Columbia, the Government of Canada, and Shell. CICE provides early-stage funding to accelerate commercialization and leads non-dilutive investment of clean energy innovation areas where the lack of traditional revenue metrics is a common barrier. Working closely with industry, investors, government, academia, and Indigenous rights holders to de-risk adoption of clean energy innovation, CICE is advancing the world toward a net-zero economy that draws on B.C.'s advantages, attracts investments, and creates high-paying green jobs. As of August 2023, CICE has funded $12.8 million in B.C.-based clean energy projects totaling $58.3 million.

What is next

As part of Budget 2023, British Columbia announced that starting April 1, 2023, its carbon price would increase to $65 per tonne of CO_2 eq emissions, rising by $15 per tonne each year until it reaches $170 per tonne in 2030.The province also announced its intention to transition from the CleanBC Program for Industry (CPI) to a made-in-B.C. OBPS for large industrial emitters, which will take effect on April 1, 2024. B.C.'s OBPS stringency is influenced by product-specific performance standards and is informed by CleanBC Industrial Incentive Program (CIIP) data, as well as the ability to use offsets units for compliance. Participation will be mandatory for producers of certain regulated industrial

products under the *Greenhouse Gas Industrial Reporting and Control Act* (GGIRCA) that emit above 10 kt CO_2 eq per year.

In March 2023, British Columbia announced a new Energy Action Framework to ensure that oil and gas sector projects fit within the province's climate commitments and create new opportunities for people in clean energy and technology. Under the framework, British Columbia will require all new proposed LNG projects in or entering B.C.'s Environmental Assessment process to pass an emissions test with a credible plan to be net zero by 2030 and is planning a regulatory cap on emissions from the oil and gas sector. In addition, British Columbia will be developing and implementing a Climate-Aligned Energy Framework, with an overall goal of maximizing production of clean energy for use at home and for export.

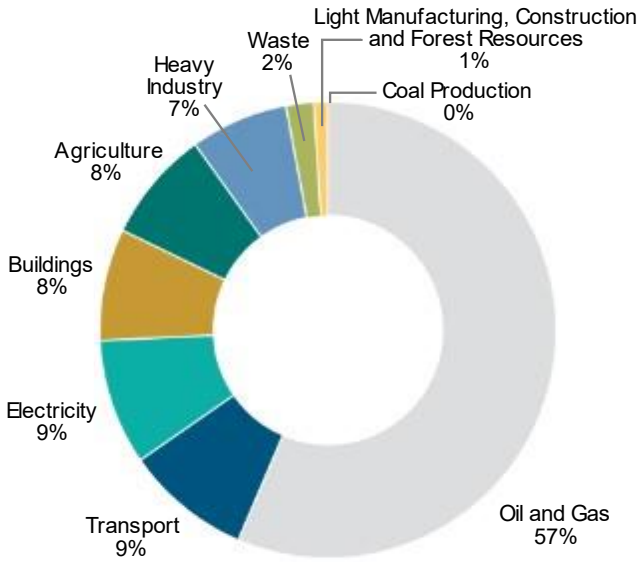
British Columbia is leading Canada in uptake of new zero-emission vehicle sales. According to the province's Zero-Emission Vehicle Annual Report for 2022, 18.1% of new vehicles purchased in 2022 were zero-emission vehicles. As part of the *CleanBC Roadmap to 2030*, British Columbia plans to have all new cars sold be zero-emission by 2035. To make that transition easier for residents, the province plans to invest $26 million in 250 new public, light-duty, fast-charging stations, adding to the more than 3,800 public charging stations already in the province.

7.2 Alberta

Provincial profile

- **Population (2023)[1]:** 4,695,290
- **Median income (2020)[2]:** $44,800
- **GDP (2022)[3]:** $331.5 billion, with largest contributions from mining, quarrying, and oil and gas extraction (22.00%), real estate and rental and leasing (10.72%), and manufacturing (8.59%)
- **GHG emissions (2021)[4]:** 256.15 Mt CO_2 eq or 38.21% of the national total
- **GHG emissions per capita (2021)[1,4]:** 57.56 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** oil and gas (57%), transport (9%), and electricity (9%)
- **Electricity generation (2021)[5,6]:** 61.6% from natural gas, 21.4% from coal, 8.0% from wind, 2.8% from hydro, 2.4% from biomass, 1.8% from petroleum, 1.6% from solar, and 0.3% from other sources. Alberta is a net importer of electricity. The province has electricity interconnections with British Columbia, Saskatchewan, and Montana.

Figure 7-8: Alberta emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

Alberta released its *Emissions Reduction and Energy Development Plan* in April 2023, outlining the province's next steps to address climate change. The plan outlines actions, opportunities, and new commitments to reduce emissions and maintain energy security through collaboration and partnerships; clean technology and innovation; and, finance and policy frameworks. It confirms Alberta's intention to achieve a carbon neutral economy by 2050.

Alberta's *Renewable Electricity Act* outlines Alberta's commitment to increasing the amount of green energy produced in the province, including a legislated target of 30% renewable electricity by 2030.

Alberta was the first regional government in North America to commit to a methane emissions reduction target for the oil and gas sector. Alberta's *Methane Emission Reduction Regulation* targets a 45% reduction of methane levels from oil and gas operations by 2025.

Highlights of recent mitigation action

Alberta's Technology Innovation and Emissions Reduction (TIER) regulatory system was amended, effective January 1, 2023, for the 2023 to 2030 period. Amendments include: increasing the carbon price to align with the federal minimum national price; tightening emission reduction benchmarks, including in the oil sands sector; and, reducing the opt in threshold to enable more industry to voluntarily be regulated.

Through Budget 2023, Alberta invested $800 million in TIER funding over the next three years to support a suite of programs to reduce emissions, support technology development, and create jobs and investment opportunities across all sectors. This funding includes continued investments in programs delivered by partners, including Emissions Reduction Alberta, Alberta Innovates and the Municipal Climate Change Action Centre. An additional $387 million over five years is being reserved in the TIER Fund for investments in future CCUS projects.

Other recent actions include: $50 million in funding to establish the Hydrogen Centre of Excellence; $41 million in funding to support the expanded mandate of the Alberta Energy Regulator in the implementation of a regulatory framework for geothermal and critical minerals; and, the adoption of new national building and energy codes for energy efficiency as the minimum province-wide standard.

In the spotlight: Technology Innovation and Emissions Reduction

The TIER system came into effect on January 1, 2020. TIER is an industrial carbon pricing and emissions trading system that automatically applies to any facility that has emitted 100,000 tonnes or more of CO_2 eq GHGs in 2016, or any subsequent year. Smaller facilities can voluntarily opt-in to TIER. Sectors subject to TIER include oil and gas, oil sands mining, electricity, forestry, chemicals (including hydrogen production), fertilizers, minerals, food processing and waste. Regulated facilities can make investments to reduce emissions on site, can comply using credits (carbon offsets, emission performance credits or sequestration tonnes) or pay into the TIER fund at the established carbon price. Alberta's current carbon price is $65 per tonne (as of January 1, 2023), and it will rise by $15 annually until it reaches $170 per tonne in 2030. TIER funds are invested into technology and innovation programs and projects to drive emissions reductions and increase Alberta's resilience.

What is next

CCUS is central to Alberta's efforts to reduce emissions. To enable more CCUS projects and help meet the growing demand for carbon storage, Alberta is issuing carbon sequestration exploration agreements through a competitive process. Proposals for 25 CCUS hubs approved in 2022 are moving to the evaluation stage. These hubs could facilitate decarbonization plans for the oil sands and for industries that include power, clean hydrogen, petrochemicals, upgrading and refining, cement, steel, fertilizer, biodiesel production and gas processing.

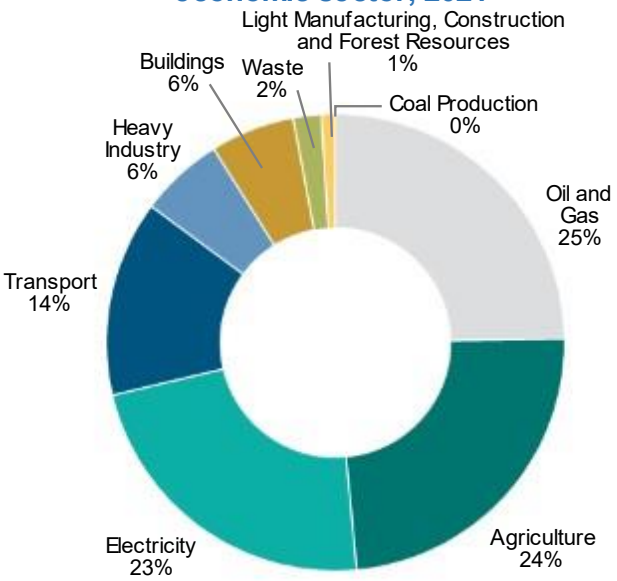
Alberta will investigate a framework for a voluntary credit market in Alberta for activities or sectors, including objectives that support Article 6 of the Paris Agreement and the Carbon Offsetting and Reduction Scheme for International Aviation. Alberta also intends to explore partnerships in emissions trading and market linkages with other provinces and jurisdictions, such as British Columbia, to support CCUS and liquid natural gas.

7.3 Saskatchewan

Provincial profile

- **Population (2023)[1]:** 1,209,107
- **Median income (2020)[2]:** $42,400
- **GDP (2022)[3]:** $76.7 billion, with largest contributions from mining, quarrying, and oil and gas extraction (26.62%), agriculture, forestry, fishing, and hunting (11.05%), and real estate and rental and leasing (8.20%)
- **GHG emissions (2021)[4]:** 67.11 Mt CO_2 eq or 10.01% of the national total
- **GHG emissions per capita (2021)[1,4]:** 57.41 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** oil and gas (25%), agriculture[iii] (24%), and electricity (23%)
- **Electricity generation (2021)[5,6]:** 45.2% from natural gas, 38.7% from coal, 12.0% from hydro, 3.1% from wind, 0.3% from solar, and 0.7% from other sources. Saskatchewan is a net importer of electricity. The province has electricity interconnections with Alberta, Manitoba, and North Dakota.

Figure 7-9: Saskatchewan emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

Saskatchewan released its *Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy* in December 2017. The strategy takes a system-wide approach and includes more than 40 commitments designed to make Saskatchewan more resilient to the effects of a changing climate.

Saskatchewan's *Methane Action Plan* (2019) includes regulations to reduce GHG emissions from venting and flaring in Saskatchewan's upstream oil and gas sector by 4.5 Mt per year by 2025.

Saskatchewan has identified the need to secure an affordable reliable power supply while continuing to reduce GHG emissions within realistic timelines. SaskPower has committed to a 50% reduction in

[iii] Emissions and sequestration from agricultural soils are reported under the LULUCF sector. Sequestration from agricultural soils has contributed to net removals in the land sector in recent years. See Annex A1.3.7 for more information on emissions reporting for the agriculture sector.

electricity GHG emissions below 2005 levels by 2030 and increasing renewable electricity generation capacity by as much as 50% by 2030. SaskPower's May 2023 affordability plan calls for a net-zero electrical grid by 2050, to be achieved with a combination of renewable and nuclear generation.

Highlights of recent mitigation action

Saskatchewan's *Oil and Gas Emissions Management Regulations* (OGEMR) have succeeded in reducing methane emissions from the upstream oil and gas sector by 64%, or 7.0 Mt CO_2 eq, from 2015 levels.

Saskatchewan has committed to maintaining an energy mix of reliable baseload power including utilizing natural gas plants until their end-of-life date, wind, solar, as well as working towards establishing small modular reactors.

Saskatchewan has strengthened and expanded its Output-Based Performance Standards (OBPS) to include electricity generation and natural gas transmission pipeline sectors, as of January 1, 2023. Proceeds from the OPBS will flow into a technology fund which will provide funding for emissions reduction projects undertaken by regulated emitters.

Saskatchewan's Critical Minerals Strategy aims to boost production of minerals necessary for the energy transition, helping to alleviate raw material bottlenecks and accelerate the world's transition to sustainable energy.

The historic adoption of sustainable farming practices and increased yields by Saskatchewan's farmers has changed the emissions and removals in agricultural soils. From 2017 to 2021, the estimated net flux of CO_2 exchanged between agricultural soils and the atmosphere resulted in average net removals of 15.75 Mt of carbon, offsetting 95.7% of emissions produced by the agricultural sector.

In the spotlight: Climate Resilience Reporting

Saskatchewan released its *Climate Resilience Measurement Framework* in November 2018 and reports annually through a climate resilience report. The framework is a collaboration among 14 ministry branches and agencies, and tracks progress on 25 measures across five key areas of focus: natural systems, physical infrastructure, economic sustainability, community preparedness and human well-being. Measures include renewable energy generation capacity, total GHG emissions from the electricity sector, emissions intensity of Saskatchewan's economy and total GHG emissions produced in association with oil. The first resilience report was released in April 2019, presenting baselines and targets for these measures. The 2023 report continued with reporting on the status and trends for 22 of the 25 measures. Twenty measures in the 2023 report were classified as good, and two measures were classified as fair. There were no measures with a poor status.

What is next

Saskatchewan has identified nuclear power as a possible energy generation option in the province. SaskPower made its technology selection in 2022 and are now in the site selection phase, with the goal of narrowing down options for a potential site based on information collected through studies and engagement activities with communities, stakeholders and Indigenous partners. A decision on site selection will be made in 2024, with the decision on whether or not to build a small modular reactor by 2029.

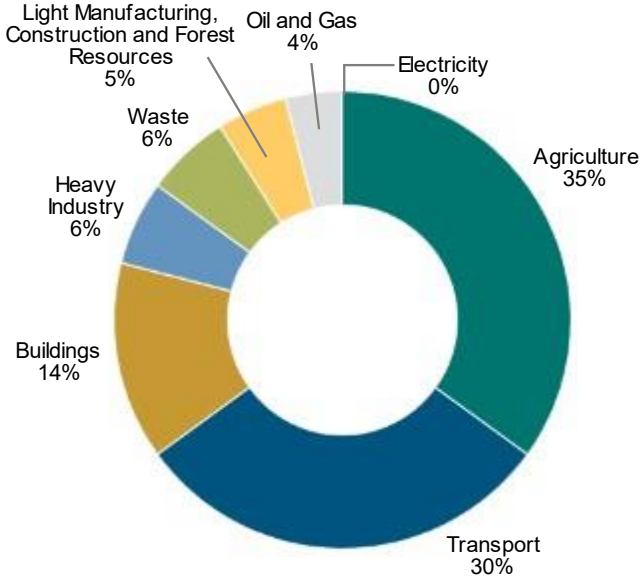
Saskatchewan's technology fund will provide financing for industrial emitters to help reduce its GHG emissions. The fund will begin accepting project proposals in September 2023, with funding decisions made in 2024.

7.4 Manitoba

Provincial profile

- **Population (2023)[1]:** 1,454,902
- **Median income (2020)[2]:** $39,200
- **GDP (2022)[3]:** $68.5 billion, with largest contributions from real estate and rental and leasing (13.11%), manufacturing (10.96%), and healthcare and social assistance (9.26%)
- **GHG emissions (2021)[4]:** 20.70 Mt CO_2 eq or 3.09% of the national total
- **2021 GHG emissions per capita[1,4]:** 14.82 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** agriculture[iv] (35%), transport (30%), and buildings (14%)
- **Electricity generation (2021)[5,6]:** 96.0% from hydro, 3.3% from wind, 0.3% from biomass, 0.2% from solar, 0.1% from petroleum, and 0.1% from natural gas. Manitoba is a net exporter of electricity. The province has electricity interconnections with Ontario, Saskatchewan, and the midwestern United States.

Figure 7-10: Manitoba emissions by economic sector, 2021[4]



[iv] Emissions and sequestration from agricultural soils are reported under the LULUCF sector. Sequestration from agricultural soils has contributed to net removals in the land sector in recent years. See Annex A1.3.7 for more information on emissions reporting for the agriculture sector.

Climate plan and emissions reduction targets

Manitoba established its Made-in-Manitoba Climate and Green Plan in 2017, which builds on four pillars: climate, jobs, water, and nature. Keystones for climate change pillar include clean energy, sector emissions reductions, and adaptation.

Manitoba's *Climate and Green Plan Implementation Act*, 2018, requires the Minister of Conservation and Climate to establish GHG emissions reduction goals for the 2018 to 2022 period and for every five-year period after that. Manitoba has committed to reducing cumulative GHG emissions by 1 Mt over the 2018 to 2022 period. In 2023, Manitoba introduced its second five-year carbon savings account (CSA) target of at least 5.6 Mt for the period of 2023 to 2027. Specific climate targets will be set for 2030 and 2050.

Highlights of recent mitigation action

The Conservation and Climate Fund supports projects in Manitoba that incorporate actions to combat and adapt to climate change and protect the environment. The 2023 provincial budget committed to continue funding innovative projects that work to help protect the environment in 2023-24.

In 2022-23, Manitoba invested $8.7 million to continue supporting recycling, composting and waste diversion initiatives across the province through the Waste Reduction and Recycling Support program. This program helps divert more than 188,250 tonnes of waste from Manitoba landfills annually.

The Growing Outcomes in Watersheds program in Manitoba supports emissions reduction and sequestration. The program will help producers with the establishment of projects that improve on-farm water management, enhance sustainable agricultural production, improve biodiversity and habitat, and carbon sequestration and storage. The program helps producers and ranchers with projects such as restoring wetlands, planting windbreaks, and balancing drainage with water retention.

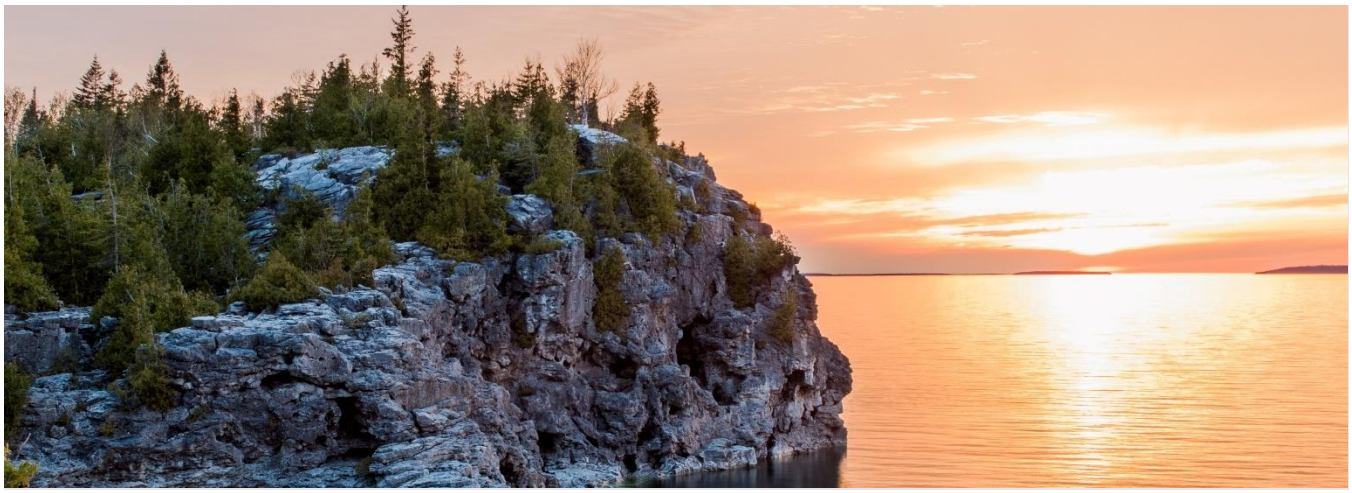
In the spotlight: Efficient Trucking Program

Manitoba's Efficient Trucking Program (ETP) was launched in 2019 and supports clean technology adoption in the transportation sector by providing incentives for specific technologies and devices to improve fuel efficiency and reduce GHG emissions. Hundreds of trucks and trailers have received fuel-saving/emissions reduction retrofits, and are cost-shared by Manitoba and Canada, through the Low Carbon Economy Fund. Launched initially as a three-year program, Manitoba's 2023 budget set out new funding to continue to build on the success of the ETP. Manitoba is also working closely with transportation stakeholders and will be advancing developments to assist in a green transition.

What is next

In the coming years, Manitoba will coordinate efforts across government to implement measures to meet net-zero targets by 2050. In addition, the province will continue to:

- Explore opportunities to further reduce emissions under the Low Carbon Economy Fund;
- Further its work on adaptation and inter-jurisdictional cooperation to expand resiliency actions;
- Provide support to Efficiency Manitoba to advance energy efficiency programs; and,
- Work toward making the energy grid net-zero by 2035.

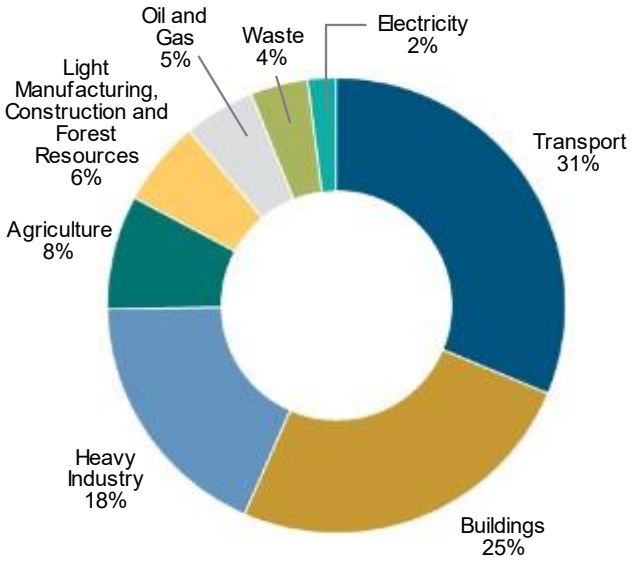


7.5 Ontario

Provincial profile

- **Population (2023)**[1]**:** 15,608,369
- **Median income (2020)**[2]**:** $41,200
- **GDP (2022)**[3]**:** $839.5 billion, with largest contributions from real estate and rental and leasing (12.88%), manufacturing (11.45%), and finance and insurance (9.20%)
- **GHG emissions (2021)**[4]**:** 150.56 Mt CO_2 eq or 22.46% of the national total
- **GHG emissions per capita (2021)**[1,4]**:** 10.08 t CO_2 eq
- **Highest emitting economic sectors (2021)**[4]**:** transport (31%), buildings (25%), and heavy industry (18%)
- **Electricity generation (2021)**[5,6]**:** 57.1% from nuclear, 24.1% from hydro, 7.7% from natural gas, 7.6% from wind, 2.3% from solar, 1.0% from biomass, and 0.1% from petroleum. Ontario is a net exporter of electricity. The province has electricity interconnections with Manitoba, Québec, Michigan, Minnesota, and New York.

Figure 7-11: Ontario emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

Ontario's climate plan, *Preserving and Protecting Our Environment for Future Generations: A Made-In-Ontario Environment Plan* (2018), commits to an emissions reduction target of 30% below 2005 levels by 2030. The plan focuses on understanding the impacts of climate change; updating policies and building partnerships to improve climate resilience; implementing emission performance standards for large emitters; encouraging investments in clean technology and green infrastructure; improving energy efficiency in homes and buildings; and, increasing access to clean and affordable energy.

In April 2022, Ontario released its Ontario Emissions Scenario, which outlines the province's approach to meeting its 2030 emissions reduction target of reducing GHG emissions 30% below 2005 levels

using modelling information. Ontario's new forecast predicts it will hit its 2030 target by reducing emissions by an additional 12 Mt (to 143.7 Mt) from current projected levels (155.7 Mt). The majority of these reductions are attributed to Ontario's Emissions Performance Standards and gas renewable content, and supporting industrial coal phase out.

Highlights of recent mitigation action

In April 2022, the provincial government released Ontario's Low-Carbon Hydrogen Strategy, which positions Ontario as a clean manufacturing hub that is ready to support new investments in clean steel production, electric vehicles, and the batteries that power them. The strategy includes eight specific actions to enable production and expand the low-carbon hydrogen economy. These actions are expected to help increase the amount of annual provincial production capacity of low-carbon hydrogen eight-fold and support the nascent market to meet its potential:

- Launching the Niagara Falls hydrogen production pilot;
- Identifying Ontario's hydrogen hub communities;
- Accessing the feasibility of hydrogen opportunities at Bruce Power;
- Developing an interruptible electricity rate;
- Supporting hydrogen storage and grid integration pilots;
- Transitioning industry through the use of low-carbon hydrogen;
- Consulting on an Ontario carbon sequestration and storage regulatory framework; and,
- Supporting ongoing hydrogen research.

In September 2022, the provincial government increased funding for energy efficiency programs by $342 million, bringing total funding to more than $1 billion over the current 2021 to 2024 framework period. This increased funding also supported the launch of Peak Perks, a smart thermostat program where homeowners and small businesses may enroll and receive $75 for permitting their smart thermostat to be adjusted on peak demand days for up to three hours, up to 10 times a year. In July 2023, the provincial government launched a public and stakeholder consultation, including targeted outreach to Indigenous communities in Ontario on the scoping of future energy efficiency and conservation frameworks.

In March 2023, Ontario launched a voluntary Clean Energy Credit (CEC) registry that provides businesses with a tool to meet their environmental and sustainability goals and demonstrate that their electricity has been sourced from clean resources. Proceeds from the sale of CECs will fund the construction of clean electricity projects in Ontario through a newly created Future Clean Electricity Fund. This fund will help build Ontario's clean energy advantage as the province competes for and attracts new investments in electric vehicle and battery manufacturing, clean steel, and other sectors. The fund will also reduce the cost of electricity for ratepayers by funding future system costs.

Other electrification and energy planning initiatives in Ontario include the launch of the Electrification and Energy Transition Panel in 2022 that will provide advice on integrated energy planning, growing energy demand, the adoption of emerging clean technologies and fuel switching in the context of growing energy demand and electrification in late 2023. The Panel's work is supported by the province's first study on cost-effective pathways to emissions reductions in the energy sector, which is also expected to be completed in late 2023.

In the spotlight: *Powering Ontario's Growth* plan

In July 2023, Ontario released its *Powering Ontario's Growth* plan, outlining the actions the province is taking to meet the increasing demand for electricity driven by strong economic growth and electrification through the 2030s and 2040s. This plan outlines planned actions to meet the clean energy needs for Ontario's future, including: building the first large-scale nuclear reactor in Canada in 30 years at the Bruce Nuclear Site; expanding Ontario's grid-scale small modular reactor program from one to four at the Darlington Nuclear Site; launching a procurement for clean energy resources such as wind, solar, biomass, hydroelectric and batteries in 2025-26 for an operational date of 2029-30; and, identifying and planning to address transmission bottlenecks in the provincial grid, while advancing energy efficiency. The plan also sets the stage for the province's first integrated energy plan that contemplates how the province will begin planning for the energy transition in a more holistic manner, considering the province's needs and aligning system planning between natural gas and electricity to improve outcomes and minimize costs.

What is next

Ontario will continue to implement its Emissions Performance Standards program and finalize an approach to use the proceeds to reduce large industrial emissions while keeping businesses competitive.

Ontario has committed to a number of initiatives to transition towards clean energy, including:

- Advancing nuclear power through pre-development work at Bruce Power to site the first large-scale nuclear build in over three decades and commencing planning for three additional small modular reactors at Darlington;
- Planning for long-term procurement of non-emitting electricity resources including wind, solar, hydroelectric, storage and bioenergy;
- Optimizing Ontario Power Generation's hydroelectric fleet to increase generation; and,
- Planning for transmission system expansions that will enable clean electricity generation opportunities and facilitate electrification.

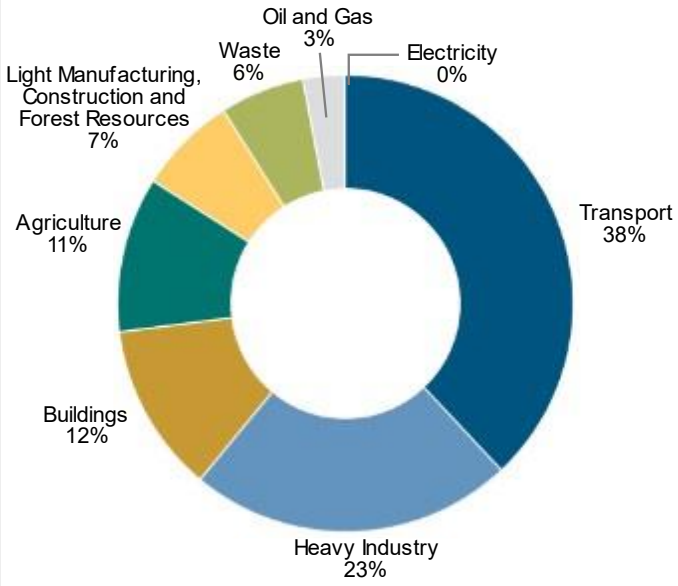
In its recent budget, Ontario also committed to attracting investments that support reduced emissions in the steel sector, investing in public transportation, and further developing the province's competitive advantage in electric vehicles and batteries through investments in facilities and operations.

7.6 Québec

Provincial profile

- **Population (2023)[1]:** 8,874,683
- **Median income (2020)[2]:** $40,800
- **GDP (2022)[3]:** $428.3 billion, with largest contributions from manufacturing (14.16%), real estate and rental and leasing (10.48%), and health care and social assistance (8.72%)
- **GHG emissions (2021)[4]:** 77.48 Mt CO_2 eq, or 11.56% of the national total
- **GHG emissions per capita (2021)[1,4]:** 9.01 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transport (38%), heavy industry (23%), and buildings (12%)
- **Electricity generation (2021)[5,6]:** 93.9% from hydro, 5.1% from wind, 0.7% from biomass, 0.3% from petroleum, and 0.1% from natural gas. Québec is a net exporter of electricity. The province has electricity interconnections with Ontario, New Brunswick, and the northeastern United States.

Figure 7-12: Québec emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

In 2020, Québec released its *2030 Plan for a Green Economy*. This plan provides an electrification and climate change policy framework for the province. The plan reiterated Québec's previous commitment to achieving its emissions reduction target of 37.5% below 1990 levels by 2030. It also refers to Québec's ambition to achieve net-zero emissions by 2050. On May 19, 2023, Québec released its third Implementation Plan, for the period from 2023 to 2028.

Other key targets included in Québec's plan are:

- No sales of new gasoline-powered vehicles as of 2035;
- 100% of the provincial government's cars, SUVs, vans and minivans, and 25% of its pickup trucks electrified in 2030;
- 50% reduction in building heating emissions in 2030 and 60% reduction in emissions from government buildings in 2030;

- 70% of energy supply in off-grid systems from renewable energy by 2025; and,
- 15% of renewable fuel in gasoline and 10% in diesel by January 1, 2030 (regulation adopted in 2021-22, starting in 2023, for incremental volume of renewable fuel).

Québec adopted a target of 80% to 95% below 1990 levels by 2050 as a member of the Compact of States and Regions and a signatory to the Subnational Global Climate Leadership Memorandum of Understanding.

Highlights of recent mitigation action

Mitigation measures for transportation, industry decarbonization, and buildings sectors remain Québec's top three priorities, alongside new measures and investment across the climate portfolio.

Announced measures in the transportation sector include an increase of the target for light electric vehicles, from 1.6 million to 2 million by 2030, $82.5 million to enhance the Écocamionnage program for the electrification of heavy-duty vehicle fleets, as well as a $68 million increase in the financial assistance program for the development of active transportation in urban areas.

In the industrial sector, main investments include $175 million for the new industrial component of the Bioénergies program to finance energy conversion projects to bioenergy for large industrial emitters, $254.9 million for a new call for projects under the GHG Challenge program, and $280.3 million for various off-grid partial conversion projects and community renewable energy projects.

In the buildings sector, new investments include $214.5 million to launch a new waste heat recovery program and $129.3 million for a new commercial/institutional component of the Chauffez vert program. The province is also working on the implementation of an energy performance reporting and rating system for buildings.

Québec made adjustments to its cap-and-trade system for carbon pollution pricing to increase the stringency of the system's free allocation approach. Adjustments included a new mechanism whereby a portion of the emission units making up the free allocation issued will be consigned, sold at auction, and the resulting proceeds set aside on behalf of the emitter to contribute to the climate transition through GHG emission reduction projects and research and development in this field.

In the spotlight: 2023–2028 Implementation Plan

With the 2023–2028 Implementation Plan, the Québec government is ramping up its investments to $9 billion, an increase of $1.4 billion above the previous implementation plan. The planned actions and budgets are estimated to lead to GHG reductions representing 60% of the work required to reach the 2030 target, as opposed to 51% of the work needed when the 2022–2027 Implementation Plan was launched. The plan also sets out measures currently in development to further boost progress in a range from 69% to 73%.

What is next

Québec has announced the intention to formalize its net zero by 2050 target through the process provided for under Québec's *Environment Quality Act*.

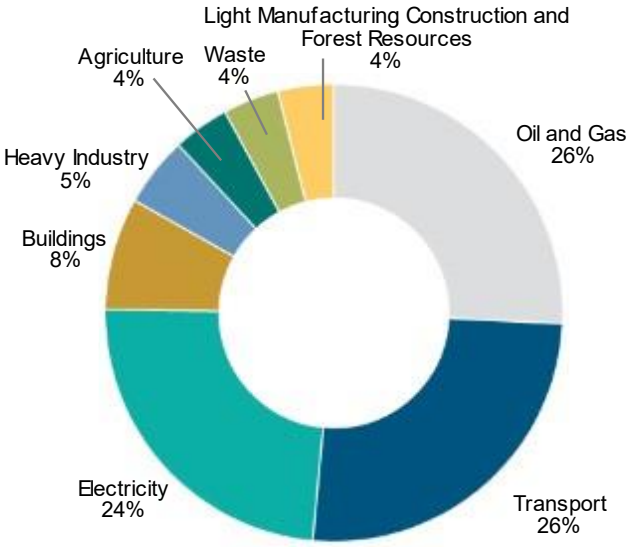
Québec's most recent implementation plan identifies a series of planned initiatives to support an accelerated climate transition, including a number of significant investments in early-stage technology such as bioenergy and low-carbon hydrogen, breakthrough technologies related to aluminum production, and carbon capture, utilization and sequestration. Québec's climate planning approach also supports the regular review and adjustment of the implementation plan, including modifying actions in progress, enhancing financing, and adding new activities.

7.7 New Brunswick

Provincial profile

- **Population (2023)[1]:** 834,691
- **Median income (2020)[2]:** $37,600
- **GDP (2022)[3]:** $34.3 billion, with largest contributions from real estate and rental and leasing (12.81%), manufacturing (11.88%), and public administration (11.60%)
- **GHG emissions (2021)[4]:** 11.87 Mt CO_2 eq or 1.77% of the national total
- **GHG emissions per capita (2021)[1,4]:** 14.92 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** oil and gas (26%), transport (26%), and electricity (24%)
- **Electricity generation (2021)[5,6]:** 38.3% from nuclear, 22.8% from hydro, 12.5% from coal, 8.2% from petroleum, 6.6% from wind, 6.5% from natural gas, and 5.1% from biomass. New Brunswick is a net importer of electricity. The province has electricity interconnections with Maine, Québec, Nova Scotia, and Prince Edward Island.

Figure 7-13: New Brunswick emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

In September 2022, New Brunswick released its 2022–2027 Climate Change Action Plan: *Our Pathway Towards Decarbonization and Climate Resilience*.

New Brunswick's emissions reduction targets were brought into law in 2018 by the *Climate Change Act*:

- 14.8 Mt CO_2 eq in 2020 (equivalent to approximately 24% below 2005 levels);
- 10.7 Mt CO_2 eq in 2030 (equivalent to approximately 45% below 2005 levels); and,
- 5 Mt CO_2 eq in 2050 (equivalent to approximately 74% below 2005 levels).[v]

[v] Approximate percentages below 2005 levels are calculated using data from the 2023 National Inventory Report.

In its 2022–2027 Climate Change Action Plan, New Brunswick committed to achieving net-zero emissions by 2050.

Highlights of recent mitigation action

New Brunswick's 2022–2027 Climate Change Action Plan includes 30 new actions across three pillars: government leadership and accountability, reducing greenhouse gas emissions and preparing for climate change. The plan builds upon progress made in implementing New Brunswick's 2017–2022 Climate Change Action Plan: *Transitioning to a Low-Carbon Economy*—as of July 2022, 76% of the plan's actions were considered complete. New Brunswick released its first progress report on the implementation of the 2022–2027 climate plan in fall 2023.

In November 2022, the Government of New Brunswick and NB Power announced a total investment of $70 million to launch the Enhanced Energy Savings Program. The program helps lower- and middle-income homeowners transition away from electric baseboards and home heating oil by offering free heat pumps and upgraded insulation.

New Brunswick introduced the Plug-In NB Electric Vehicle Rebate Program in July 2021. The program provides rebates of up to $5,000 towards the purchase of electric vehicles and up to $750 towards the installation of charging stations. Registrations of fully electric vehicles in New Brunswick more than doubled from 2021 to 2022. The province is also investing $10.6 million in projects to decarbonize the Transport Sector through the Climate Change Fund in 2023-24.

New Brunswick continues to implement a provincial output-based pricing system (OBPS) for large industrial emitters; adjustments to its OBPS came into effect on January 1, 2023, to align with federal requirements for all carbon pollution pricing systems.

In November 2022, an amendment to the *New Brunswick Electricity Act* came into effect that includes electricity efficiency targets, dedicated funding under the Energy Efficiency Fund, and specific reporting requirements for NB Power.

In 2023-24, New Brunswick's Environmental Trust Fund invested over $2 million into projects that address climate change mitigation, adaptation, and education. The fund provides support to community-based initiatives that align with the following priority areas: protecting the environment, increasing environmental awareness, managing waste, addressing climate change, and building sustainable communities.

In August 2023, NB Power released its 2023 Integrated Resource Plan (IRP): Pathways to a Net-Zero Electricity System. The IRP represents the long-term plan for New Brunswick's energy supply and demand, showing 16 different pathways for achieving a net-zero electricity system by 2035.

In the spotlight: New Brunswick's Climate Change Fund

The Climate Change Fund was established under New Brunswick's *Climate Change Act* in 2018. Projects from across all sectors of the economy are awarded funding to help reduce GHG emissions, increase resilience to the impacts of climate change, and foster educational opportunities for the province's young people. Recent projects have included energy efficiency retrofits, climate-smart agriculture, and greening government fleets. Seventy-three projects have been approved for the fiscal year 2023-24 with committed funding of $47 million.

What is next

An extensive list of actions is available in the 2022–2027 Climate Change Action Plan. Some examples include:

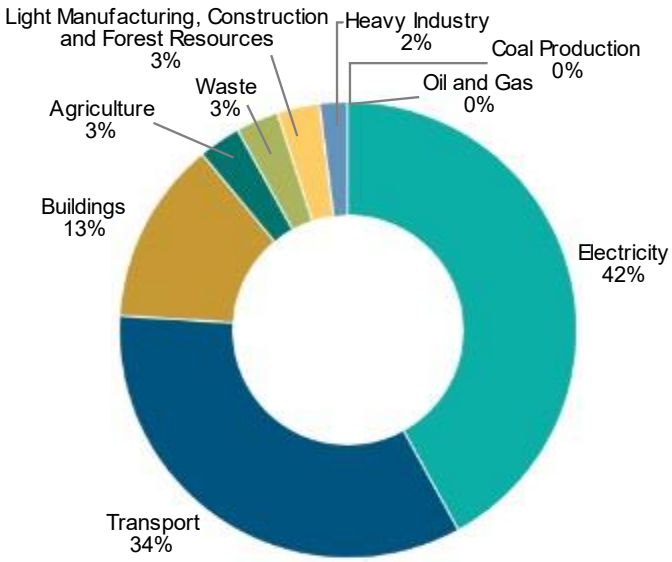
- Developing a Net-Zero Blueprint by 2025 that will establish five-year interim emission reduction goals and will include a suite of actions focusing on all key sectors, including new low-carbon technologies and nature-based solutions;
- Developing a whole-of-government Sustainable Economic Development Plan by 2024, focused on decarbonization opportunities and barriers, specifically geared toward creating the economic growth conditions that will enable business and industry transition and growth;
- Developing a Clean Electricity Strategy by 2025 for achieving net-zero electricity emissions by 2035;
- Developing a Provincial Climate Change Risk Assessment by 2025 to identify risks, set priority areas for adaptation action, and inform decision-making across New Brunswick;
- Collaborating with regional service commissions, local governments, and rural districts to develop GHG reduction plans and climate change adaptation plans, and begin reporting on progress and implementation annually; and,
- Adopting the most current version of the National Energy Code of Canada for Buildings and the National Building Code of Canada, and at regular intervals, adopting more stringent tiers of the codes between 2023 and 2030 with the objective of achieving net-zero energy ready construction by 2030.

7.8 Nova Scotia

Provincial profile

- **Population (2023)[1]:** 1,058,694
- **Median income (2020)[2]:** $38,000
- **GDP (2022)[3]:** $43.2 billion, with largest contributions from real estate and rental and leasing (16.42%), public administration (13.06%), and health care and social assistance (10.20%)
- **GHG emissions (2021)[4]:** 14.60 Mt CO_2 eq, or 2.18% of the national total
- **GHG emissions per capita (2021)[1,4]:** 14.50 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** electricity (42%), transport (34%), and buildings (13%)
- **Electricity generation (2021)[5,6]**: 50.9% from coal, 18.3% from natural gas, 13.9% from wind, 8.5% from hydro, 6.2% from petroleum, 1.9% from biomass, and 0.4% from solar. Nova Scotia is a net importer of electricity. The province has electricity interconnections with New Brunswick.

Figure 7-14: Nova Scotia emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

In November 2021, Nova Scotia passed the *Environmental Goals and Climate Change Reduction Act*, committing to reduce GHG emissions to at least 53% below 2005 levels by 2030, and to achieve net-zero emissions by 2050. The Act outlines a number of other goals related to climate-change mitigation and emissions reduction, including to have 80% of electricity in the province supplied by renewable energy by 2030, to phase out coal-fired electricity generation by 2030, and to decrease GHG emissions across government-owned buildings by 75% by 2035.

Nova Scotia's climate plan, *Our Climate, Our Future: Nova Scotia's Climate Change Plan for Clean Growth*, released in December 2022, also includes a new pledge to achieve a 90% reduction in GHG emissions from the electricity sector by 2035 and reduce home heating oil use by at least 20% by 2030.

Highlights of recent mitigation action

The 2021 *Environmental Goals and Climate Change Reduction Act* legislated 28 goals to achieve sustainable prosperity in Nova Scotia. In July 2023, Nova Scotia released its first annual progress report on the implementation of the *Environmental Goals and Climate Change Reduction Act* and the *Our Climate, Our Future* climate change plan, highlighting progress toward the province's goals.

Since the introduction of the *Environmental Goals and Climate Change Reduction Act*, Nova Scotia has invested more than $223 million to move forward on the legislated goals and actions within Nova Scotia's climate change plan, including:

- More energy efficiency and clean energy projects, with a focus on energy poverty and equity;
- Further efforts to reduce emissions and move from coal to renewable energy and low-carbon hydrogen, including the approval of more than 650 megawatts of new wind projects;
- Building community-based capacity to plan and deliver climate change projects through programs like the Sustainable Communities Challenge Fund;
- Support for farmers and fishers who adopt solar energy and develop adaptation plans;
- Consumer rebates for zero-emission vehicles and e-bikes, as well as support for more charging infrastructure;
- More research in battery technology and other advanced technologies and practices that support net-zero emissions; and,
- Support for more clean energy training and technical capacity to meet labour demands for trades professionals.

In March 2023, the Governments of Canada and Nova Scotia launched the Regional Assessment of Offshore Wind Development in Nova Scotia. The Committee will engage Indigenous partners, federal and provincial authorities, non-government organizations and the public.

In the spotlight: $140 million for off-heating oil programming

In 2022, Nova Scotia invested $140 million in two programs to help low- and middle-income Nova Scotians move away from home heating oil faster. Low-income households can now apply to the HomeWarming program for free heat pumps and any electrical panel upgrades needed to install them. Households that have already received energy efficiency upgrades through this program can apply again for this new support. All Nova Scotians can receive support for a variety of energy efficiency upgrades through the Home Energy Assessment program. It is the first step to accessing rebates or loans through the Canada Greener Homes Initiative. The new funding will provide extra support for middle-income households to get rebates when they install energy efficient heating systems and other upgrades that reduce their reliance on heating oil. When combined with federal investments from the Low Carbon Economy Fund and the Canada Greener Homes Initiative, these provincial programs will help about 13,500 low-income households and about 30,000 middle-income households reduce their greenhouse gas emissions and energy bills.

What is next

Nova Scotia has appointed a panel with a broad range of expertise—Mi'kmaw and African Nova Scotian history, law, environmental racism, policy and community engagement, and health and environmental sciences—to lead work on its legislated commitment to address environmental racism. Their work will support the government's commitment to ensure every person in the province has equitable access to a healthy, safe and sustainable environment, as well as equal protection from environmental harm and the impacts of climate change.

Nova Scotia established a provincial output-based pricing system for industrial emitters that replaced its cap-and-trade system, effective January 1, 2023. The cap-and-trade program will officially be wound down by the end of 2023.

A new protected areas strategy will be released by the end of 2023. This will help to meet the goal to protect at least 20% of Nova Scotia's total land and water mass by 2030 and minimize climate impacts by protecting natural areas.

To support more communities in reducing their GHG emissions, Nova Scotia is: developing a new community solar program; providing more support to communities to increase their capacity to plan and implement GHG mitigation projects; and developing programs to expand access to net-zero emissions housing, including affordable housing.

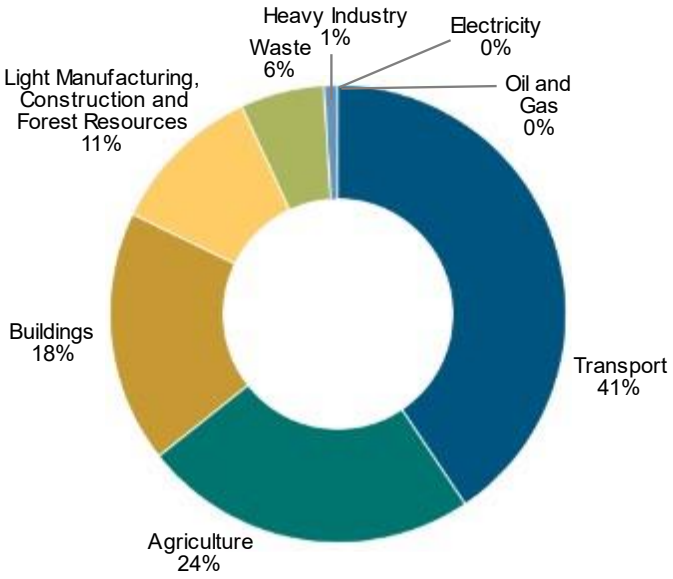
Work is ongoing to support the modernization of the environmental assessment process in Nova Scotia to ensure that new industrial projects are aligned with the province's vision for sustainable prosperity, which includes plans for supporting emissions reduction targets.

7.9 Prince Edward Island

Provincial profile

- **Population (2023)[1]:** 173,787
- **Median income (2020)[2]:** $38,800
- **GDP (2022)[3]:** $7.1 billion, with largest contributions from real estate and rental and leasing (14.82%), manufacturing (12.99%), and public administration (12.11%)
- **GHG emissions (2021)[4]:** 1.63 Mt CO_2 eq, or 0.24% of the national total
- **GHG emissions per capita (2021)[1,4]:** 9.93 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transport (41%), agriculture[vi] (24%), and buildings (18%)
- **Electricity generation (2021)[5,6]:** 96.8% from wind, 2.1% from solar, 0.6% from biomass, and 0.5% from petroleum. Prince Edward Island is a net importer of electricity. In 2019, approximately 60% of electricity consumed in Prince Edward Island was imported from New Brunswick.

Figure 7-15: Prince Edwards Island emissions by economic sector, 2021 [4]



Climate plan and emissions reduction targets

On December 2, 2020, Prince Edward Island passed the *Net Zero Carbon Act*. The Act sets out emissions targets for 2030 and 2040:

- By 2030, GHG emissions must be less than 1.2 Mt CO_2 eq per year (equivalent to approximately 36% below 2005 levels, based on NIR 2023 data); and,
- By 2040, GHG emissions must be at a level where carbon neutrality is achieved.

The Act requires yearly reporting on the province's GHG emissions, climate change risks, and progress made towards targets.

[vi] Emissions and sequestration from agricultural soils are reported under the LULUCF sector. Sequestration from agricultural soils has contributed to net removals in the land sector in recent years. See Annex A1.3.7 for more information on emissions reporting for the agriculture sector.

In February 2022, Prince Edward Island released its 2040 Net Zero Framework. This economy-wide framework provides a roadmap to reach Prince Edward Island's 2040 net-zero target while contributing to national targets and priorities. The framework focuses on six pillars: transportation; buildings; agriculture; carbon sequestration; clean industry and waste; and leadership and engagement. Each pillar has a sector-based target for 2030 and 2040 and is supported by specific goals and priorities.

Highlights of recent mitigation action

Prince Edward Island has introduced initiatives across all sectors to help achieve its net-zero target. In the Buildings Sector, electrification and efficiency programs are seeing significant emissions reductions despite housing starts and population growth. Since 2019, over 2,000 residential solar rebate applications have been approved, representing over $75 million in installation costs.

Prince Edward Island is actively supporting the decarbonization of its Transport Sector. Introduced in 2021, the Universal Electric Vehicle Incentive provides rebates of up to $5,000 to Islanders who purchase new or used battery electric vehicles or up to $2,500 for plug-in hybrid vehicles, as well as $750 towards charging costs. The 2023-24 Capital Budget also included $3.5 million to install 16 new fast charging stations across the Island. Also, 25% of the island's school bus fleet is now electric.

Increasing carbon sequestration is a pillar of Prince Edward Island's 2040 Net Zero Framework. The province has committed to increasing its tree production by 30% to 1.3 million trees a year. In June 2023, Prince Edward Island announced $1 million in provincial funding through the 2 Billion Trees program to expand the J. Frank Gaudet Tree Nursery and work with community partners and landowners on tree planting.

In the spotlight: Income qualified programs

Prince Edward Island has developed a suite of free programs focusing on electrification and efficiency for income-qualified island residents to address climate action and energy poverty. These programs include free heat pumps, free insulation, and free electric hot water heaters. Since the programs' inception in 2021, over 7,000 free heat pumps have been installed with a further 7,000 predicted by the end of the 2023-24 fiscal year.

What is next

Prince Edward Island released its *Building Resilience* Climate Adaptation Plan in late 2022. The plan provides a concrete roadmap for the province to better prepare for the future while lessening climate change's impacts on Island residents. Building resilience while achieving net zero—meaning adopting strategies that can reduce GHG emissions and Prince Edward Island's vulnerability to climate change at the same time—is a key aspect of the plan.

In its 2040 Net Zero Framework, Prince Edward Island committed to developing and implementing consecutive five-year action plans that will include specific actions and initiatives to achieve its ambitious targets. Some of the planned actions that are highlighted in the framework include:

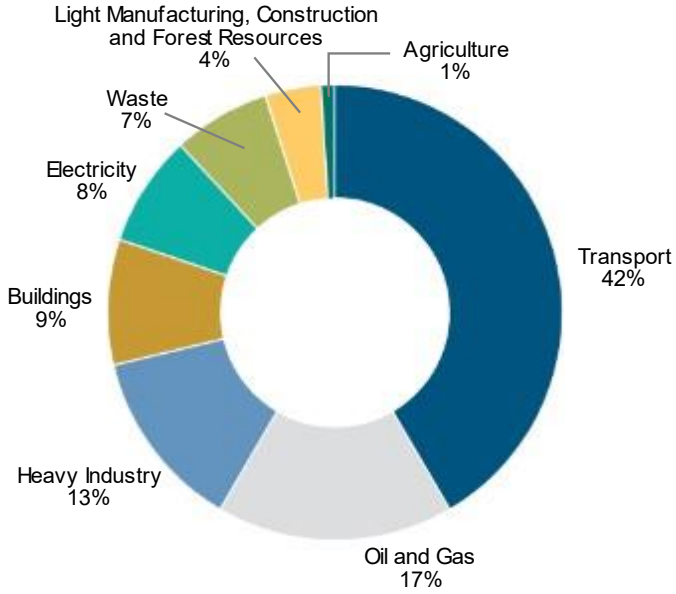
- Establishing a zero-emission mandate for all new purchases of light-, medium-, and heavy-duty vehicles;
- Making investments to support Island homes and businesses in switching fuels and adopting energy efficiency measures;
- Leading by example through greening government operations, including converting the existing fleet to zero-emission vehicles and investing in net-zero ready new construction of government buildings; and,
- Developing a land-use policy that designates resource land to be protected.

7.10 Newfoundland and Labrador

Provincial profile

- **Population (2023)[1]:** 538,605
- **Median income (2020)[2]:** $36,800
- **GDP (2022)[3]:** $29.7 billion, with largest contributions from mining, quarrying, and oil and gas extraction (31.56%), real estate and rental and leasing (9.05%), and health care and social assistance (8.33%)
- **GHG emissions (2021)[4]:** 8.34 Mt CO_2 eq, or 1.24% of national emissions
- **GHG emissions per capita (2021)[1,4]:** 15.78 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transportation (42%), oil and gas (17%), and heavy industry (13%)
- **Electricity generation (2021)[5,6]:** 96.7% from hydro, 2.1% from petroleum, 0.6% from natural gas, 0.4% from wind, and 0.1% from biomass. Newfoundland and Labrador is a significant net exporter of electricity. In 2019, net interprovincial and international electricity outflows accounted for about 75% of generation.

Figure 7-16: Newfoundland and Labrador emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

Newfoundland and Labrador is implementing its 2019 to 2024 climate plan, *The Way Forward on Climate Change*, including a provincial emissions reduction target of 30% below 2005 levels by 2030. The plan contains 45 commitments requiring action in every sector of the economy. As of December 2021, 30 of the 45 commitments were completed. A new plan is being developed for the 2025 to 2030 period.

On June 5, 2020, Newfoundland and Labrador committed to achieving net-zero GHG emissions by 2050. The province appointed a Net Zero Advisory Council in 2021. The Council is to provide advice on foundational actions to achieve net zero by 2050.

Highlights of recent mitigation action

Several new investments were announced in Newfoundland and Labrador's 2023 Budget:

- $57 million in provincial, Low Carbon Economy Fund, and Oil to Heat Pump Affordability Program funding will support 1,840 homeowners switch from oil to electric heat, as well as fuel switching and energy efficiency projects in the private, municipal, non-profit, and public sectors;
- $3 million for electric vehicle initiatives and the purchase of the province's first seven ultra-fast (175 kW/h) chargers; and,
- More than $500,000 for increased capacity for environmental assessment and regulatory oversight of Wind-Hydrogen Projects.

Total expenditures for GHG reduction initiatives between 2023-24 and 2026-27 are currently projected at over $160 million.

Effective January 1, 2023, amendments to Newfoundland and Labrador's *Management of Greenhouse Regulations* were implemented to adjust its output-based pricing system for large industrial emitters to align with federal requirements for putting an effective price on carbon pollution. System-wide GHG reduction targets have been achieved in each year of implementation to date (2019 to 2022).

In March 2023, the federal and provincial governments launched a Regional Assessment of Offshore Wind Development. The assessment will inform future federal impact assessments and decisions for offshore wind projects. In May 2023, the federal government introduced amendments to the federal *Atlantic Accord Implementation Act* to establish a new regulatory regime for renewable energy projects in the offshore area. This includes the exploitation, storage, transmission, and related research and assessment of renewable resources. Parallel provincial legislation will be tabled in the near term.

In June 2023, the federal government invested up to $86 million from its Clean Fuels Fund and Strategic Innovation Fund to finalize the transition of the North Atlantic Refinery to a new renewable diesel and low-carbon aviation fuel facility from used plant-based oils and animal fats.

In August 2023, the provincial government approved four bidders to proceed to the regulatory process for future onshore wind developments. A fifth developer is proceeding with a project on private land. This follows the 2022 removal of a moratorium on wind development and an increase in wind power for the province's first hydrogen energy developments.

In October 2023, the province announced a new $6 million Carbon Capture, Utilization Storage Innovation Challenge. Total expenditures are projected to be at least $12 million. The application process is ongoing.

In the spotlight: Newfoundland and Labrador's New Green Transition Fund

The Green Transition Fund will provide support to projects for businesses, organizations, post-secondary institutions and industry associations, as well as other collaborative efforts to assist with the province's transition to a green economy. As part of the restructuring of its agreement with the Provincial Government in May 2022 to restart the West White Rose project, project partners committed $100 million to establish a Green Transition Fund. The annual payment begins at $6 million in 2023 and increases to $12 million in 2033 and 2034. Contributions may be used to support continued, expanded or new operations in the province that have a special focus on raising awareness, conducting commercial research and development, developing new markets, and other initiatives supporting the green economy.

What is next

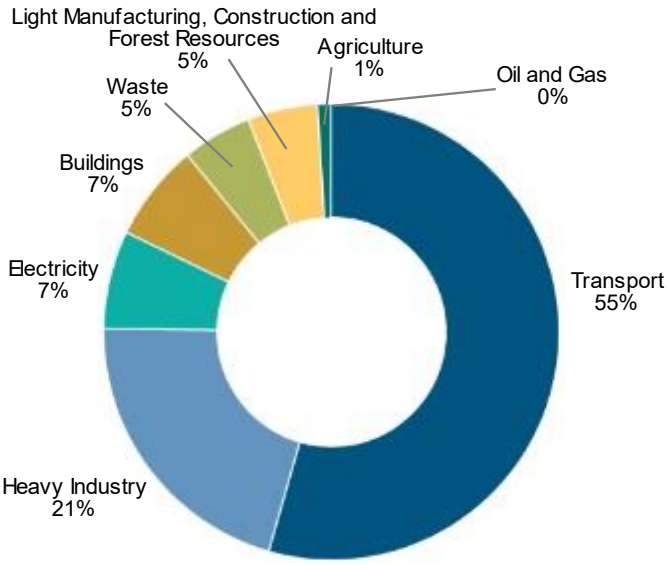
Newfoundland and Labrador is working on implementing the actions funded through its most recent budget, including those funded through cost-shared agreements with ECCC and NRCan.

7.11 Yukon

Territorial profile

- **Population (2023)[1]:** 44,975
- **Median income (2020)[2]:** $54,800
- **GDP (2022)[3]:** $3.3 billion, with largest contributions from public administration (22.96%), real estate and rental and leasing (13.57%), and mining, quarrying and oil and gas extraction (13.50%)
- **GHG emissions (2021)[4]:** 0.65 Mt CO_2 eq or 0.10% of the national total
- **GHG emissions per capita (2021)[1,4]:** 15.08 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transport (55%), heavy industry (21%), and electricity (7%)
- **Electricity generation (2021)[5]:** 87.2% from hydro, 7.6% from petroleum, 3.7% from natural gas, and 1.6% from solar.

Figure 7-17: Yukon emissions by economic sector, 2021[4]



Climate plan and emissions reduction targets

Building on *Our Clean Future: A Yukon strategy for climate change, energy and a green economy* (2020), Yukon's *Clean Energy Act* passed in November 2022, with emissions reduction targets of net zero by 2050, and 45% emissions reduction below 2010 levels by 2030, not including mining sector emissions.

Other targets include: 93% of on-grid electricity coming from renewable sources by 2030, with an aspirational target of 97%; reducing diesel use for off-grid electricity generation by 30% below 2010 levels by 2030; providing 50% of heating needs with renewable energy by 2030; reducing road

transportation emissions by 30% below 2010 levels by 2030; and, reducing emissions from Government of Yukon buildings by 30% below 2010 levels by 2030.

The Government of Yukon is working to revise the *Clean Energy Act* to include a mining intensity target of a 45% reduction in emissions by 2035.

Highlights of recent mitigation action

In its 2023-24 Budget, tabled on March 2, 2023, the Government of Yukon prioritized investments to make life more affordable, strengthen Yukon's health and social systems, move forward on reconciliation, grow a strong economy, and build a green future. Yukon earmarked nearly $60 million for climate change initiatives in 2023-24, including:

- $10.2 million for energy rebates in buildings and the transportation sector;
- $9 million to fund energy retrofits and renewable energy projects;
- $8.3 million for government building retrofits to reduce energy loss;
- $2.2 million for energy retrofits in First Nations-owned housing; and,
- $2.5 million for the development of proponent-led renewable energy projects.

$36.5 million has been allocated for the construction of energy projects, including wind, solar, and grid-scale battery storage in both on-grid and off-grid communities through the Arctic Energy Fund. The Government of Yukon has allocated $50 million to support the Atlin Hydroelectric Expansion Project, a run-of-river project that would provide reliable winter capacity reducing the need for four rental diesel generators.

Yukon has adopted the federal carbon pollution pricing system, implementing a carbon pollution price of $20 per tonne starting on July 1, 2019. On April 1, 2023, the federal price on carbon pollution increased to $65 per tonne and will rise by $15 per tonne on April 1 of each year until it reaches $170 in 2030. Yukon has put in place a carbon rebate program which returns all revenue generated from the federal carbon levy to Yukoner individuals, businesses, First Nations governments, municipal governments, and licensed placer- and quartz-mining operations.

In the spotlight: Haeckel Hill Wind Project

In its climate strategy, *Our Clean Future*, Yukon committed to setting a minimum regulatory requirement for the Yukon Energy Corporation (YEC) to generate an average of at least 93% of electricity from renewable sources on the main grid, with an ideal of reaching 97%. YEC's ten-year renewable electricity plan proposes key projects and partnerships needed by 2030 to address the policies and actions contained in *Our Clean Future*. Among these is sourcing renewable electricity from the Haeckel Hill wind project, which will see four one-megawatt wind turbines begin producing electricity in the fall of 2023. This is enough to power 650 Yukon homes. The project is owned and operated by Eagle Hill Energy Limited Partnership, a wholly owned subsidiary of the Chu Niikwan Limited partnership, the business arm of the Kwanlin Dün First Nation. The federal government is providing approximately $26 million for the wind project—$8 million through Clean Energy for Rural and Remote Communities, approximately $13 million through the Arctic Energy Fund, and close to $5 million through the Canadian Northern Economic Development Agency. The Yukon Development Corporation is providing $485,000. The Eagle Hill Energy Limited Partnership is contributing over $2 million.

What is next

Under *Our Clean Future,* Yukon has committed to reduce the lifecycle carbon intensity of transportation fuels, which account for half of the territory's GHG emissions. Near-term priorities include preparing industry for the distribution and use of renewable fuels; the longer-term goal is to shift to zero-emissions transportation.

Yukon has identified several emission-reducing technologies for further research and to determine which would be most applicable for the territory. These include options for electrifying medium- and heavy-duty vehicles, small modular reactors, hydrogen technologies, and technology to increase renewable energy supply.

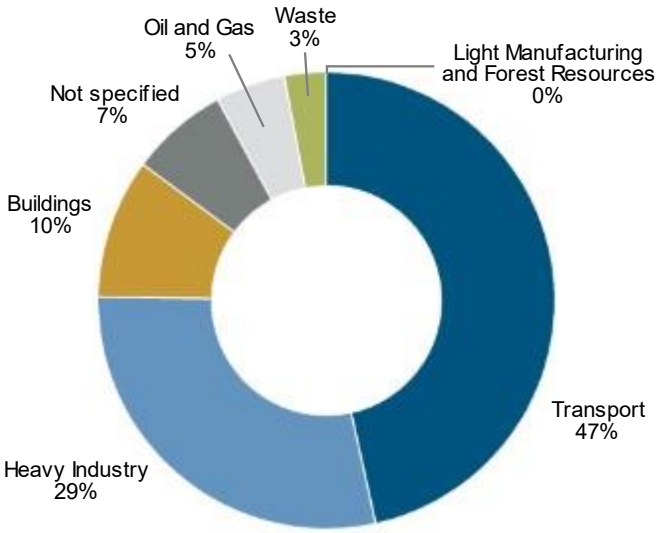
Yukon is committed to continuing to work with Indigenous governments to plan, develop, and permit renewable energy projects. In the fall of 2023, the Government of Yukon will participate in a series of energy conferences hosted by the Council of Yukon First Nations and is working towards the development of a framework for Indigenous participation in the renewable energy economy.

7.12 Northwest Territories

Territorial profile

- **Population (2023)[1]:** 44,972
- **Median income (2020)[2]:** $56,800
- **GDP (2022)[3]:** $4.3 billion, with largest contributions from mining, quarrying and oil and gas extraction (21.07%), public administration (18.61%), and real estate and rental and leasing (10.05%)
- **GHG emissions (2021)[4]:** 1.29 Mt CO_2 eq or 0.19% of the national total
- **GHG emissions per capita (2021)[1,4]:** 28.84 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transport (47%), heavy industry (29%), and buildings (10%)
- **Electricity generation (2021)[5]:** 46.7% from petroleum, 36.8% from hydro, 13.9% from natural gas, 2.4% from wind, and 0.3% from solar.

Figure 7-18: Northwest Territories emissions by economic sector, 2021[4]



Note: Data on emissions from Electricity and Construction were suppressed in the NIR to respect confidentiality.

Climate plan and emissions reduction targets

On May 1, 2018, the Government of the Northwest Territories (GNWT) released the *Climate Change Strategic Framework*. The framework provides the Northwest Territories' overarching goal to reduce GHG emissions by 30% below 2005 levels by 2030. This goal is primarily addressed through the *2030 Energy Strategy*.

Four of the *2030 Energy Strategy's* six strategic objectives also act as sectoral targets:

- Reducing emissions from electricity generation in diesel communities by 25%;
- Reducing emissions from transportation by 10% on a per capita basis;
- Increasing the share of renewable energy used for community heating to 40% by 2030; and,
- Increasing commercial, residential, and institutional building energy efficiency by 15% below 2016 levels by 2030.

As of 2021, the Northwest Territories has reduced its GHG emissions by 25% since 2005, with the coronavirus pandemic and a slowdown of resource development activity being the main factors driving emissions down in recent years. Based on recent modeling commissioned by the territory, and conducted by Navius Research, the Northwest Territories is on track to achieve its target of reducing emissions by 30% below 2005 levels by 2030. An anticipated reduction in mining activity in the late 2020s is one factor that will contribute to the realization of this target.

Highlights of recent mitigation action

Since the launch of the *Climate Change Strategic Framework* and *2030 Energy Strategy*, the GNWT and its partners have invested approximately $165 million in actions and initiatives to improve energy systems, stabilize energy costs, and reduce territorial GHG emissions.

Programs and services from the Arctic Energy Alliance are central to achieving the Northwest Territories' GHG emissions reductions targets by providing rebates and incentives to help residents improve energy efficiency in buildings, adopt electric vehicles, and support communities' energy planning efforts. During the 2022-23 fiscal year, 2,656 rebates and incentives provided through the Arctic Energy Alliance resulted in the reduction of 1.1 kilotonnes of CO_2 eq and 1,400 megawatt-hours of electricity use in the Northwest Territories. The GNWT is also administering the GHG Grant Program to support community governments, businesses, and organizations to develop larger projects that reduce energy costs and GHG emissions. Many of these projects consist of switching from fossil fuel heating to biomass and reducing energy costs while decreasing GHG emissions from the Northwest Territories' building stock. The GNWT's Capital Asset Retrofit Fund has been leading the way in deploying biomass heat in government buildings since 2007, reducing GHG emissions by 16.2 kilotonnes of CO_2 eq and decreasing costs by $4.1 million in 2021-22.

In the spotlight: Inuvik Wind Project

With up to $30 million committed by the federal government under the Investing in Canada Infrastructure Program, GNWT is building a 3.5-megawatt wind turbine associated with a battery storage system in Inuvik. A key initiative under the *2030 Energy Strategy*, the Inuvik Wind Project is expected to reduce diesel consumption in Northwest Territories' largest off-grid community by approximately 30% or 3 million litres of diesel per year. When commissioned, this project is expected to lower the cost of electricity in the community, and is estimated to reduce GHG emissions by 6,000 tonnes of CO_2 eq.

What is next

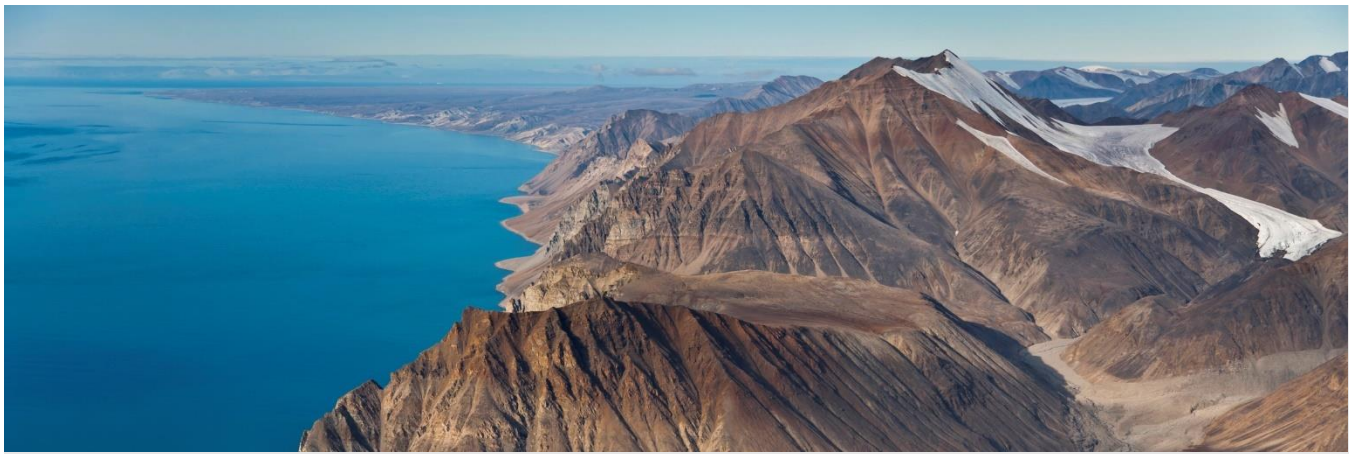
Beyond 2030, recent modeling shows that the Northwest Territories' emissions are sensitive to future developments in the mining sector. Emissions are expected to decrease very slowly without significant capital investments. These investments are needed in the Northwest Territories' energy system, the transportation system, and community buildings and housing. These investments could cost several billion dollars according to GNWT estimates. However, these investments will also enable new economic opportunities and help grow and diversify a Northwest Territories economy powered by clean energy. A new generation of mines focused on critical minerals could also help with Canada's transition to net-zero emissions in the future.

The GNWT is advancing several projects to decrease diesel dependency in remote communities in years to come. These include extending hydroelectricity transmission lines to the communities of Fort Providence, Kakisa, and Whatì. The GNWT also plans to develop a network of fast-charging stations for electric vehicles in its hydro communities, including a corridor to connect these communities to Alberta.

In 2023, the GNWT initiated the five-year review of the *Climate Change Strategic Framework* and *2030 Energy Strategy* to hear from partners, stakeholders, Indigenous governments, and the public on the Northwest Territories' energy future. The discussion was supported by the findings of a study looking at the technological requirements and economic implications of achieving more ambitious climate targets, including a net-zero target by 2050.

In the longer term, the Taltson Hydro Expansion Project aims to increase the Northwest Territories' hydro resources, connect the territory's two hydro grids, and provide clean power to develop the resource extraction industry—thus supporting a low-carbon economy in the Northwest Territories.

Central to climate action in the Northwest Territories is the work of the Northwest Territories Climate Change Council and the Northwest Territories Climate Youth Advisory Group. The Council provides a forum for sharing information, collaboration, and engagement between non-elected staff of Indigenous governments and Indigenous organizations, representatives of Northwest Territories communities, and the GNWT, with input from external partners. The Youth Advisory Group was initiated in 2023, as an initial priority of the Northwest Territories Climate Change Council, reflecting the importance they place on youth perspectives to inform decision-making.

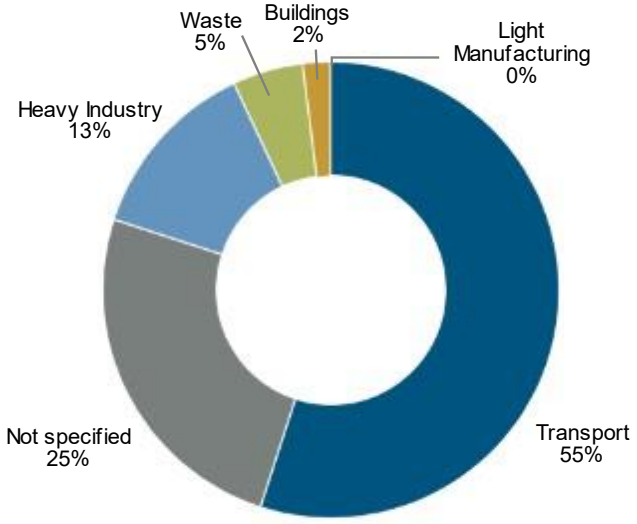


7.13 Nunavut

Territorial profile

- **Population (2023)[1]:** 40,673
- **Median income (2020)[2]:** $37,600
- **GDP (2022)[3]:** $3.7 billion, with largest contributions from mining, quarrying and oil and gas extraction (43.87%), public administration (17.12%), and real estate and rental and leasing (6.90%)
- **GHG emissions (2021)[4]:** 0.63 Mt CO_2 eq or 0.09% of the national total
- **GHG emissions per capita (2021)[1,4]:** 15.56 t CO_2 eq
- **Highest emitting economic sectors (2021)[4]:** transport (55%), heavy industry (13%), and waste (5%)
- **Electricity generation (2021)[5]:** 99.5% from petroleum and 0.5% from solar.

Figure 7-19: Nunavut emissions by economic sector, 2021[4]



Note: Data on emissions from Electricity and Construction were suppressed in the NIR to respect confidentiality.

Climate plan and emissions reduction targets

Nunavut's climate change plan, *Upagiaqtavut: Setting the Course – Climate Change Impacts and Adaptation in Nunavut*, was released in 2011 with an emphasis on adaptation. *Upagiaqtavut* prioritizes government action in four areas:

- Partnership building;
- Research and monitoring;
- Education and outreach; and,
- Government policy and planning.

Nunavut has undertaken efforts to improve the energy efficiency of its government and government-funded buildings. With federal support, it is also championing the development of clean energy projects,

such as the Kivalliq Hydro-Fibre Link between Manitoba and south-eastern Nunavut, and community solar energy projects, to cut reliance on diesel to generate electricity.

Highlights of recent mitigation action

Nunavut's 2023-24 Budget included a number of climate-specific budget items. The budget included proposed amendments to the *Income Tax Act* to introduce a new refundable tax credit that will use carbon tax dollars to provide a direct cash payment to Nunavummiut every three months to help offset higher fuel costs. The Nunavut Carbon Credit will replace the Nunavut Carbon Rebate program. Also planned for 2023 is a one-time Homeowner Fuel Rebate, to help Nunavut homeowners manage higher heating costs. Nunavut also committed to continue investing in programs such as the Renewable Energy Homeowners Grant Program and to work with builders to develop energy-efficient housing plans and designs.

Nunavut is administering two renewable energy support programs, the Renewable Energy Homeowners Grant Program and the Renewable Energy Cabin Grant Program, to assist owners to install renewable energy systems at their homes or cabins. Nunavut is also partnering with Qulliq Energy Corporation and Nunavut Housing Corporation to deliver an energy conservation awareness campaign.

In the spotlight: Renewable Energy by the Qulliq Energy Corporation

Nunavut's Qulliq Energy Corporation (QEC) has introduced a slate of policies and programs to support the development of renewable energy in the territory, reduce its dependency on diesel fuel, and cut GHG emissions. QEC's Net Metering Program allows residential customers with their own renewable energy-generating systems to integrate surplus power into the corporation's grid in return for energy credits. The Commercial Institutional Power Producer program works with existing commercial and institutional customers to enable them to sell electricity to QEC from larger renewable energy installations such as solar panels on arenas, schools, or businesses. QEC is also developing an Independent Power Producer program, which will allow independent producers to sell electricity from larger renewable energy projects like wind farms and larger solar panel installations.

What is next

Nunavut is implementing a government-wide climate change risk and resiliency assessment to advance the understanding of the short- and long-term risks associated with climate change in Nunavut and enable the territorial government to prioritize and compare climate risks for resiliency planning.

An important priority for Nunavut is to increase membership in the Nunavut Youth Climate Change Committee and support youth voices on climate change. The committee aims to provide a youth perspective and input to Nunavut climate change programs, policies, and activities, and give youth an opportunity to become engaged climate change leaders.

Annexes

Annex 1: Definitions and methodology

A1.1 Glossary

Adaptation: The adjustments in ecological, social, or economic systems in response to actual or expected climatic effects. Usually done so to moderate potential damages.

Article 6: As a part of the Paris Agreement, Article 6 allows countries to voluntarily cooperate with each other to achieve emissions reduction targets as set out in their respective Nationally Determined Contributions. It does so by establishing a mechanism for trading GHG emissions reductions between countries under the supervision of the Conference of the Parties. Under Article 6, emissions reductions can be authorized to be sold by one country's government to another country, with the receiving counting it towards their emissions reduction total.

Atlantic Loop Initiative: The development of electricity infrastructure to facilitate cross-jurisdictional electricity transportation in the provinces of Québec, Newfoundland and Labrador, Nova Scotia, and New Brunswick.

Backcasting: An illustrative scenario which is based on all policies and measures included in the "Bottom-Up Approach" and is calibrated to achieve the established target level. The results from the backcasting scenario should not be construed as signaling policy intentions, but rather as an illustration of what the modelling framework suggests are economically efficient opportunities to reach pre-determined emissions reductions.

Backstop provinces or territories: Those jurisdictions in which the federal carbon pollution pricing system applies in whole or in part.

Bank of Canada: Canada's central bank, separate from the political process, which influences and controls monetary policy including the supply of money and key interest rates.

Beneficial Management Practices (BMPs), sometimes also referred to as **Best Management Practices**: Any management practice that reduces environmental risk, usually in an agricultural setting. "Beneficial" is the preferred term in agricultural systems rather than "best" as "beneficial" allows for multiple complimentary practices that can be used to address specific operational needs and environmental goals. Conversely, "best" implies that there is only one practice that is acceptable and does not take into diverse operations, productions systems, landscapes and climates.

Biennial Report (BR): A report that each participating country provides to the UNFCCC. It is submitted every two years and includes a national inventory of emissions, description of steps taken to implement the Convention, and other relevant information.

Biennial Transparency Report (BTR): A report that will be submitted in accordance with the UNFCCC's Enhanced Transparency Framework. Will provide information on emissions reduction actions.

Border Carbon Adjustments (BCAs): Account for differing carbon costs incurred in the production of goods across borders. Forms and designs may vary, but the general goal is to maintain a level of carbon pricing on goods being imported and exported, such as through import charges and export rebates.

Bottom-up Modelling: An approach that uses a detailed bottom-up simulation model where energy data is allocated to economic sectors. This approach provides a floor for projected emissions reductions achievable from existing climate measures.

Canada Energy Regulator: A governmental body that reviews energy development projects, shares energy information, and enforces safety and environmental standards.

Canada Gazette **(CG)**: The official newspaper of the Government of Canada. Reports on new statutes, regulations, administrative board decisions, and public notes.

Canada Infrastructure Bank (CIB): Is a Crown corporation that invests in revenue-generating infrastructure projects in the public interest, and seeks to attract private and institutional capital. Investments include clean power, green infrastructure, public transit, trade and transportation, and broadband infrastructure.

Canadian Council of Ministers of the Environment (CCME): The CCME is a body composed of the environment ministers from the Government of Canada, and provincial and territorial governments. The CCME is designed to discuss and set national environmental priorities as well as increase collaboration in accomplishing specific goals.

Canadian Environmental Sustainability Indicators (CESI): This program provides data and information to track Canada's performance on key environmental sustainability issues including climate change and air quality, water quality and availability, and protecting nature.

Canadian Net-Zero Emissions Accountability Act **(CNZEAA)**: Passed in June 2021, enshrines in legislation the Government of Canada's commitment to achieving net-zero emissions by 2050 and to a process of open and transparent planning and reporting on the road to 2050. This includes setting targets for milestone years and developing associated Emissions Reduction Plans, Progress Reports and Assessment Reports. The Act also includes provisions related to annual financial reporting, to regular reporting by the Commissioner of Environment and Sustainable Development, and establishes the Net-Zero Advisory Body as a Governor in Council appointed advisory body.

Carbon Capture Utilization and Storage (CCUS): The process of capturing carbon dioxide emissions from fuel combustion, industrial processes or directly from the atmosphere. Captured CO_2 emissions can be stored in underground geological formations, onshore or offshore, or used as an input or feedstock in manufacturing.

Carbon management: Carbon management refers to an ecosystem of technologies and approaches that help to reduce and remove CO_2 emissions. It encompasses any activities that capture, utilize, or store CO_2, or that connect these activities. It includes, but is not limited to:

- CCUS technologies that mitigate point-source emissions; and,
- Carbon dioxide removal approaches like direct air capture to carbon storage (DACCS), biomass carbon removal and storage (BiCRS), and enhanced carbon mineralization.

Climate Change: Refers to long-term shifts in temperatures and weather patterns.

Commissioner of the Environment and Sustainable Development (CESD): Provides parliamentarians and Canadians with objective, independent analysis, and recommendations on the Government of Canada's efforts to lower emissions.

Conference of the Parties (COP): The COP is the decision-making body of the UNFCCC. All states that are Parties to the UNFCCC are represented, at which they review the implementation of the UNFCCC and any other legal instruments that the COP adopts. COP sessions are held in order to facilitate international discussion, with the next one, COP 28 in Dubai, set to begin at the end of November 2023.

Constitution Act, 1867: An act of the Constitution of Canada that laid out the governance systems and structure that persist today. This includes the Parliament of Canada, as well as the role and jurisdiction held by the Government of Canada, as well as the provinces and territories.

Emissions Intensity: Compares the amount of greenhouse gas emissions emitted per unit of activity or any other specific metric. Often reported as greenhouse gas emissions per unit of GDP.

Emissions Reduction Plan (ERP): A long-term strategic document built to transparently communicate the policies, actions, developments, regulations, programs, and incentives that the Government of Canada is implementing to reduce carbon emissions.

Federal–Provincial–Territorial (FPT): A term to recognize the relationship between the Government of Canada, and provincial and territorial governments.

Federal Sustainable Development Strategy (FSDS): The federal government's primary vehicle for sustainable development planning and reporting. It sets out federal sustainable development priorities, establishes goals and targets, and identifies actions to achieve them.

Fugitive Sources Category: Emissions from unintentional or intentional release of greenhouse gases to the atmosphere. Such as venting and leaks from oil and natural gas production and processing.

Greenhouse Gas (GHG) Emissions (also known as carbon emissions): The quantifiable gases produced by human actions and released into the atmosphere. These gases are the main contributor to the increase in average global temperature.

- Source: A GHG source is any action or part of Canada's built or natural environment that releases GHGs.
- Sink: Any source, natural or built, that absorbs GHGs.

Gross Domestic Product (GDP): Gross Domestic Product is the total market value of all finished goods and services produced within a country during a specific period of time. Often used as a measure of economic performance.

Group of Seven (G7): A forum of seven of the world's advanced economies, including: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States of America.

Group of Twenty (G20): The G20 is a forum for international cooperation among world leading developed and emerging economies. It includes: Argentina, Australia, Brazil, Canada, China, the EU, Germany, France, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkiye, the United Kingdom, and the United States of America.

Hydrofluorocarbons (HFCs): A group of synthetic gases primarily used for cooling and refrigeration. Many HFCs are very powerful, short-lived climate pollutants.

Hydrogen:

- Grey Hydrogen: Uses an industrial process called steam methane reforming which uses high temperature steam to separate hydrogen from methane (the main component of natural gas). This process releases emissions.
- Blue Hydrogen: Uses the same method as grey hydrogen, except it captures and stores the emissions generated from the steam methane reforming process. Can also use other methods to separate hydrogen from methane, namely autothermal reforming.
- Green Hydrogen: Utilizes renewable electricity and a process called electrolysis to separate and extract hydrogen molecules from water—a non-emitting method of hydrogen production, assuming electricity used came from non-emitting generation.
- Low-carbon / clean hydrogen: Encompasses any hydrogen production pathway that is low-carbon, including “green”, “blue”, hydrogen derived from biomass with carbon capture and storage, methane pyrolysis, or other innovative production methods.

Indigenous Science: Indigenous science is a distinct, time-tested, and methodological knowledge system that can enhance and complement western science. Indigenous science is about the knowledge of the environment and knowledge of the ecosystem held by Indigenous Peoples. It is the knowledge of survival since time immemorial and includes multiple systems of knowledge(s) such as the knowledge of plants, the weather, animal behavior and patterns, birds, and water among others. It is of great importance to *bridge*, *braid*, and *weave* Indigenous science with western science approaches to inform and enhance decision-making at the federal, provincial, and territorial levels.

Internationally Transferred Mitigation Outcomes (ITMOs): Represent real, verified and additional GHG emissions reductions or removals that are authorized and transferred between Parties participating in a voluntary cooperative approach under Article 6 of the Paris Agreement or authorized by a host country for other international mitigation purposes.

Interties: Transmission lines that connect separate electric grids, enabling the trade of electricity between jurisdictions.

Job-years: A way to describe employment effects of a program. A job year means one job for one year.

Light-Duty Vehicle (LDV): Vehicles primarily used to transport passengers and some cargo, including cars, vans, SUVs, and pickup trucks. In Canada, these vehicles have a gross vehicle weight rating of less than 8,500 pounds.

Livestock (Enteric Fermentation): Digestive process in ruminant animals like cattle where carbohydrates are broken down by microorganisms into simple molecules to support animal growth, development and energy needs. A by-product of this process is methane.

Medium- and Heavy-Duty Vehicles (MHDV): Vehicles with a gross vehicle weight rating of greater than 8,500 pounds used across a wide range of activities, including parcel delivery, garbage trucks, buses, long-haul tractor-trailers, and more.

Megatonne of carbon dioxide equivalent (Mt CO_2 eq): The amount of a greenhouse gas that has the same warming potential as one million tonnes (a megatonne) of carbon dioxide over a specified period of time.

Mitigation: The implementation of measures that avoid or reduce greenhouse gases with the aim of preventing climate change.

National Communication (NC): Reports that were submitted to the UNFCCC every four years to communicate actions undertaken by the country to reduce emissions.

National Inventory Report (NIR): Canada's official national greenhouse gas inventory submission to the United Nations Framework Convention on Climate Change. It includes an inventory of human-induced emission by source, and removals by sink, of seven greenhouse gases.

Nationally Determined Contribution (NDC): Articulates the ambition and effort of each country to reduce national emissions and adapt to the impacts of climate change. It does so by submitting the respective country's emissions reduction target, how to monitor progress, and how to reach it.

Net Zero (also known as carbon neutrality): Refers to an economy or other organization that balances the emission of greenhouse gases going into the atmosphere against the greenhouse gases removed from the atmosphere.

Net-Zero Advisory Body (NZAB): Launched in 2021 and is comprised of up to 15 experts from across Canada that provide independent advice on how Canada can achieve net-zero emissions by 2050.

Output-Based Pricing System (OBPS): A regulatory emissions trading system for industry. It is designed to provide industry with a monetary incentive to reduce industrial emissions, and spur innovation. It is one of two parts to Canada's price on carbon pollution.

Pan-Canadian Framework on Clean Growth and Climate Change (PCF): A plan developed collaboratively with the provinces and territories, and in consultation with Indigenous Peoples, to meet Canada's emissions reduction targets.

Paris Agreement: A legally binding international treaty on climate change adopted at COP 21 in Paris. Set an overarching goal to limit the increase in the global average temperature to below two degrees Celsius. Since 2020, countries have been submitting increasingly ambitious climate plans known as nationally determined contributions.

Research, Development and Demonstration (RD&D): Research and experimental development comprise creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of humankind, culture and society—and to devise new applications of available knowledge. Demonstration refers to the design, construction and operation of a prototype of a technology at or near commercial scale with the purpose of providing technical, economic and environmental information to industrialists, financiers, regulators and policy makers.

Residential Stationary Combustion Sources Category: Residential sources that combust fuel for the purpose of producing heat and other uses.

Small Modular Reactors (SMR): Nuclear reactors that are smaller than traditional nuclear power plants. They can vary in size, design, and cooling types.

Stationary Combustion Sources Category: Sources that combust solid, liquid, gaseous, or waste fuel for the purpose of producing useful heat or work.

Sustainable Development Technology Canada (SDTC): An organization, supported by the Government of Canada, that funds and assists small and medium sized enterprises engaging in innovative emissions reductions and other climate related technologies.

Synthetic Gases: Man-made chemicals, commonly used in refrigeration, foam production, aerosols, and more. They include gases such as HFCs, PFCs, SF6, and NF3.

United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP): Establishes a universal framework of minimum standards for the survival, dignity, and well-being of the Indigenous Peoples of the world and it elaborates on existing human rights standards and fundamental freedoms as they apply to the specific situation of Indigenous Peoples.

United Nations Framework Convention on Climate Change (UNFCCC): The United Nations Framework Convention on Climate Change entered into force in 1994, with the ultimate goal of preventing anthropogenic (human-induced) interference with the climate system. Participating countries submit documents such as Nationally Determined Contributions, to illustrate their role in reducing emissions.

United Nations Sustainable Development Goals (UN SDGs): A set of 17 calls for action that the United Nations has set forward for countries to work towards. Broad themes include ending poverty, improving health and education, and tackling climate change.

Zero-Emissions Vehicle (ZEV): Vehicles that can operate without producing tailpipe emissions. In Canada this includes battery electric, plug-in hybrid electric, and hydrogen fuel cell vehicles.

A1.2 Abbreviations and acronyms

A1.2.1 Federal departments and agencies

AAFC: Agriculture and Agri-Food Canada

CIRNAC: Crown–Indigenous Relations and Northern Affairs Canada

CMHC: Canada Mortgage and Housing Corporation

CRA: Canada Revenue Agency

DFO: Fisheries and Oceans Canada

ECCC: Environment and Climate Change Canada

ESDC: Employment and Social Development Canada

FIN: Finance Canada

GAC: Global Affairs Canada

HC: Health Canada

INFC: Infrastructure Canada

ISC: Indigenous Services Canada

ISED: Innovation, Science and Economic Development Canada

NRC: National Research Council

NRCan: Natural Resources Canada

NSERC: Natural Sciences and Engineering Research Council of Canada

PC: Parks Canada

PSPC: Public Services and Procurement Canada

SSHRC: Social Sciences and Humanities Research Council

STC: Statistics Canada

TBS: Treasury Board of Canada Secretariat

TC: Transport Canada

A1.2.2 Canada, provinces and territories

AB: Alberta

BC: British Columbia

CA: Canada

MB: Manitoba

NB: New Brunswick

NL: Newfoundland and Labrador

NS: Nova Scotia

NT: Northwest Territories

NU: Nunavut

ON: Ontario

PE: Prince Edward Island

QC: Québec

SK: Saskatchewan

YT: Yukon

A1.2.3 Common acronyms

BCAs: border carbon adjustments

BMPs: beneficial management practices

BR: Biennial Report

BTR: Biennial Transparency Report

CCI: Canadian Climate Institute

CCME: Canadian Council of Ministers of the Environment

CCUS: carbon capture, utilization and storage

CESD: Commissioner of the Environment and Sustainable Development

CESI: Canadian Environmental Sustainability Indicators

CG: *Canada Gazette*

CIB: Canada Infrastructure Bank

CNZEAA: *Canadian Net-Zero Emissions Accountability Act*

COP: Conference of the Parties

ERP: Emissions Reduction Plan

EV: electric vehicle

FPT: Federal-Provincial-Territorial

FSDS: Federal Sustainable Development Strategy

GDP: Gross Domestic Product

GHG: greenhouse gas

HFC: hydrofluorocarbon

ICL: Indigenous Climate Leadership

IPCC: Intergovernmental Panel on Climate Change

ITMOs: internationally transferred mitigation outcomes

LCEF: Low Carbon Economy Fund

LDV: light-duty vehicle

LULUCF: Land Use, Land-Use Change and Forestry

MHDV: medium- and heavy-duty vehicles

MHZEV: medium- and heavy-duty zero-emission vehicle

MOU: memorandum of understanding

NC: National Communication

NDC: Nationally Determined Contributions

NIR: National Inventory Report

NZAB: Net-Zero Advisory Body

OBPS: Output-Based Pricing System

PCF: *Pan-Canadian Framework on Clean Growth and Climate Change*

PTs: provinces and territories

RD&D: research, development and demonstration

SDG: Sustainable Development Goal

SIF-NZA: Strategic Innovation Fund – Net Zero Accelerator

SFAC: Sustainable Finance Action Council

SMR: small modular reactor

UNEP: United Nations Environment Programme

UNFCCC: United Nations Framework Convention on Climate Change

WAM: With Additional Measures

WM: With Measures

ZEV: zero-emission vehicle

A1.3 Sector definitions

When referring to “sectors” in this progress report, the reference is to Canadian economic sectors rather than IPCC sectors. For more on sectors, the difference between IPCC sectors and Canadian economic sectors, and how emissions are categorized into Canadian economic sectors, see Canada’s National Inventory Report.

A1.3.1 Economy-wide

Economy-wide is not a Canadian economic sector for emissions reporting purposes. Economy-wide measures are those that cut across sectors. Using economy-wide strategies to reduce emissions allows for maximum flexibility at the lowest overall cost. Some of the foundational components of Canada’s climate plan are economy-wide measures, such as putting a price on carbon pollution. Policies with long-term targets and price trajectories provide policy certainty, allowing Canadians and businesses to make informed investment decisions.

A1.3.2 Buildings

The buildings sector is comprised of residential, commercial, and institutional buildings. The buildings sector includes stationary and process (i.e., air conditioning) emissions from residential and service industry buildings. Buildings sector measures aim to reduce emissions from space and water heating (the primary source of emissions from the sector), as well as from other sources including appliances, lighting, and auxiliary equipment. Energy efficiency measures are also important to reducing building sector emissions.

The emissions attributed to the buildings sector do not take into account embodied carbon—the energy and emissions from the manufacture, transport, and installation of construction materials, along with end-of-life. Embodied carbon, especially the emissions associated with the production of materials such as steel and concrete, which are accounted for in the heavy industry sector, is an example of the linkages between sectors.

A1.3.3 Electricity

The electricity sector is comprised of combustion and process emissions from utility electricity generation, steam production for sale, and transmission. Measures to reduce emissions from the electricity sector will also contribute to emissions reductions in other sectors, such as transportation, buildings, and heavy industry, as those sectors electrify.

A1.3.4 Heavy Industry

The heavy industry sector includes stationary combustion, onsite transportation, electricity and steam production, and process emissions from: metal and non-metal mines, stone quarries, and gravel pits; smelting and refining of non-ferrous metals like aluminum and magnesium; pulp and paper; iron and steel; cement and other non-metallic mineral production; lime and gypsum product manufacturing; and, chemical and fertilizer manufacturing.

Given the multiple linkages between this sector and others, economy-wide measures and measures in other sectors are important for how emissions can be reduced in the heavy industry sector.

A1.3.5 Oil and Gas

The oil and gas sector includes emissions from stationary combustion, onsite transportation, electricity and stream production, and fugitive and process emissions for both upstream and downstream operations. Upstream includes: natural gas production and processing; conventional oil production; oil sands mining, in-situ extraction, and upgrading; and, transport and storage of crude oil and natural gas.

Downstream includes: petroleum refining industries; and, local distribution of natural gas up to and including the natural gas meter.

Oil and gas sector measures aim to reduce the emissions intensity of production and facilitate the transition to non-emitting products and services.

A1.3.6 Transportation

The transportation sector includes emissions from passenger transport, freight transport, and other (recreational, commercial, and residential). Passenger transport includes mobile-related combustion, process, and refrigerant emissions from cars, light trucks, motorcycles, buses, and the passenger component of rail and aviation. Freight transport includes mobile-related combustion, process, and refrigerant emissions from heavy-duty trucks, marine, and the freight components of rail and aviation. Combustion emissions from the non-industrial use of off-road engines (e.g., ATVs, snowmobiles, personal watercraft), including portable engines (e.g., generators, lawn mowers, chain saws), are included under the transportation sector as recreational, commercial, and residential.

Transportation sector measures aim to reduce emissions from passenger and freight transport through electrification and clean fuels, as well as enable active and public transportation.

A1.3.7 Agriculture

The agriculture sector includes emissions from: on-farm fuel use (stationary combustion, onsite transportation, and process emissions from the agricultural, hunting and trapping industry); crop production (application of biosolids and inorganic nitrogen fertilizers, decomposition of crop residues, loss of soil organic carbon, cultivation of organic soils, indirect emissions from leaching and volatilization, field burning of agricultural residues, liming, and urea application); and, animal production (animal housing, manure storage, manure deposited by grazing animals, and application of manure to managed soils).

The IPCC Agriculture sector does not reflect the full impact of agriculture on net Canadian GHG emissions or the sector's important contribution to emissions removals. For emissions accounting purposes under the IPCC, the Agriculture sector includes non-energy GHG emissions related to the production of crops and livestock. Emissions from the production of machinery and fertilizer are accounted for under the Industrial Processes and Product Use sector and emissions from electricity use are reported in the Energy sector. For the purposes of analyzing economic trends and policies, it is useful to allocate emissions to the economic sector from which they originate. Therefore, the Canadian economic sector reporting adds emissions from the use of fuel in farm machinery and on-farm transportation to the agriculture sector. Emissions and sequestration from agricultural soils are reported under the LULUCF sector. When considering emissions from agriculture and opportunities for emissions reductions, it is therefore important to include not only those emissions related to production of crops and livestock including related fuel use, but also emissions from on-farm fuel use and emissions and removals from agricultural soils.

Agriculture sector measures aim to reduce emissions from biological sources (such as livestock production), fertilizer use, and on-farm fuel use. Agriculture sector measures may also seek to increase carbon sequestration, including through linkages to nature-based solutions.

A1.3.8 Waste

Emissions in the waste sector result from solid waste (municipal solid waste management sites (landfills), dedicated wood waste landfills, and other treatment of municipal solid waste), municipal and industrial wastewater treatment, and waste incineration (municipal solid, hazardous and clinical waste,

and sewage sludge incineration). Waste sector measures aim to increase waste diversion and reduce emissions from waste management sites (in particular, methane from municipal landfills, the sector's primary source of emissions).

Emissions from the waste sector are often grouped with "other" emissions (i.e., in a Waste and Others category), with the Others comprised of emissions from coal production and light manufacturing, construction and forest resources.

A1.3.9 Nature-based solutions

Nature-based solutions is not a Canadian economic sector for emissions reporting purposes. Nature-based solutions can help address the twin crises of climate change and biodiversity loss, while delivering multiple other benefits. Canada's ecosystems, including oceans, agricultural lands, wetlands, settlements, and forests, act as both a source and a sink of GHG emissions. Nature-based solutions are actions that protect, sustainably manage, and restore ecosystems to contribute to climate change mitigation and deliver important co-benefits for society. Co-benefits can include helping to reduce the impacts of heat waves and floods, increasing nature-based recreation amenities, building or reinforcing community capacity for inclusive planning and enduring stewardship or guardianship, and supporting reconciliation and inherent and treaty rights of Indigenous Peoples. An important consideration with many nature-based solutions is that it can take years, if not decades, to realize the full mitigation results.

A1.3.10 Enabling measures

Enabling measures are an additional category of measures that are not expected to generate emissions reductions directly but will support emissions reductions in indirect ways; or are expected to generate emissions reductions, but those reductions are accounted for in one or more of the Canadian economic sectors. Enabling measures include: clean technology and climate innovation; sustainable finance; and, sustainable jobs, skills, and communities.

A1.3.11 Land Use, Land-Use Change and Forestry

The Land Use, Land-Use Change and Forestry (LULUCF) sector is an IPCC sector that reports anthropogenic GHG fluxes between the atmosphere and Canada's managed lands, including those associated with land-use change and emissions from Harvested Wood Products, which are closely linked to Forest Land. The LULUCF sector is made up of six land categories: forests, cropland, grassland, wetlands, settlements, other land, as well as a seventh category for harvested wood products derived from those lands.

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