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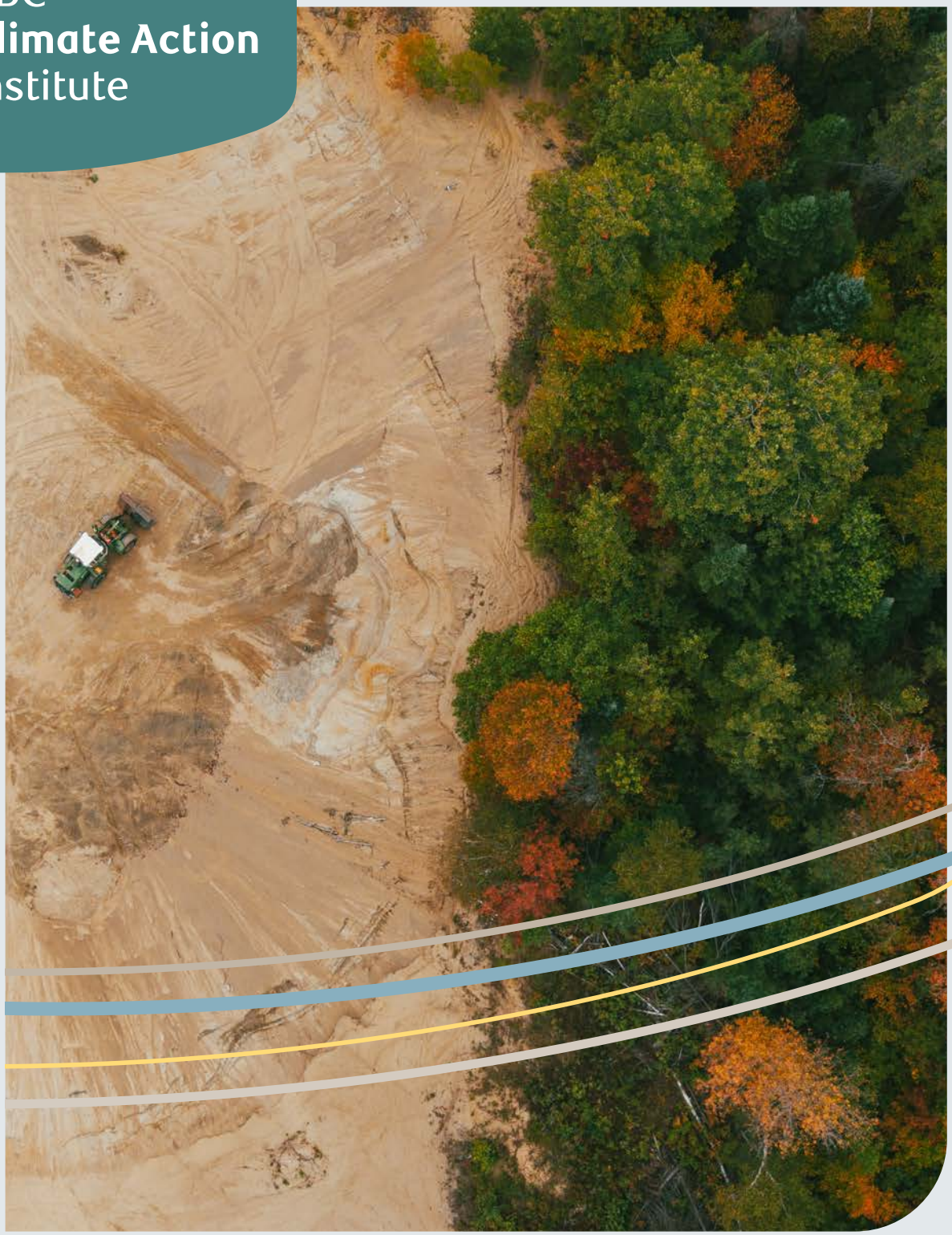


Climate Action 2026

Retreat, reset or renew?

Cover image: Industrial activity set against natural landscape in Dwight, Ontario. (Credit: Peter Barkley, RBC)

A transmission line towers above Ontario's Bronte Creek Provincial Park. (Credit: Nicholas Bruno, RBC)

Why we wrote this

No government, no sector, no company, even no brilliant inventor can solve climate change, or even drive significant progress, on their own. Climate action stands among the biggest collective needs humanity has faced. It ignores no one, and therefore must somehow engage everyone.

That's why the RBC Climate Action Institute undertook the challenge of publishing an annual report on our view of how Canada—and Canadians—are doing. Now in its third year, the report draws on economic, consumer and industrial data, explores individual, corporate and policy efforts, and encapsulates Canada's collective progress in a series of barometers and indexes. Climate Action 2026 is a mirror in which we can see Canada's successes and shortcomings.

There are many factors that influence climate action, and this report offers our assessment of the factors and trends that are of interest to those who are following climate action in Canada. We hope this report will support Canadians in understanding how climate action is about more than an emissions scorecard. It's about how we progress with policies, investments, technologies and our own habits as consumers.

Our **Big Picture** section is our view on how the world is doing—this year, a decade after the Paris Agreement—and how Canadians are seeing and acting on climate. The report's primary measure, the **Climate Action Barometer**, is our assessment of how consumers and industry are doing, and what we're seeing in terms of policy, capital, business and consumer action, technology and, of course, emissions. We augment that with six **Sectoral Indices** that use our methodology to track policies, investments and actions in Canada's heaviest emitting sectors. We have bolstered those analytical reviews with six **Case Studies**, to explore how companies and communities are tackling climate challenges, and what they're learning. This year, we look at prefabricated buildings, agriculture skills, lower-carbon metals, battery storage, electric vehicle (EV) supply chains and certified natural gas. We also offer up our **Idea of the Year**, which for 2026 focusses on the climate impact of construction. We've developed this "Idea" with the view that targeted, pragmatic actions need to be at the centre of climate strategies.

Lastly, this year we're trying something new visually—we've commissioned a host of citizen-photographers from RBC to capture what climate impact means to them. Too often, climate action is seen as a big government initiative, or a remaking of society, or perhaps a science project. Yes, it needs big, ambitious strategies—but it also needs practical, local action. We hope our RBC employees' images, sprinkled through the report and credited, capture that.

We are 25 years away from Canada's 2050 net-zero targets. Achieving that goal will be a challenge, but as this year's report shows, technology, funding, innovation and individual action can help carve out pathways to a low-emissions future.

John Stackhouse
Senior Vice-President, Office of the CEO

A note on the Climate Action Institute's methodology

The report is published by the RBC Climate Action Institute, which is staffed by policy experts in economics, energy, clean tech, agriculture and materials. Throughout the year, this group publishes macro and sector reports, and engages widely with key economic sectors, environmental groups, academics and policymakers.

Our annual Climate Action report is designed to be the RBC Climate Action Institute's general view of Canada's progress, and is based on calculations, aggregations and estimates that we have produced using a variety of measures from across the economy and society. We have selected those measures to help paint a picture of where we're at, how far we've come and some of the distance ahead. The report, and its measurement tools, are not designed to be a precise diagnostic of any one sector, policy or technology.

The report, including the Climate Action Barometer and Industry Sector Analyses, is based on the Climate Action Institute team's analysis of datasets from several sources that are detailed in the Methodology section on pages 54-61, including the federal government's official national greenhouse gas inventory,[1] the National Inventory Report (NIR) and Canadian federal and provincial government budgets. The most recent NIR, the National Inventory Report 1990–2023, was published by the federal government in March 2025 and tracks greenhouse gas emissions data between 1990-2023. As they are not included in the latest NIR, we estimate national emissions for 2024 and 2025, according to our internal methodology.

Using this information and our estimates, the Climate Action Institute's team analyzed key metrics to derive original insights and opinions. The case studies, based on each company's information and public announcements, aim to offer a peek into the efforts of a selection (though not a representative selection) of Canadian businesses to address issues related to climate.

Combined, the analysis of government policies, consumer sentiment, business activities and various industries' efforts and challenges aim to present a snapshot of climate action taking place in Canada, and to provide its general direction.

The data in this report precedes the 2025 Federal Budget. The Climate Action Institute team has reviewed the budget and does not see directional changes in the insights and opinions, except where noted.

A view of farmland in the Fraser Valley, B.C. (Credit: Cameron Wilson, RBC)

KEY FINDINGS

What we learned

- **Climate action is losing momentum—but remains elevated relative to 2019.** This was reflected in our Climate Action Barometer, which fell for the first time in the six years we have been tracking Canadian policy, capital, industry, and consumer action.

- **Climate capital flows stand at around $20 billion annually.**[2] Combined funding from Canadian governments—federal and the four largest provinces—and businesses have flatlined for the past few years, after a significant acceleration between 2019-2022, according to our estimates.

- **There are still substantial fiscal incentives budgeted.** Economic and trade uncertainty, changes in the policy landscape and the rollback of some incentives appear to be souring business and consumer sentiment. Still, based on our calculations, nearly $100 billion worth of incentives for clean-tech and climate programs and initiatives have been budgeted to be deployed between now and 2035.[3]

- **Climate has waned as a top concern.** Three out of five Canadians (67%) don't see climate change as a top three priority, our survey of 2,000 Canadian consumers shows this year. Cost of living issues, healthcare access and strengthening the economy were the top priorities selected. Angus Reid Institute's long-running survey indicates that the percentage of Canadians who say environment is a top issue has fallen over the past few years.[4]

- **Canadians are anxious about the impact of climate change on their daily lives.** Climate is manifesting itself in other ways such as wildfires, which are exacerbated by long-term environmental shifts. A majority of Canadians want to see action on containing wildfires, as concerns rise over smoke inhalation and heat stress, property damage and insurance costs, and the ability to enjoy a most precious Canadian pastime: outdoor activities.

- **Emissions are down—but further progress is challenged.** Total national emissions are projected to have declined 7% from 2019, based on our analysis outlined in our methodology. But U.S.-Canadian divergence on environmental policies is emerging as a major shock that could alter Canada's emissions trajectory. The scrapping of the federal consumer carbon tax and doubts around other climate policies are sapping business investments and consumer buying intentions.

- **Several sectors have reduced their emissions intensity.** Our estimates suggest electricity led with a 27% reduction in emissions intensity of power generation since 2019;[5] followed by the buildings (-19%)[6] and oil and gas sectors (-19%).[7] Agriculture (-7%)[8] and transportation (-7%)[9] have also lowered their emissions intensity relative to the 2019 baseline. Hard-to-abate heavy industry[10] is also making inroads, which we estimate to be 3% lower than the 2019 baseline.

Photo: Adobe Stock

- **Major projects added to oil and gas production—is it a harbinger of an emissions rise in the future?** The expansion alone of the TMX oil pipeline in 2024 and the start of LNG Canada Phase 1 in 2025 raised the sector's emissions by almost 1% in 2025 compared to the previous year, based on our estimates.[11] Overall, we project the industry's total greenhouse gas emissions to be up 2% since 2023. In our analysis, new proposed oil and gas projects would likely raise the industry's emissions further without efforts to curb greenhouse gases.

- **Businesses are in course-correction mode.** A dramatic political shift in Washington around climate policy and action has upended many ESG and sustainability playbooks. Our business survey of 150 executives revealed that more than a quarter of businesses cited the political shift in the U.S. as a key reason they were scaling back their climate commitments. Just over one in five executives also downgraded their climate ambition because of shifting sentiment in Canada.

- **Some companies are benefitting from introducing low-carbon products.** Mentions of ESG may have dropped in quarterly corporate calls, but businesses are introducing sustainable products—with mixed results. Six in ten executives in our survey said developing sustainable products led to a moderate increase of between 5-15% to their business costs, while another 13% reported cost inflation exceeding 15%. On the flip side, a third reported premium pricing for their low-carbon products and services.

Photo: Adobe Stock

OUR VIEW

Retreat, reset or renew?

A decade after the Paris Agreement, here's where we're at globally:

BAD: global emissions have reached record highs, driven by increases from China and India;[12]

GOOD: in 2022, absolute emissions were lower in the United States, the European Union, Japan, Germany, Mexico and Canada, relative to 2015;[13]

GOOD: over the decade, global clean tech investment (including renewables, storage, hydrogen, carbon capture) reached US$2.2 trillion;[14]

GOOD: EV sales for the first nine months of the year were close to 15 million, up 26% from 2024, with nine-million vehicles sold in China, three million in Europe and 1.5 million in the U.S.;[15]

BAD: global temperatures are on course to be 2.6 degrees Celsius warmer in 2100 than they were in pre-industrial times. The Paris Agreement goal was to limit that increase to "well below" 2.0 degrees, with an aspirational goal of 1.5 degrees;[16]

BAD: the 10 hottest years on record have occurred since the Paris Agreement, making 2015-2024 the hottest decade in recorded human history.[17]

Success or failure? Or a lot of both?

Since the Paris Agreement was reached on December 12, 2015, the world has been transformed. The erosion of international trade, rise of populism, spread of war, global pandemic, acceleration of artificial intelligence—all these make it possible to wonder if global climate action reflects a different time.

Moreover, the retreat on several climate policies in 2025, led by the United States, might signal a shift from a Paris spring for climate action to an American autumn.

But amidst a changing political and economic context, climate action continues in much of the world.

Entering the second decade of the Paris Agreement, China is now the key driver of ambition and change. The world's largest emitter has set a goal of seeing its own emissions peak by 2030 and reaching "carbon neutrality" by 2060, even as it continues to expand coal-fired energy. The EU remains committed to cutting emissions by 55% of 1990 levels by 2030, albeit challenged as it tries to simultaneously boost economic output and regain energy security. And India—the fastest-growing major emitter—has recently announced a $21-trillion plan to get to peak emissions by 2045, 10 years ahead of its current trajectory.[18]

Headwinds and tailwinds swirling together will not make for smooth sailing. If the world is to regain momentum in 2026, and reset collective climate action for the coming decade, some geopolitical and economic realities may need to be factored anew. Among those:

1. No single nation can drive climate action ....

... but the energy powers will be critical. The Paris Agreement, by geography and politics, was European-driven, and didn't fully factor some of the mega-shifts underway in energy production and consumption—notably the rise of U.S. shale oil and gas and surging Asian demand. In the coming year, the U.S. and China will be critical in determining where we go from here. They are not only the biggest sources of emissions; they are the world's twin engines of innovation, including for clean tech. Other energy producers and consumers, including Canada, Russia, the Persian Gulf states and India, are also likely to play oversized roles as emitters, and therefore may need to play an oversized role in future climate action. This will be all the more challenging for a growing number of climate-shy governments.

2. Consumers can still drive change ...

... but won't pay for it. Any notion that consumers would embrace new technologies or change lifestyles was challenged in the first decade of Paris. While EV and heat pump sales rose significantly around the world, they required significant subsidies to entice consumers. We've seen that when the price is right, and designs are appealing, consumers will adopt lower-emissions products. But that may be more challenging in the mid-'20s, as the shadows of stagflation hang over most major economies. Our annual Climate Action

consumer survey shows Canadian are less interested in climate issues, given growing concerns over economic security. That aside, Canadians continue to want to reduce their carbon footprint, especially through low-cost measures like recycling and home-energy usage. Another big shift is the growing concern over wildfires, with 60% of respondents now placing greater emphasis on climate action if extreme weather events come closer to home.

3. Investors may still support change …

… but aren't demanding it as much. Plenty of Paris-inspired efforts, especially after the Glasgow Climate Summit (COP 26) in 2021, suggested investors might drive corporate climate policy more than actually happened. This wasn't just an American phenomenon. Leading investors and financial institutions in Asia, as well as Europe, pulled back from collective efforts and commitments—in part because of regulatory pressures in some markets, notably the U.S., but largely because of pressure to meet other shareholder needs. Our annual Climate Action survey of Canadian business leaders shows they feel the least pressure from investors; those taking climate action in their companies said the primary driver was corporate strategy, followed by regulations and consumers and clients. Investor pressure was fourth. Executives appear to be acutely mindful of the role corporations can play, with 77% suggesting industry participation is central to Canada getting to net-zero. Nearly two-thirds said tax credits would be the best way to drive more corporate action.

4. Industrial technologies are having an effect …

… just not as fast as anticipated. Shifts of industrial production, with emerging technologies like carbon capture[19] and biofuels,[20] could help reduce net emissions. But investment in those technologies is going slower than some had hoped, in part because of lower global economic growth, as well as investor pressures for near-term returns. Trade pressures may further diminish industrial climate action. Resistance in Western countries to large-scale imports from China may even hamper the trade of major industrial inputs like wind turbines and critical minerals.

5. Government subsidies remain fundamental— but can't be scaled

The Paris Agreement came during a time of low interest rates and fiscal expansion, when many governments were trying to spur economic growth coming out of the global financial crisis and ensuing U.S. recession. That fiscal capacity was strained by pandemic spending, and growing deficits across much of the West in the 2020s. Governments and companies borrowed $25 trillion in 2024, triple what they did in 2007, before the financial crisis. Emerging market countries have increased sovereign debt levels even faster. In the global North and South, governments may not be able to borrow, or tax, enough to maintain climate-related spending. This year, our analysis of Canadian government spending and policies used a ChatGPT model to better understand such political shifts away from climate. The results illustrated a decline in emphasis on policy measures, a reduction in new funding commitments, and more emphasis on "narrative"—particularly to reframe climate as a nature issue, with a secondary value of job creation, and less emphasis on emissions reduction.

Paris 2.0

As the world looks to the year ahead, and the next decade of post-Paris climate action, a reckoning is slowly taking shape. Some countries have recognized that emissions reductions will take a bit longer, even as they see net-zero by 2050 still possible. They may find hope in the "slow, slow, fast" school of innovation, in which adoption curves shift from gradual to sudden.

Tech breakthroughs may be the best hope for climate action in the year ahead—as deficit-chilled governments, stagflation-scarred consumers and risk-minded businesses continue a more cautious, and pragmatic, approach.

A growing imperative for "energy security" could be a new catalyst for change, drawing private sector capital and investment at a scale not achieved in the past decade. Ambitions are already being scoped out—for large-scale nuclear energy and industrial-grade battery storage, among other technologies that can secure energy supplies and reduce costs.

This may be the biggest global shift since the Paris Agreement: fewer nations want to be wholly or largely dependent on others for large-scale energy supplies.

A renewed commitment to the Paris agenda may require greater recognition of this new global energy imperative, with its complex economics and fraught geopolitics. Such a commitment may also need to recognize that in the coming years we may see less global cooperation, and therefore require more regional approaches and allyships. It's even possible the Paris consensus could give way to a Beijing consensus, a Berlin consensus and a Washington consensus—and instead of one path to 2050, there could be several.

The climate for constructive change may indeed be harsher in the mid-2020s than it was in the mid-2010s. But in the intervening decade, the world has also seen an explosion of advanced technologies, private capital and human ingenuity. Those may be just the engines of climate innovation that the world needs to propel itself into the decade ahead.

Photo: Adobe Stock

IDEA OF THE YEAR

A structural shift

How to leverage low-carbon materials for a new building wave

As new structures rise in Canada, emissions are set to spike, too. Building sector emissions have already jumped 15% from 1990 to 2023, now making up a bigger share of national emissions than those produced by heavy industry.[21]

There may be a way forward: scaling or supplementing a Responsible Buildings Pact (RBP) could help boost key domestic industries and champion made-in-Canada innovation.

Launched in 2024 under the Climate Smart Buildings Alliance, which counts RBC, EllisDon, Mattamy Homes and AtkinsRéalis as founding partners, the RBP aims to accelerate deployment of low-carbon designs and materials, such as mass timber[22] and low-carbon concrete, steel and aluminum within the group.

The RBP operates as a governance framework that creates shared accountability for its members such as developers, architects, engineers and contractors. By joining the RBP, signatories agreed to consider using low carbon materials and designs and report on the extent to which these materials and designs were incorporated into projects. The first year of the pact represented a pilot project to test the concept and develop a reporting template, with a focus on concrete. With respect to emissions, signatories have the option of reporting the approximate emissions avoided through material substitution (e.g., switching to lower carbon concrete from a conventional mix on the pilot projects reported). In 2025, the pact introduced steel, with plans to introduce facades next year.

While efforts on reducing the sector's operating emissions have been concentrated on energy efficiency and heat pumps, its "embodied" emissions are harder to abate as they lock in greenhouse gas emissions released from the entire lifecycle of a material used in buildings. The RBP model, inspired by initiatives like the cross-sector Canada Plastics Pact,[23] offers a way for industry participants to share learnings with other signatories.

Backed by the right levers of policy, funding, and market signals from governments and industry, the initiative can also boost domestic demand for lumber, steel and aluminum, which are currently challenged by punitive U.S. tariffs.

RBP signatories—43 as of November 2025—are expected under the RBP Terms of Reference to develop processes to consistently consider, advocate for and use lower-carbon options[24] where costs, performance and availability is viable, with the intention of shifting towards a lower-carbon industry culture.[25] Signatories must track and openly report on their outcomes with other pact peers.

"We are standardizing procurement approaches, so we're considering carbon by default," said David Messer, Director of the Climate Smart Buildings Alliance, which oversees the pact, noting that it takes time to manage change.

Supplementing or scaling the RBP could be critical for the fragmented building sector. Cross-industry collaboration can make lower carbon materials and designs a more compelling and viable option, helping to bring smaller firms along the climate journey, especially those with limited resources for internal testing. A buying group could help navigate the sustainable materials' "green premium" and create the market pull for the next generation of low-carbon innovations.

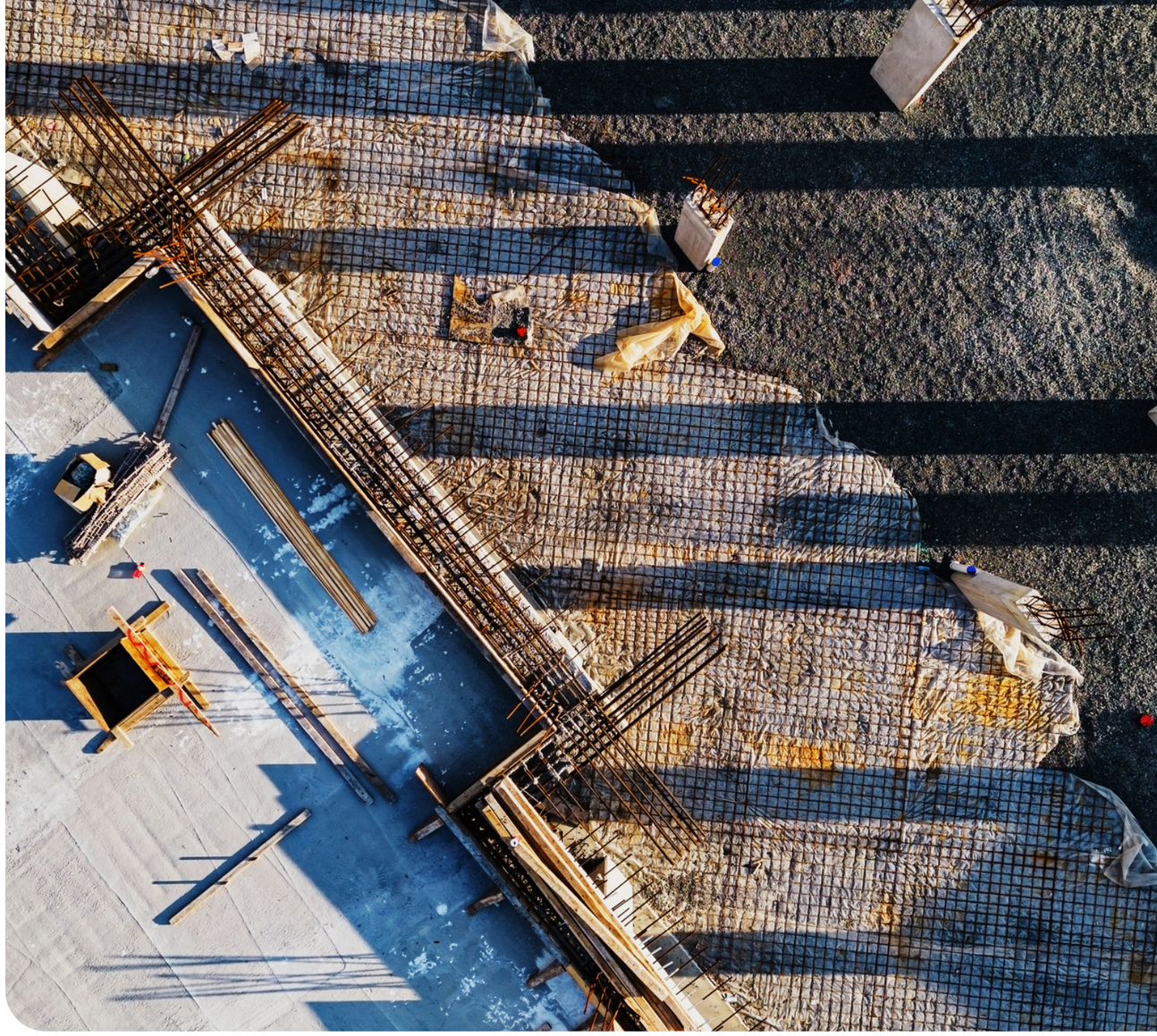


Photo: GettyImages

Governments can also help create carbon-transparency platforms for building materials. Ottawa's Buy Clean initiative, which requires disclosing the embodied carbon of materials in major federal construction projects starting in 2025, could be an initiative industry can find a way to align itself with.

It can also leverage industrial carbon capture technologies, especially to help lower manufacturing process emissions from cement manufacturing. Investment Tax Credits (ITCs) and funding for large-scale carbon capture, utilization and storage (CCUS) projects in Alberta, for which the federal government has already committed $49 million and could invest more, are essential early moves.[26]

Finally, pooling information can help identify opportunities and reveal where the supply chain needs to be bolstered, while better data on performance can also mitigate risks.

Climate Progress Indicators

Tracking Canada's national and sectoral trends in climate policy, capital, action and emissions

Photo: Adobe Stock

Climate policies face pushback

↓7%
drop in emissions since 2019

↓15%
drop in emissions intensity since 2019

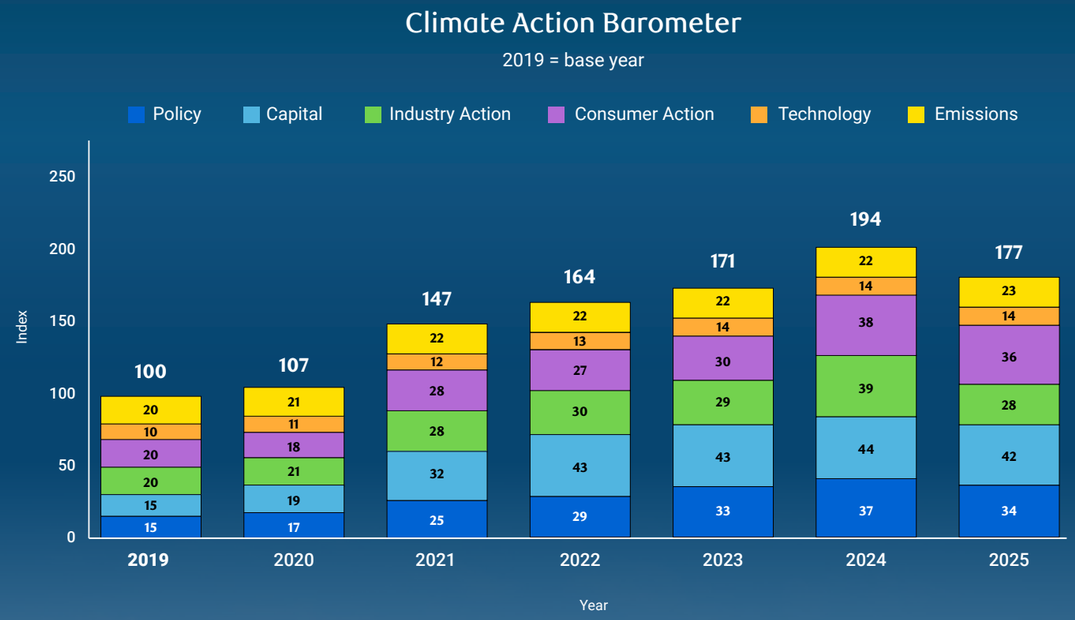
The Climate Action Barometer declined for the first time since the survey began. The reversal was broad-based, cascading across industry activity and consumer behaviour. The removal of the consumer carbon tax, economic uncertainty and rising trade tensions weighed on the index.

Climate policies are taking a back seat. Federal and provincial governments are prioritizing economic growth, affordability and job creation, spurring renewed discussions around the feasibility and effectiveness of several climate policies.

Climate capital flows have flatlined at around $20 billion annually. Funds already budgeted by Ottawa and the four largest provincial governments will continue to provide capital.[27] Businesses are cancelling projects amid policy shifts, such as Alberta's restrictions on new renewable builds.[28] However, wind developments on the East Coast have supported investment flows.[29]

Consumers have eased up on EV purchases. Electric vehicle sales in Canada have dropped this year, weighing on the Climate Action Barometer.[30] Heat pump adoption ticked up,[31] and $10.9 billion in new efficiency funding from Ontario could support further growth.[32] Overall, 12% of Canadians see addressing climate change as the nation's most important issue.[33]

Efforts to lower emissions are facing headwinds. Based on our estimates, emissions trended lower over the past few years, down 7% from 2019, with pandemic era volatility creating a see-saw pattern.[34] However, U.S. tariffs are a major economic shock that could alter Canada's emissions trajectory, as the federal and provincial governments respond with new resource and industrial projects.



How to interpret the Climate Action Barometer: *We have set the Barometer to 100 starting in 2019. Increases in its value indicate overall positive progress on climate action. For example, the value of 177 for 2025 indicates a 77% increase in climate action since 2019 across a combined total of policy, capital, consumer action, industry action, technology and emissions metrics. The Barometer doesn't have a unit value or an upper limit. This is our best attempt to measure and capture overall annual progress. A more detailed explanation of how the Barometer is built can be found in the methodology.*

The Kingston Solar Energy Project, one of the largest in the country. (Credit: Osahon Oluwole, RBC)

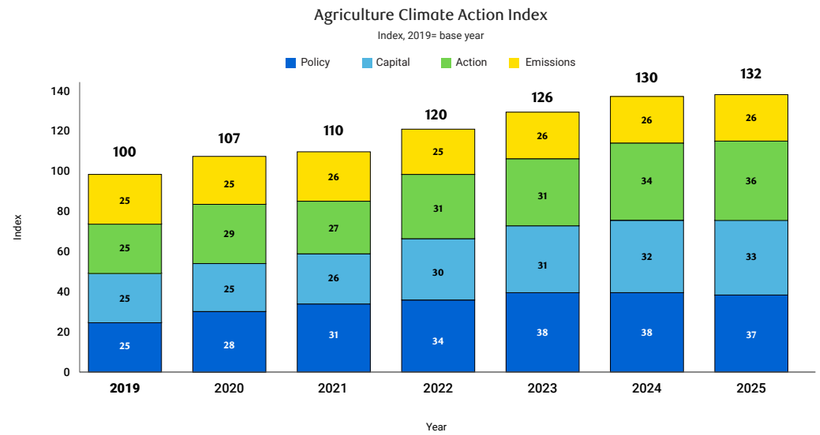
AGRICULTURE

Rising production, plateauing emissions

0%
Drop in sector emissions since 2019

↓7%
Drop in sector emissions intensity since 2019

A farm in St. Jacobs, Ontario. (Credit: Lisa Zewdie, RBC)



Many farmers are seeing value in on-farm efficiency and trialing new products like enhanced efficiency fertilizers that help cut emissions.[35] This expected trend in farmer innovation is boosted by the federal government's $704 million On-Farm Climate Action Fund and corporate supply chain investments from companies like PepsiCo, Nutrien, and Cargill.[36]

Crop and animal production is rising, while emissions have flatlined. Since 2019, the emissions intensity of Canada's agricultural production has improved by 7%, according to our estimates.[37] Yet, the sector's total emissions have hovered around 69 megatonnes (Mt) over the indexed period (2019-2025).[38] The projected impact of climate-smart practices supported by government programs is expected to show up in emissions accounting by 2030—a notable lag—contributing to the potential for greater reductions in total accounted emissions in the future.[39]

Federal funding programs are keeping climate action capital afloat—but they are not enough. Landmark government funding commitments under the On-farm Climate Action Fund and the federal Agricultural Clean Technology Program are expected to run out in 2028. The forthcoming end to climate-smart funds is a capital drought concern as parallel agri-food supply chain investments pale in comparison in terms of dollars committed. Agri-tech start-ups in Canada that drive innovation on farms are also struggling to attract transformative capital amid strong competition from rival markets, especially the U.S.

Climate policy is stalling. Ottawa's Sustainable Agriculture Strategy has not moved past consultation due to industry pushback. Farmers are not well positioned to participate in Canada's GHG Offset Credit System in 2025 with the Reducing Enteric Methane Emissions from Beef Cattle protocol just being published in October 2025, and the status of the Reducing Manure Methane Emissions protocol and the Enhanced Soil Organic Carbon protocol under development.[40] Ottawa announced it will review the Clean Fuel Regulations, but as of December 2025 had not given details of how low-carbon intensity incentives would be amended for farmers producing feedstock for biofuels.[41]

The removal of the consumer carbon tax has had a limited impact on the sector's policy score. Only about 3% of GHG emissions in agriculture was covered by consumer carbon pricing. Yet, the policy change has been a financial boon for many farmers, especially those that dry grain or heat livestock facilities, as on-farm use of propane was not exempt from the consumer carbon tax. Few cost-effective alternatives exist in Canada's rural regions to replace propane with a lower carbon energy source.

AGRICULTURE CASE STUDY

Agronomists wanted

The Challenge

With floods, droughts and wildfires getting worse every year, building climate resilience is critical. According to Luke Struckman, a co-lead on Trusted Advisor Partnership's (TAP) Canadian project, that starts, like most things on a farm, in the ground: "If your soil functions in a way that makes it more resilient to extreme weather events, you're going to have sustained crop production."

Farmers adopting soil health practices can also contribute to climate change mitigation. Practices like Improved Nutrient Use Efficiency can reduce nitrous oxide emissions from fertilizer use and practices like inter-cropping and cover cropping can help pull carbon from the atmosphere and store it in soils.[42]

Struckman said there is an opportunity when it comes to sustainable soil management practices in the training of agronomists, the crop consultants who farmers turn to for advice. Conventional production is focused on yield for good reason as farmers feed a growing global population. But approaching sustainable practices as a path to building long-term productivity is not always a top priority. This is where TAP comes in by bringing together agronomists, industry experts, corporate partners and scientific researchers.

The Idea

Ben Harris, Struckman's co-lead, was working on TAP's original project in North Dakota when he first heard that agronomists in Canada were accessing TAP's resources. Since 2022, with the backing of a few large corporate sponsors, including PepsiCo and General Mills, TAP had been offering a video-based program to American agronomists on sustainable soil, water and nutrient management. Canada offered all kinds of potential. Saskatchewan, alone, is home to 60 million acres of farmland.[43] After turning its attention to Canada this year, it was no surprise that TAP's pilot project in Saskatchewan and Manitoba was oversubscribed immediately.

The Obstacles

1. Despite strong demand, the TAP team quickly discovered that this would not be a rinse-and-repeat exercise. There are several differences between North Dakota and the Canadian Prairies, including climate, growing conditions, commodity markets and soil properties. And while the team members thought they could use some of the material from the original program, they ultimately created an all-new curriculum suited for the challenges facing Saskatchewan and Manitoba farmers.

2. Many farmers already work with a trusted partner, be it an independent agronomist or one who is linked to a retailer. That's why TAP, which is aiming to train 250 agronomists across the Prairies by 2028, decided against putting restrictions on who can take the program. "TAP supplements the trusted advisor infrastructure," said Struckman. "Regardless of what stripe of agronomist you are."

3. Since the return on investment of sustainable soil health practices is measured over several years, the program requires patient investors. The corporations that have come onboard have a handful of motivations:

- For food and beverage companies, roughly 70% of their emissions come from the farm. Improved soil health practices could help reduce emissions.[44]
- It improves agronomic advice and services for farmers, contributing to advanced productivity. [45]
- Since each agronomist is connected to multiple farms–and potentially hundreds of thousands of acres–it offers scaling potential that traditional approaches can't match.

The Insight

Targeting only agronomists is not enough. Increasingly, the team is thinking of ways to market the program's benefits directly to farmers. Once the program is more established in Canada, the TAP team plans to follow a similar approach to the North Dakota project, engaging important regional organizations and pooling dollars from private and public sources to directly support producers in implementing these sustainable practices—but, in all likelihood, only if a farmer's agronomist has completed the training.

Creating a community of agronomists extends–and deepens–the program's value. While some informal networks exist, the TAP team discovered there is demand for an organization in the Prairies that builds a sustained community of practice among agronomists on sustainable agriculture. TAP is fostering these networks through in-person events, webcasts and, as simple as it may seem, a Slack channel. Participants can seek support from one another and search archived discussions. Ultimately, the peer network gets agronomists, divided by great distances, talking. "Even if someone in the Red River Valley may not be facing the same constraints of someone south of Regina," said Struckman, "there is still a lot of value in them exchanging knowledge and ideas."

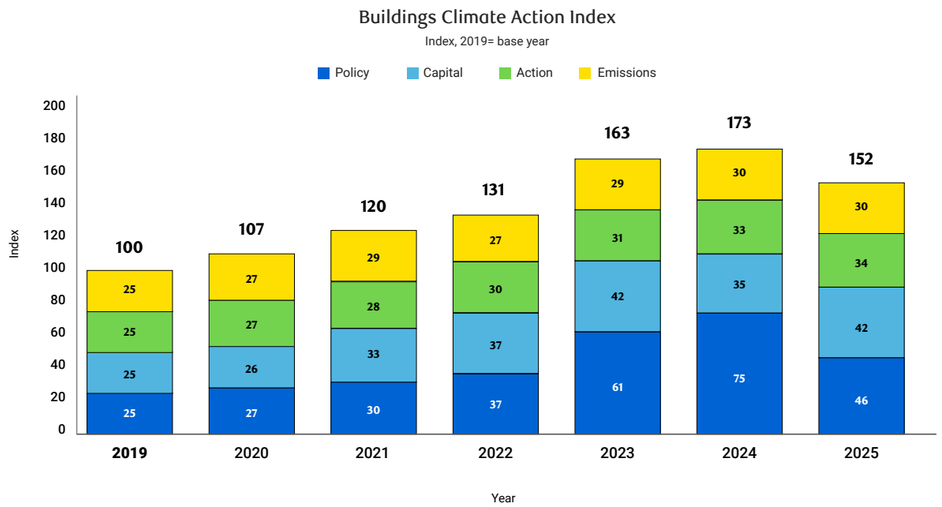
BUILDINGS

Construction boom strains climate commitments[46]

↓14%
Drop in sector emissions since 2019

↓19%
Drop in sector emissions intensity since 2019

Photo: GettyImages



Growth in LEED-certified buildings boosted the Climate Action Index. Canada's total LEED floor stock rose an estimated 5% from 2024 to 2025, while the use of mass timber, up 0.6%, also improved the sector's action score.[47]

Just over a quarter of a million heat pumps are installed in Canada. Federal support and provincial rebate programs helped accelerate residential heat pump deployment, with more than 271,000 pumps installed over the past five years.[48] Most recent data from 2023 shows 8% of Canadian households run on heat pumps.[49]

Private capital investment dropped compared to 2024, according to our estimates.[50] We believe it was mostly driven by cooling investor sentiment towards early-stage technology companies. The removal of the consumer carbon price also lowered the policy score.

A $10.9-billion commitment to expanding energy-efficiency programs in Ontario boosted the capital score. A suite of new and continuing programs with a 12-year framework was announced in 2025. The new provincial Home Renovation Savings Program aims to encourage use of rooftop solar panels, heat pumps, and other measures in an effort to meet the equivalent of 70% of Toronto's summer peak electricity demand.[51]

Emissions are not falling quickly enough. Based on our research, building sector emissions are projected to drop 1% in 2025 relative to 2024, a pace at which Canada may struggle to get to net-zero for buildings by 2050.[52] The sector accounts for 18% of Canada's greenhouse gas emissions (including electricity-related emissions), and that could rise by a further 18-million tonnes if new projects are built with prevailing codes.[53]

BUILDINGS CASE STUDY

A new kind of building code

The Challenge

The federal government is trying to spur a doubling of construction to nearly 500,000 homes a year. More homes equal more emissions.[54]

The Idea

For Oliver David Krieg, President of Vancouver-based Intelligent City, it all starts with a product platform. Intelligent City developed a prefabricated platform for multi-family housing, which incorporates robotic assembly processes and software automation to enable design flexibility. “Instead of manually designing the artifact–the building–you design the algorithm that designs the building,” said Krieg, who was named president earlier this year after several years as the company’s Chief Technology Officer.

Traditional design approaches, Krieg said, have hurt widespread adoption of prefab. The Intelligent City platform can accommodate many styles and offers scalability by making an assembly-line approach to production possible. “We can create this level of mass customization that is beyond anything we've ever seen,” Krieg said. “A robot doesn't care what it does as long as you give it the code.”

As for the material of choice, Intelligent City landed on mass timber for several reasons. “It can be grown sustainably, and it is very machinable,” Krieg said. It lends itself to prefab because it's lightweight and easy to manipulate. Mass timber drives automation because, while lightweight relative to concrete, panels are still bigger and heavier than what a human can carry.[55]

The Obstacles

The mass timber industry remains in its early stages of evolution. Issues such as insurance and finance remain challenging, although the federal government is setting policy initiatives to help scale the sector.[56]

Intelligent City’s first project was an 80-unit affordable housing project in Vancouver, not far from its manufacturing facility in Delta. When Windmill Developments approached the company about partnering on a project in Toronto, the team at Intelligent City was intrigued. But a project 4,000 kilometres from its factory carried with it new challenges. Krieg knew it only made financial sense if the company had a manufacturing facility near Toronto, but building one for a single project was a non-starter. He also knew that while the project would be a loss leader for Intelligent City, it would introduce the company to another major market (a potential future site of a second manufacturing facility) and allow Intelligent City to “prove the whole thing works.” So the company got to work, producing the components—the walls and floors—at its Delta facility, which is home to five robots and 30 staff, and shipped them on flatbeds across the country.

Like any new technology, there have been some bumps in the road. For one thing, it’s difficult to schedule a construction site when you’re at the mercy of cross-country shipping on land. “Theoretically,” said Krieg, “if all the trucks were lined up and ready to go, you could have put up the structure and envelope in about 45 days.” Instead, the first panels arrived in May and the structure and envelope will be complete in November 2025.

The Insight

For a long time, Intelligent City didn't define the design variability it could offer in enough detail. As a result, clients—developers, architects, engineers—sought bespoke solutions. The risk, Krieg said, is “you become a custom panel builder and lose cost efficiency and speed.” Offering choice is important, he said, “but we needed to home in on what’s possible.”

Another learning: design, performance and sustainability are great attributes, but it all comes down to the price. Ultimately, prefab’s speed-to-market metric could be a gamechanger. Constructing a highly finished prefab mass timber building four to six months faster than the concrete version has the potential of being a breakthrough. Faster construction equals less construction overhead and financing costs. “You can redeploy your capital four to six months faster—you can build 25% more buildings with the same capital,” Krieg said. “The time value of money is significant.”

“Mass timber “can be grown sustainably, and it is very machinable”

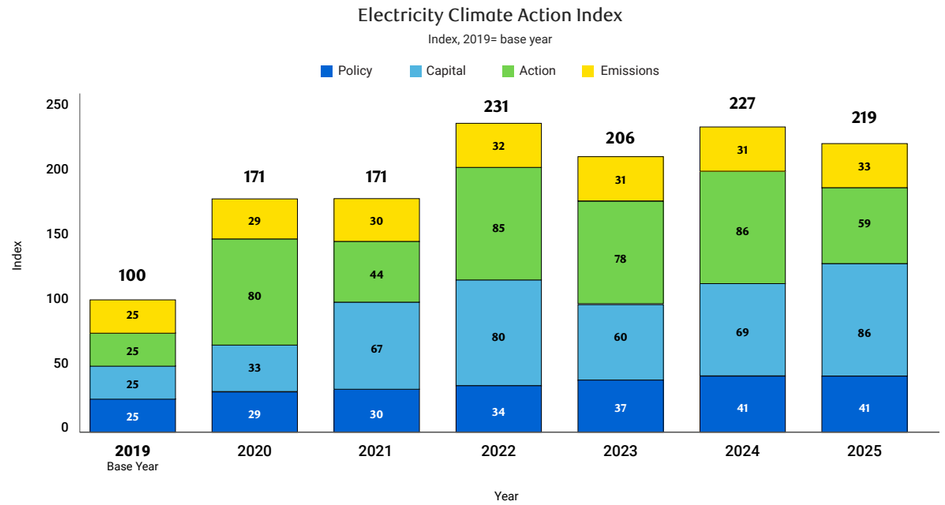
ELECTRICITY

A trillion-dollar challenge to power up a bigger, low-carbon grid

↓24%
Drop in sector emissions since 2019

↓27%
Drop in sector emissions intensity since 2019

A wind turbine integrated into farmland near Collingwood, Ontario. (Credit: Ahmed El-Nagdy, RBC)



After an initial wave of progress, our electricity index has stalled and declined in 2025. Lingering uncertainty around Alberta's renewable energy moratorium and subsequent restrictions led to the cancellation of 11 gigawatts of capacity under development—roughly half of the province's existing generative capacity.[57]

Canada will likely remove over six terawatt hours of coal-generated power from its grid this year.[58] That's the equivalent of 25% of the City of Toronto's annual electricity use.[59] We estimate that the removal of coal will contribute to sector emissions likely falling 1% in 2025, with the decline partly offset by natural gas-powered generation rising over 15% in the year.[60] Since 2019, we estimate that total sector emissions have fallen 24%, and are down 60% since 2005, surpassing Canada's Paris Agreement targets.

Canada faces the twin challenge of at least doubling and decarbonizing power capacity by 2050. Plans for expanded electricity generation, powered by nuclear, hydroelectric and abated natural gas in addition to solar and wind, would address Canada's long-term challenge to raise capacity while managing emissions. The capital cost for such an expansion could be over $1 trillion, according to estimates.[61]

Total power generation is up 7% year-to-date relative to 2024, according to our estimates.[62] The surge is driven by higher hydroelectric power generation, after falling in 2024 to among the lowest levels in two decades due to hot and dry conditions decreasing reservoir levels. Other low-emission power (nuclear, solar and wind) is also up on the year. However, rising gas use and no meaningful conversions of plants from coal-to-gas will likely keep emission declines muted this year.

Generous fiscal subsidies such as ITCs are already in place. However, the major projects initiative under Bill C-5: An Act to enact the Free Trade and Labour Mobility in Canada Act and the Building Canada Act, which aims to streamline permitting and boost inter-provincial collaboration, could advance grid resilience and expansion.

ELECTRICITY CASE STUDY

Build or buy?

The Challenge

Demand for electricity is expected to double in Canada by 2050[63] driven primarily by the increased electrification needed for vehicles, data centres and manufacturing.[64] Electricity markets will need a slew of technologies from power producers to keep up.

The Idea

The 250-megawatt Oneida Energy Storage in Haldimand County, Ont. is the largest battery energy storage facility of its kind in operation in Canada. The facility is connected to the grid and can charge in periods of low demand or when excess energy is being generated, and then discharge when demand is high or when renewables aren't available. At capacity, the 10-acre facility can store enough electricity to power a city the size of Oshawa, population 175,000, for four hours.[65]

The project came online in April 2025 and is a partnership between Northland Power, NRStor Inc., Aecon Concessions, Six Nations of the Grand River Development Corporation and the Mississaugas of the Credit First Nation.

The facility captures electricity—primarily from nuclear, hydro, wind, and solar sources—when it's readily and cheaply available, which can offer an alternative power source to using fossil fuel-fired power generation during peak demand.

The Obstacles

Ultimately, the project team faced a classic strategic decision most companies encounter at some point during their evolution. Build or buy?

Option 1: Purchase a highly integrated storage solution from a third-party vendor.

Option 2: Purchase components and integrate them into a storage solution.

The selection often comes down to a few key factors, cost, competency, customization, time to market and the value of the solution as a differentiator for the business.

The Oneida Energy Storage project team has developed its gameplan over the past few years in an ever-evolving supply-chain environment. Understanding the landscape—and the options—was the first priority. When it came time to select a battery supplier, a decision that accounts for about 70% of the total project cost, the partners opted for a highly integrated solution and purchased 278 lithium-ion batteries (each weighing 84,000 pounds) from Tesla, which is a dominant player in battery energy storage systems.[66]

While the buy option was more costly, at least upfront, it provided the project partners with a well-known player in the space whose core competency is battery system manufacturing, integration and service. Plus, a 20-year guarantee on the tech. This, said Nick Zsofcsin, the Head of Energy Storage at Northland Power, helped de-risk the project for the partners.

The Insight

Zsofcsin recalls how from the moment the system came online, it was impossible to ignore how quickly it responded to pricing signals. "The energy storage was almost turning on too fast," he said. "The electricity system operator had never seen anything like this before."

Traditionally, a lot of flexible or more active electricity generation comes from hydro or natural gas, which is more mechanical, and takes time to ramp up, involving higher costs and energy inefficiencies. Energy storage facilities, built on electronic inverters, turn on and off in milliseconds. Quicker, said Zsofcsin, than any revenue stream in the system will value and recognize. "This speed, this ability to respond, is undervalued," he said. "And something that we need to create the right price signals and the right markets to be able to capitalize on."

> *The speed and the ability to respond is undervalued.*

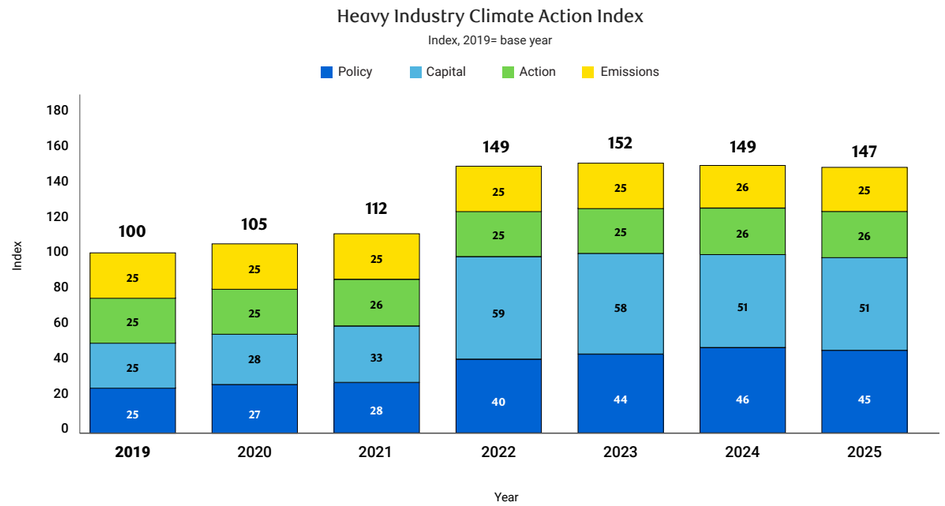
HEAVY INDUSTRY

Some projects advance amid market challenges

↓2%
Drop in sector emissions since 2019

↓3%
Drop in sector emissions intensity since 2019

Photo: GettyImages



Heavy industry emissions saw a 2% decline since 2019, according to our estimates.[67] Larger cuts are unlikely without deploying decarbonization technologies at scale across the industries that comprise petrochemicals, pulp and paper, steel, aluminum, mining and cement.

A few major decarbonization projects advanced. Algoma Steel's Electric Arc Furnace came online and produced its first steel in July.[68] Overall, coal and natural gas remain central to the steel industry's energy mix. Large manufacturing projects, such as Dow Inc.'s low-carbon chemicals facility in Alberta, have been delayed due to market uncertainty.[69]

Emissions intensity industry-wide has declined by 3% from 2019, according to our estimates.[70] Fuel switching from natural gas to electricity remains limited. Feedstocks, such as carbon-intensive limestone and natural gas, also remain a key part of the industry, limiting emissions reduction.

Capital to decarbonize the industry declined.[71] We estimate that total capital fell 7% in 2025 relative to 2023, with venture capital investments of $79 million year-to-date. However, federal funding for heavy industry projects, including $41 million for critical minerals, combined with capital budgeted for carbon capture, utilization and storage (CCUS) and hydrogen, helped prop up capital flows.[72]

Targeted climate action by government is slowing across heavy industries. While a rising federal industrial carbon price has strengthened climate action, it's been offset by a slowdown in the development and implementation of sector-specific measures. There is further uncertainty ahead as U.S. tariffs weigh on Canadian steel and aluminum industries.

HEAVY INDUSTRY CASE STUDY

The quest for lower-carbon phones

The Challenge

Apple was facing a formidable aluminum emissions challenge. The lightweight metal, which forms the protective chassis of iPhones and other devices, accounted for over a quarter of its manufacturing carbon footprint in 2015.[73] Apple engineers went on the hunt, meeting some of the biggest aluminum companies, independent labs and startups around the world, to crack the emissions challenge. They finally found a promising solution at Alcoa Corp., which was experimenting with a new aluminum smelting process.

The smartphone maker quickly brought Rio Tinto into the fold. The opportunity immediately posed an interesting challenge for the two aluminum rivals: go it alone or pursue a high-risk, high-reward research & development joint venture?

The Idea

Pursuing the latter, Alcoa and Rio Tinto pooled their R&D resources to create Elysis, based first at an Alcoa facility in Pittsburgh in 2019 and then at Rio Tinto's Complex Jonquiere in Saguenay Lac-Saint-Jean, Quebec. Hydro Quebec's low-emissions hydro-powered grid also helped reduce its overall carbon footprint.[74]

Together with support from the federal and Quebec governments, Elysis had $650 million in fire power to set about changing a 130-year-old smelter process (pioneered by Alcoa founder Charles Hall back in 1886); a deeply efficient process, but one that had earned aluminum the reputation of being hard-to-abate.

The typical aluminum smelter uses electricity to split alumina (refined from bauxite) into pure aluminum and oxygen. Here's where the emissions come in: the oxygen reacts with carbon anodes, releasing CO2. That's where Elysis entered the fray.[75]

The joint venture team "failed fast," triaging the opportunity to learn and retest quickly. Soon, it had struck on a possible breakthrough: proprietary "inert anodes" that emit pure oxygen as a byproduct, rather than carbon.

"It looks simple—just swap an anode—but in reality it required a full redesign of the smelter. What we built now looks more like a battery than a traditional aluminum potline," said Francois Perras, CEO of Elysis.

Perras credits the unlock to the two global competitors, Rio Tinto and Alcoa, coming together as no single company could solve the challenge alone, with a key end-user, Apple, involved in the process.

While several veterans from Alcoa and Rio Tinto were drawn to the Elysis experiment, the facility also became a cluster for young talent that's now become a 200-strong workforce.

The process, Elysis believes, will also generate significant economic gains: operating costs are expected to fall 15% as the anodes last more than 30 times longer than traditional carbon-based anodes. The technology is also retrofittable to existing smelters once commercially scaled.

Apple, which purchased the first-ever commercial batch of aluminum resulting from the joint venture, for the production of the 16-inch MacBook Pro, has already pursued several other policies to whittle down the supply chain emissions attributable to aluminum used in Apple products from 27% to 7% of its total manufacturing footprint.[76]

The Obstacles

1. Commercialization and embedding the new technology in Rio Tinto and Alcoa's existing and new aluminum smelter plants.

2. In 2024, Elysis issued its first smelter technology licence to Rio Tinto for a demonstration plant with 10 pots to be built at Rio's Quebec plant.[77] An even bigger scaling challenge is industrial prototype cells at the end of an existing potline at Rio Tinto's Alma smelter. It's seen as the litmus test whether the anode's integrity, the metal's purity and cost benefits remain intact.

3. Like any early-stage technology, the impact of Elysis' solution will depend on whether it can be scaled and commercialized. Also, while the technology is designed to lower process emissions from aluminum production, it does not address emissions from the electrical grid in which it operates, which could include coal or natural gas depending on where the grid is located.

The Insight

Pooling resources is a promising model in heavy industry with chemicals giants BASF SE, SABIC and Linde Plc[78] teaming up to build an electrifying steam cracker for a demonstration chemical plant in Germany, and Dow Inc. and Shell Plc[79] developing electrically-heated steam cracker furnaces at a facility in the Netherlands.

Another major lesson: a technology in a sandbox can ultimately spawn a new supply chain that could lower emissions across the wider industry.

> *What Elysis has built looks more like a battery than a traditional aluminum potline*

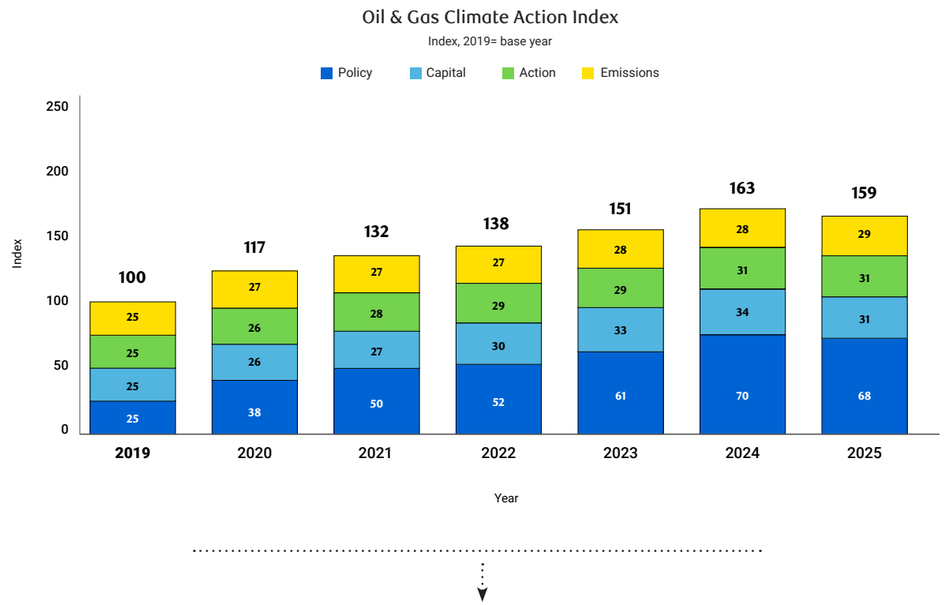
OIL & GAS

Rising oil and gas production challenges sector

↓5%
Drop in sector emissions since 2019

↓19%
Drop in sector emissions intensity since 2019

Photo: GettyImages



Oil and gas production rose—with marginal growth in emissions. We project emissions to have risen between 2-3% since 2023, even as oil and gas production is expected to grow 8% during the past two years.[80]

Mega projects added to emissions. According to our estimates, the expansion of the TMX oil pipeline[81] in 2024 and the start of LNG Canada Phase 1[82] in 2025 raised the oil and gas sector's estimated emissions by around 1% in 2025, with the natural gas export project contributing the larger share. The estimated increase of 1% does not include the emissions generated by end users.

Better methane management was the industry's climate driver. Our estimates suggest that natural gas production is expected to rise 8% since 2023. However, vented emissions are estimated to have dropped 21% over the past two years[83] as Canada works to reduce methane emissions by 75% (below 2012 levels) by 2030 as part of its global commitment.[84]

Capital allocated to decarbonization has slowed. We project that sector capital, as measured by budgeted government and venture capital financing, has fallen 21% in 2025 compared to 2023, likely driven by uncertainty around Canada's climate policies and moderating investment sentiment.

Shifting oil and gas regulation may (or may not) mitigate uncertainty. Canada's Climate Competitiveness Strategy, which was included in the federal Budget 2025, aims to expand and strengthen industrial carbon pricing, which covers certain facilities in the oil and gas sector. The budget and subsequent Ottawa-Alberta Memorandum of Understanding outline a strategy to adjust various regulations, including production limits and coastal access, while also strengthening industrial carbon pricing.[85]

OIL & GAS CASE STUDY

Can producers gain an edge through transparency?

The Challenge

Natural gas demand is set to grow over the next decade to 2035, according to the International Energy Agency's base case,[86] but its production continues to face scrutiny over climate and social impacts. Methane emissions, which are generated in both oil and gas production, are 28 times more potent than carbon dioxide at trapping heat in the atmosphere, according to the U.S. Environmental Protection Agency.[87]

One response to the climate and social impact scrutiny is certification by independent certification bodies. Certification does not require the production process to generate lower emissions. It only involves certification by an external party to verify emissions attributable to gas production. Reduction of emissions would require other measures such as industry players to deploy technologies and processes to reduce emissions.

As the International Energy Agency explains, certification is the process of independently verifying the environmental and social attributes of the natural gas, such as greenhouse gas emissions performance, water use, local community impacts and worker safety, against defined criteria or benchmarks. As of 2024, over 7.5% of global natural gas production—almost entirely in North America—is now certified against a handful of standards, according to the IEA.[88]

"By improving transparency on GHG emissions along the natural gas supply chain–particularly on methane, a potent short-lived climate pollutant–certification can incentivize operators to introduce measures to reduce these emissions," the IEA said in a report on gas certification earlier this year.[89]

One certifier in the space is Equitable Origin (EO), a U.S.-based non-profit founded in 2009, which aims to advance accountability in energy production through voluntary, market based standards. The IEA has identified EO as one of two main gas certification schemes, the other being Methane Intelligence Quotient (MiQ).[90]

EO was developed following the international non-profit organization ISEAL Alliance guidelines, including on data collection, sharing and reporting, and has the U.N. Guiding Principles on Business and Human Rights as core elements, along with United Nations Declaration on the Rights of Indigenous Peoples, and the Oil & Gas Methane Partnership 2.0, which is central to the EU's methane regulation standards.

Built on the same DNA as the Forest Stewardship Council certification for responsible timber products, the EO100 Standard aims to measure energy projects and verify whether they meet global and sectoral good practice benchmarks.[91] In contrast to the methane-specific performance standard MiQ, EO is focused on assessing performance relative to Indigenous Rights benchmarks, in addition to greenhouse gas emissions and other benchmarks.[92] "Indigenous peoples are among the first to face the direct consequences of climate change, due to their dependence upon, and close relationship, with the environment and its resources," according to the U.N. Department of Economic and Social Affairs-Indigenous Peoples.[93]

RBC Thought Leadership's research suggests "73% of the 504 major resource and energy projects planned or currently underway in Canada run through, or are within a 20-kilometre radius of, Indigenous territories—namely, treaty, title unceded and consultation lands."[94]

The Idea

Some gas producers in Western Canada are using certification to differentiate themselves in competitive and emissions-conscious markets. Certification can also strengthen access to new export markets—particularly in parts of Europe and Asia—where carbon tracking and traceable supply chains can be critical to import eligibility and long-term trade compliance.

To date, EO says it has certified 17-billion cubic feet per day of natural-gas production across 16 projects in North America—covering nearly 14% of total Canadian and U.S. output.[95] In Canada, over 40% of production in Montney, the shale gas basin straddling Alberta and British Columbia, and much of the contracted supply for the LNG Canada natural gas export project have achieved EO certification.

The EO100 Standard evaluates producers across 504 metrics under five principles: environment, social impact, Indigenous relations, ethics, and labour. Some of the voluntary environmental disclosures include methane intensity per segment, freshwater user intensity and water recycle rate. Assessments involve field visits, stakeholder interviews, and reviews carried out by independent experts. The process draws on international assurance best practices consistent with ISO-based audit, ensuring transparency and traceability of performance data.[96]

Certification extends beyond emissions to include water-use management, biodiversity protection, community relations, and Indigenous participation. The framework encourages continuous improvement and helps producers embed sustainability into their operational culture.

The Obstacles

Despite progress, awareness and adoption of certification remains limited. Certification currently covers only a small share of total gas production in North America, and the market for certified-gas premiums is still developing. Most buyers remain price-sensitive, with few willing to pay more for certified gas outside a handful of jurisdictions.

In Canada, smaller operators may find the process resource-intensive, and others hesitate without clearer commercial incentives.

The Insight

EO certification can help build credibility, accountability, and long-term trust with buyers. While direct financial premiums are limited today, the potential benefits—enhanced reputation, improved financing conditions, and a strengthened social license—can help position certified-gas producers ahead of regulatory and market change.

TRANSPORTATION

High prices and incentive cuts stall EV sales

↓6%
Drop in sector emissions since 2019

↓7%
Drop in sector emissions intensity since 2019

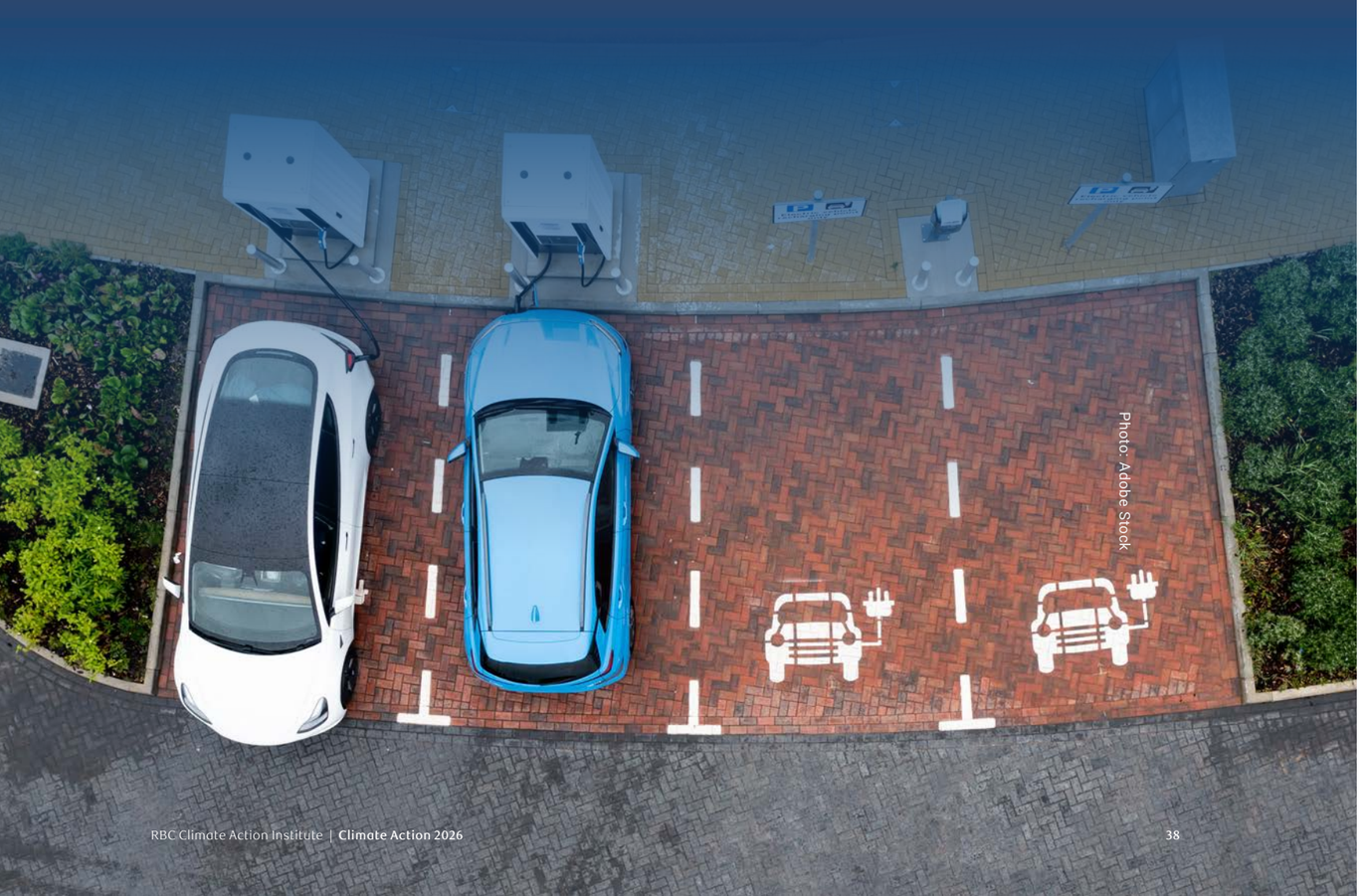
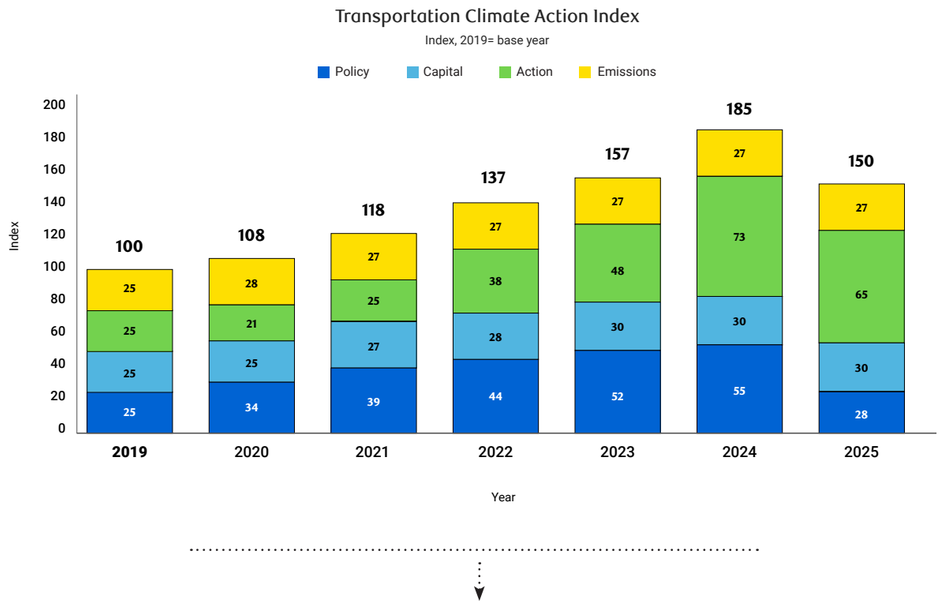


Photo: Adobe Stock



Major blows interrupted transportation's climate momentum. The federal consumer carbon tax reversal and tapering off EV[97] subsidies by Ottawa and Quebec sent the sector scorecard lower. EV buyers also front-loaded their purchases before incentives lapsed in 2024,[98] exacerbating the decline in 2025 sales.

The Electric Vehicle Availability Standard has been delayed. The federal government paused a rule that mandated companies to ensure EVs account for 20% of their sales by 2026. The policy change could impact momentum, which has already taken a hit: EVs accounted for only 8% of total car sales in Canada in the first half of 2025, a sharp drop from 12% during the first half of 2024.[99] Passenger EV penetration now stands at around 4% of total stock.[100]

Emissions are estimated to continue to inch up but remain 6% below the 2019 baseline.[101] Driving is expected to hit a record 359-billion vehicle-kilometres[102] as Canadians avoided U.S. destinations and opted for domestic trips.[103] A nearly $0.20-per-litre drop in fuel prices after the rescinding of the consumer carbon tax may have helped spur more driving.[104]

While EV prices have fallen, the lack of low-priced models continue to weigh on adoption. The average EV price tag of $70,000, compared to $55,000 for gas-powered cars, has kept many buyers on the sidelines, especially with tariffs on Chinese EVs.[105]

Charging network infrastructure has kept pace with EV growth. Currently, the ratio of EVs per public port nationally stands at 21 by our count, which is considered optimal, according to a Natural Resources Canada study.[106] But public charging ports still need to grow roughly six times from current levels to reach their target of 200,000 by 2030. However, growing uncertainty in EV adoption could stall growth in new installations.

TRANSPORTATION CASE STUDY

How to build an EV battery supply chain

The Challenge

Cars and vans generated roughly 10% of global emissions, making the decarbonization of transport a critical puzzle to solve.[107] Volkswagen, Europe's largest automaker, has bet heavily on battery electric vehicles (BEVs), expecting global BEV sales to grow by 30% annually through the end of the decade.[108] That ambition requires more than cars—it requires batteries at scale.

Through its subsidiary PowerCo., Volkswagen began building a network of battery cell gigafactories in Germany and Spain, with plans for a third and largest plant in North America. The German car conglomerate, which has 112 production facilities across 27 countries, had to make a choice on its new location for its electric vehicle battery cell gigafactory as part of its ambition to become a global battery champion.[109]

The U.S., with its formidable EV market and incentives, was a promising candidate. Instead, Volkswagen chose the southwestern Ontario city of St. Thomas—population 42,000.

The Idea

The deciding factor was not simply incentives, but climate alignment. Ontario runs on one of the world's lowest-emitting power grids, dominated by hydro and nuclear (natural gas accounts for around 8%).[110] For a facility that will consume enormous amounts of electricity, low-carbon energy was not a minor consideration—PowerCo. tells us it was essential to support Volkswagen's broader decarbonization commitments. The province has pledged to generate 99% of its electricity zero-emission, even as it raises capacity by 75% over the next 25 years.[111]

Several factors played a role in PowerCo.'s big Canadian move. The new location's proximity to the Great Lakes Automotive Corridor provides it a hub where skills, knowledge and technology transfers smoothly across an established supply chain, according to PowerCo.

While Canadian government support was also massive, the U.S. was offering equivalent incentives. The federal government's financial commitment to Volkswagen includes up to $12.8 billion in production support, a $700 million contribution through the Strategic Innovation Fund (SIF) for the construction of the plant, and an estimated $2.8 billion in tax adjustments, according to the Parliamentary Budget Office (PBO). That was "needed to achieve an after-tax equivalency to support offered under the U.S. Inflation Reduction Act (IRA)," the PBO noted.[112] That may have been fortuitous for Volkswagen as Washington has gutted the IRA.

Volkswagen is investing up to $7 billion through PowerCo by 2030 to build a 370-acre battery cell factory in St. Thomas, roughly 210 soccer fields, part of a larger 1,500-acre industrial campus.[113]

The project, set for initial production in 2027, would serve not only Canada but the U.S. and Europe. PowerCo. now boasts nearly 200 employees with plans to employ thousands more. It's also leveraging lessons from its gigafactories in Salzgitter, Germany, and Valencia, Spain, and is combining in-house training with partnerships with Canadian universities and government-supported training centres.[114]

Early contracts for steel and foundation work are with Canadian suppliers, underscoring PowerCo.'s plan to root its operations in local systems and find ways to navigate U.S. trade barriers and tariffs.[115]

Late last year, Power Co. and Volkswagen signed an offtake commitment with Montreal-based Patriot Battery Metals Inc. to buy 100,000 tonnes of spodumene concentrate—a lithium raw material—annually over a 10-year period from Patriot's Shaakichiuwaanaan Project in Quebec. Volkswagen also invested US$48 million for a 9.9% stake in Patriot.[116]

The Obstacles

Several links in the chain, from critical minerals to component suppliers, are in the early stages and must be built or scaled up, said PowerCo. executive Meredith Gibbons.

The evolving pace of EV adoption and regulatory frameworks, including the pause for review of Canada's EV mandate, introduces some uncertainty for the industry. But PowerCo. is betting that, in the long-term, EVs will overtake combustion vehicles.

There are other challenges facing the wider EV industry that could impact its medium-term growth. Several automakers have pulled back their plans for EVs, while the rollback of subsidies in the U.S. and Canada could impact consumer uptake of EVs in the future. U.S. tariffs on the Canadian auto industry could also lead to structural shifts in the domestic industry.

The Insight

Gibbons likened the process to Silicon Valley startups: technology is iterative, but manufacturing is traditionally "rinse and repeat." Combining rapid innovation with heavy industrial scale is a unique challenge. It demands flexibility in design, openness to "micro-pivots," and resilience in managing setbacks without deviating from long-term plans.

While Canadian government support was massive, the U.S. was offering equivalent incentives

Pulse Check

Photo: Adobe Stock

BUSINESS SURVEY

Canadian businesses continue to develop emissions reduction strategies despite political headwinds

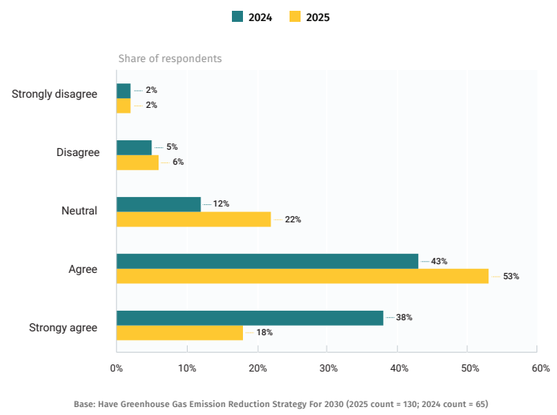
RBC Climate Action Institute's latest annual survey of 150 executives shows 136 (91%) Canadian executives said their organization had a greenhouse gas (GHG) emissions reduction strategy—a sizable jump from 73% in last year's survey.[117]

The survey, part of the RBC Climate Action Institute's Climate Action Report 2026, finds businesses in review-and-reset mode.

While a strong majority had a strategy, they were scaling back their targets in the interim: the percentage of executives "agreeing" or "strongly agreeing" when asked whether their organizations will reach its 2030 climate targets stood at 71% this year, compared to 81% last year.

Canadian businesses hold on to hopes of meeting their 2030 climate targets

Question: Please rate your level of agreement with each of the following statement about your organization reaching its emission reduction targets.



Base: Have Greenhouse Gas Emission Reduction Strategy For 2030 (2025 count = 130; 2024 count = 65)

Source: Kantar, RBC Climate Action Institute

That seems understandable as tectonic shifts are shaking up several planks of the Canadian and global economy this year, including trade, investments and energy security. Nearly three out of five senior leaders said their companies are planning to scale, or have already scaled back, their climate commitments or targets. More than a quarter cited the risk of political blowback in the U.S. as a key factor in their company's decision, while just over 20% pointed to shifting sentiment at home for their decision.

A few other highlights from our survey:

1. **Executives believe they should be driving climate progress.** Corporate priority (63%) was the biggest driver of their emissions reduction strategy, followed by government regulation (60%). With several federal and provincial government climate policies in retreat in Canada, it will be interesting to see whether GHG emission reduction strategies wane in future surveys.

2. **Energy efficiency was a popular way (82%) to lower emissions.** When asked "what's the primary focus of your organization's climate strategy?" 62% picked waste reduction, and 41% identified the purchase of carbon credits—similar to last year. There was, however, a drop in switching away from fossil fuels (46% in 2025, versus 52% in 2024), and electrification (48% in 2025, versus 59% in 2024).

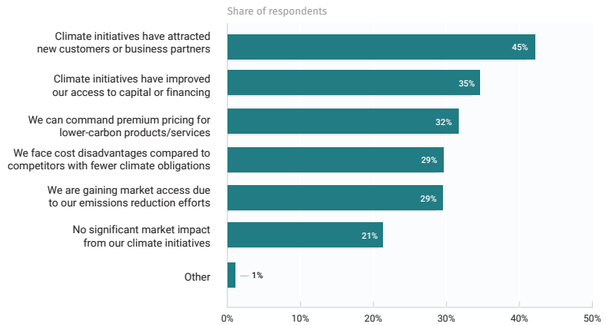
3. **Customers are seeking sustainable products and services.** Customer/client demand (54%) was the next big driver of their strategic decision-making—little changed from last year despite new economic and affordability pressures on customers. However, only 30% of executives cited investor demand as a key factor.

4. **Sustainability policies are viewed as expensive...** 60% of executives said implementing sustainability policies led to a moderate cost increase of between 5 to 15% to their business costs, while another 13% reported cost inflation exceeding 15%. In our survey, we did not define what sustainability policies companies were pursuing.

5. **... But deploying climate policies had upside, according to the executives.** Around a third of executives (32%) reported commanding premium pricing for their lower-carbon products and services, with 29% reporting securing new market access; 45% said their climate initiatives attracted new customers and business partners. However, nearly a third suggested they faced cost disadvantages compared to competitors with fewer climate considerations. A fifth reported noting no difference from their climate action.

Sustainability policies opening new doors for Canadian businesses

Question: Which of the following describes how your organization's climate strategy impacts its overall market position? *Select all that apply.*



Base: Have Greenhouse Gas Emission Reduction Strategy (count = 136)

Source: Kantar, RBC Climate Action Institute

6. **Lack of access to capital tops the barriers list.** In addition, the challenge of qualifying for government incentives and regulatory uncertainty, along with macro-economic conditions, were most frequently ranked as the top three barriers facing executives in their effort to lower their corporations' GHG emissions.

CONSUMER SURVEY

Around 60% of Canadians seek strong action on wildfires even as climate change drops on priority list

Climate change may have slipped on Canadians' priority list, but it remains front and centre when it hits closest to home—most notably in the form of wildfires inflicting property damage, raising insurance costs and impacting health.

That's one of the key findings of RBC Climate Action's latest consumer survey, which polled 2,000 Canadians. The survey is part of the Institute's third annual Climate Action report, which reviews Canada's progress on its environmental goals.

Concerns around climate change has ebbed and flowed in tandem with Canadians' economic prospects. In last year's Climate Action report, 14% of respondents reported climate change as one of their top three concerns, down from 26% in 2019.[118] This is consistent with the general observation that climate change, while important, ranks below pocketbook issues such as the cost of living and job security. When the economy is strong and jobs are secure, people can 'afford' to prioritize climate action. In times of economic stress, climate change tends to be de-prioritized.

This year's consumer survey, conducted by market research firm Ipsos, again finds Canadians focused more on the economy, jobs and personal finances. However, the frequency of extreme weather events ensures that environmental issues continue to simmer just under the surface.

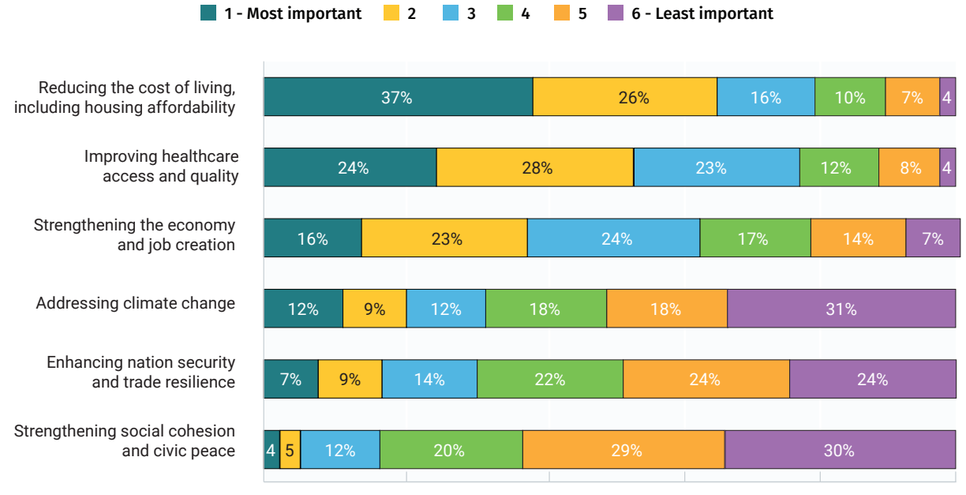
Here's what we heard in the survey:

- **It's about personal issues right now.** Cost of living (79%), healthcare (75%) and economy and jobs (63%) were the top three challenges for most Canadians. Only 33% of respondents listed climate change as a top three issue. One-in-eight Canadians (12%) identified it as their top priority.

- **More than three out of five Canadians (67%) didn't see climate change as a top three priority.** It appears that climate change as an abstract concept is struggling to capture the attention of Canadians in the same way as the immediate impact of wildfire smoke or urban flooding does.

Priority ranking of key issues for Canada

Question: How would you rank the following in terms of their priority for Canada to address, from most important (1) to least important (6).



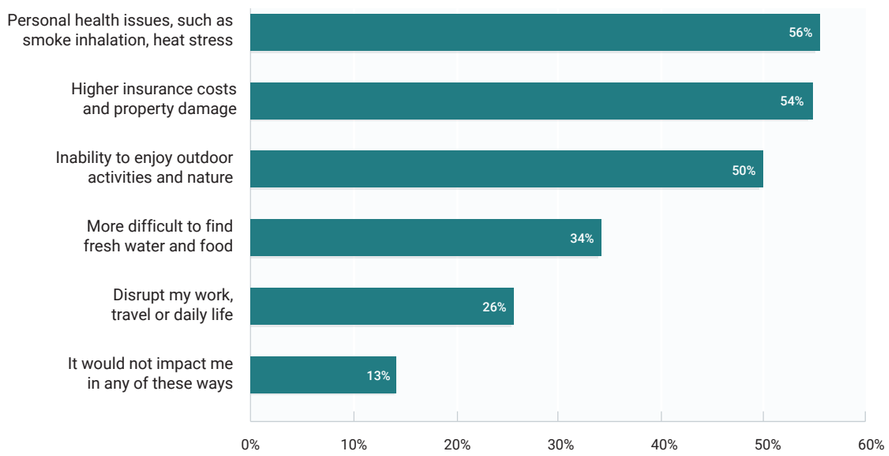
Source: Kantar, RBC Climate Action Institute

- **That does not necessarily mean climate inaction.** Canadians are trying to reduce their carbon footprint in measures they can control: avoiding air travel and cutting meat consumption. Strong majorities either reduced or intend to reduce consumption or boost recycling efforts (84%), cut home-energy usage (77%), while roughly half changed or intended to change their travel habits (51%) and diets (49%).

- **Weather over climate:** Around 60% of respondents would place greater emphasis on climate action if extreme weather events were even more frequent. Canada's last three wildfire seasons were among the worst according to federal records dating back to 1970.[119] As the survey suggests, the frequency and intensity has had an immediate impact on the quality of life for many Canadians.

Impact on you of continued extreme weather events

Question: If extreme weather events continue in the future, in what ways do you believe it would impact you?



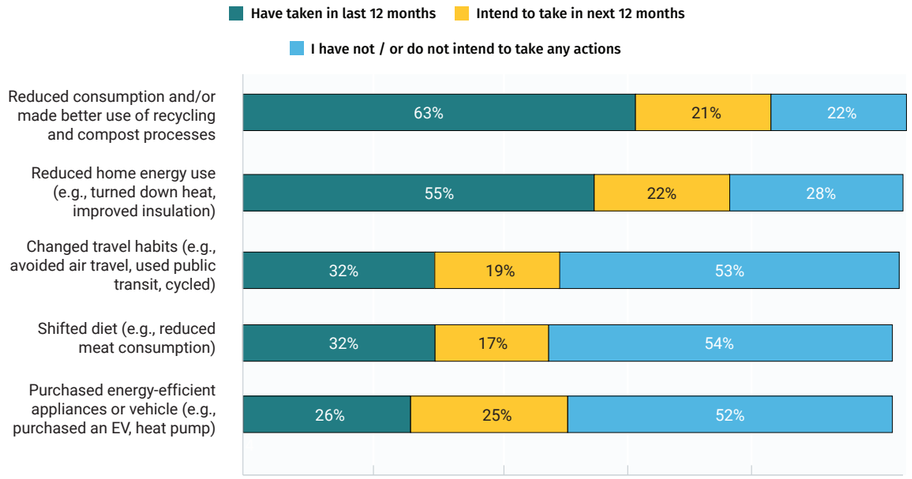
Base: All respondents (n=2000)

Source: IPSOS, RBC Climate Action Institute

- **Canadians want wildfire-containment action:** Personal health (56%), including smoke inhalation and heat stress, topped the list of concerns from wildfires, followed by property damage and insurance costs (54%), and the inability to enjoy outdoor activities and nature (50%).

Canadians are leaning on cutting back on consumption to lower their carbon footprint

Question: Looking backward or forward 12 months, which of the following actions have you taken, or intend to take, with the explicit goal of reducing your personal greenhouse gas emissions? (Select all that apply)



Base: All respondents (n=200)

Source: Kantar, RBC Climate Action Institute

The challenge for policymakers and business leaders will be to harmonize environmental goals with other priorities and ensure economic growth does not override climate priorities.

Photo: Adobe Stock

GOVERNMENT ANALYSIS

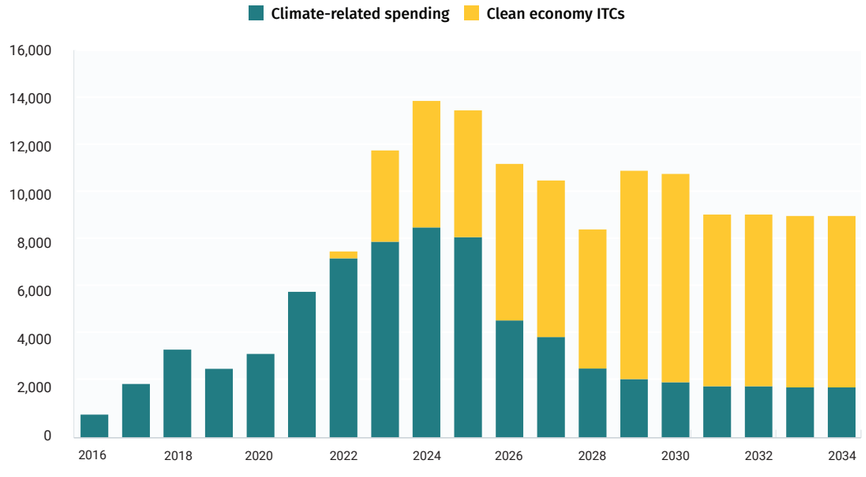
Tracking government policy, intent and action

What federal government budgets and throne speeches reveal over the years

Consumer carbon pricing—scrapped. Electric vehicle mandate—delayed. Oil and gas emissions cap—all but gone. The headlines suggest Canada's climate ambition is in retreat. However, much of the climate action-enabling capital has already been locked and loaded, with an estimated nearly $100 billion worth of incentives—by our count—ready to be deployed between now and 2035 for clean-tech and climate programs and initiatives.[120]

Federal government's climate-related financial support

Millions C$, budgeted climate-related funding & expenditures by announced timeframe*



*Climate related funding & expenditures includes announced plans towards climate-related initiatives. These include transfer payments, program spending, tax expenditures, and select public financing. Expenditure amounts are equally spread over timeframe as announced in the budgets. For select items expenditure amounts are distributed over the years as prescribed in the budgets.

Source: RBC Thought Leadership

As part of the Climate Action Report 2026, we analyzed the various federal government's climate policy and commitments over the decades.

For the Canadian Government Climate Sentiment we used OpenAI's advanced reasoning models to curate and analyze contextual framing of climate and related topics to assess government resolve around climate.

Federal budgets: evolving climate narrative

Our research applied the analysis to federal government budgets across three main categories: narrative (references to climate trends and past actions), policy, commitments and plans signalling government intentions, and new funding announcements.

Canadian government climate sentiment

Number of climate focused sections in federal budgets by contextual focus

Source: RBC Thought Leadership

- **The Trudeau years were packed with talk—and action.** Climate talk hit its highest levels during the pandemic years. Justin Trudeau's Liberal government started strong with a number of climate focused funding announcements in its first federal budget in 2016 to about $6 billion, according to our count.[121]

- **Climate funding has been frontloaded.** Since 2016, cumulative budgeted climate-related spending has risen to $150 billion. Clean economy Investment Tax Credits of around $78 billion as initially announced are already in place and will support adoption of low-carbon technologies for another decade into the 2030s.[122] Program spending, transfer payments and other tax expenditures accounted for another $70+ billion in financial support.[123]

No government, no sector, no company, even no brilliant inventor can solve climate change, or even drive significant progress, on their own. Climate action stands among the biggest collective needs humanity has faced. It ignores no one, and therefore must somehow engage everyone.

Photo: Adobe Stock

Methodology

1. Climate Action Barometer

How we calculated the Climate Action Barometer
The Climate Action Barometer is our diagnostic tool designed to track economy-wide climate action across six key drivers of change. These drivers, or themes are Policy, Capital, Consumer Action and Sentiment, Industry Action and Sentiment, Emissions and Technology. Each theme consists of progress indicators that measure key decarbonization policies and activities. Our choice of progress indicators was dictated by the availability of good quality time series proprietary or third-party data.

The Barometer measures annual changes in climate action, starting from 2019. That year was chosen as the baseline as it marked the start of federal climate policies—aligned to the Paris Agreement of limiting global temperature increases to well below 2 degrees Celsius above pre-industrial levels—and data collection efforts by governments and third-party data providers to track climate action. We also chose 2019 as the baseline year to limit skewing of results from pandemic-induced historic lows in emissions.

The progress indicators, as described further, for each of the six themes track a combination of annual changes. Stock is a snapshot of quantity at a specific point in time, while flow shows the rate of change in a stock. We measure annual flows for the Consumer Action and Sentiment, Industry Action and Sentiment, Emissions and Capital themes. The Policy and Technology themes are measured using a stock approach.

As we continue to advance our measurements and data used in constructing the Climate Action Barometer, we apply changes retrospectively across all years where applicable and comparative figures have been restated where applicable. The more significant changes made this year are described in each section below. While the restatement of prior periods have impacted the thematic and overall values, they have not changed the directional trending.

How the Barometer was constructed
The Barometer is constructed using a two-step approach. For each theme, we sum up the values of all progress indicators, on an annual basis. We then index the aggregate values to the baseline year and apply each theme's weight to the indexed value to derive an annual thematic score. All the thematic scores, for each year, are then added together to derive a single annual score. Each theme's weight in the Barometer, a description of its progress indicators, and additional thematic specific calculations are outlined below.

A. Policy Ambition (15% weight)
Policy scores are based on projected emission declines resulting from the implementation of government policies, as projected by the Environment and Climate Change Canada's annual emissions projections. These projections include two scenarios: Reference Case and Additional Measures scenarios. For each year of the Barometer, we calculate the difference between reported emissions for 2005 and projected emissions into 2035 for both scenarios. Resulting projected absolute emissions reductions for each scenario are first indexed and then aggregated with equal weights.

Emissions projections have been informed by the Intergovernmental Panel on Climate Change (IPCC) standards and external expert views, use recent data, and apply internationally recognized energy and macroeconomic modelling framework (that incorporates ENERGY 2020 model, and Oxford Economics' North America Economic Model, as described in Canada's First Biennial Transparency Report under the Paris Agreement submission to United Nations Framework Convention on Climate Change (UNFCC).

We use projections that do not include contribution from Land Use, Land-Use Change and Forestry, agriculture measures or carbon credits from the Western Climate Initiative. For 2019, 2020 and 2021 emissions projections are available only until 2030, which required us to make assumptions about subsequent years. For these years, we have applied the average annual change between 2026-2030 to extend the series into 2035.

What is different this year: In the absence of updated scenario projections for 2025, we had to make certain assumptions. For 2025, we adjusted the latest pathways by an estimated impact on emissions reduction published by the Canadian Climate Institute's study 2024 Independent Assessment of Carbon Pricing Systems. This approach is borrowed from Climate Action Tracker's latest country evaluation for Canada—an independent scientific project that tracks government climate action and measures it against the globally agreed Paris Agreement goals, and is a collaboration of two organizations, Climate Analytics and NewClimate Institute.

B. Investment and Spending (Capital) (15% weight)
Investment and Spending includes both public and private capital directed toward low-carbon technologies, measured in dollars.

Private capital, which is sourced from BloombergNEF's Energy Transition Investment Trends, tracks investments in the low-carbon energy transition, covering a wide scope of sectors central to the transition, from renewables and energy storage to hydrogen, CCUS and electrified transport. Data is updated annually, typically in January of each year, with mid-year updates available for renewable energy investments. For 2025, we applied the average of the period between 2022-2024 where data has not yet been released and included estimates from the mid-year update for renewable energy.

For public spending, we track climate-related funding and expenditures announced in the budgets of the federal government and the four largest provinces—British Columbia, Alberta, Ontario and Quebec. These include announced plans towards climate- and environment-related initiatives focused on decarbonization, innovation, energy efficiency, fuel switching, clean and low-carbon technology manufacturing and deployment, skills, research and planning. These include transfer payments, program spending, tax expenditures, and selected public financing. Total expenditure amounts are equally spread over the timeframe announced in the budgets. For select items, expenditure amounts are distributed over the years prescribed in the budgets.

What is different this year: Previously, Clean Economy Investment Tax Credits were included in public spending. In 2025, we have updated our methodology to exclude Clean Economy Investment Tax Credits from public spending as these are captured in private capital. This change in methodology was applied retrospectively.

C. Action and Sentiment (Industry: 20% weight; Consumer: 20% weight)
Action and Sentiment tracks industry and consumer adoption of clean and low-carbon technologies and climate sentiment measures. Industry action and sentiment contributes to 20% of the index's weight, and another 20% is derived from consumer action and sentiment. Within industry and consumer segments, action and sentiment are weighted 75% and 25%, respectively.

Business technology adoption consists of renewable deployment (wind and solar), carbon capture and sequestration volumes, and adoption of low-carbon commercial vehicles. Consumer technology adoption tracks the purchase of personal electric vehicles and residential heat pumps. Each progress indicator is converted to a common unit of measurement—tonnes of carbon dioxide equivalent (CO_2e) abated.

Industry sentiment tracks (i) the percentage of companies that make up the S&P/TSX Composite with stated emissions reduction targets, and (ii) the challenges organizations face around capital, technology and regulations. For (i) and (ii), the share of companies that make up the S&P/TSX Composite that have disclosed emissions targets to the Carbon Disclosure Project (CDP) or claim a net-zero target based on data from the Bloomberg terminal is indexed to base year. For (ii), we obtain from our business surveys the share of respondents that cite access to capital, technology or regulatory uncertainties among the top three challenges to implementing an emissions reduction strategy–which are indexed and inversed such that fewer mentions positively contribute to the score. We take the average of the two indicators.

Consumer technology adoption tracks the purchase of personal electric vehicles and residential heat pumps. Each progress indicator is converted to a common unit of measurement—tonnes of carbon dioxide equivalent (CO_2e) abated. Consumer sentiment tracks the importance of climate relative to other issues such as housing affordability, healthcare and macroeconomic conditions from our consumer surveys. The relative rank of climate is scored between 0 and 1, which is indexed to the base year.

What is different this year: we have substituted our initial heat pump adoption estimates with statistics from The Heating, Refrigeration and Air Conditioning Institute of Canada on central heat pump and ductless split system shipments and used various proxies to estimate total value for heat pump adoption, which impact the consumer action score. The change has been made retrospectively, and prior years figured have been restated.

D. Emissions (20% weight)
The Emissions score tracks changes in both absolute emissions and emissions intensity, which are weighted equally when calculating the theme score.

Canada's total national absolute emissions are sourced from the Canadian federal government's National Inventory Reports (NIR) that are prepared and submitted annually to the United Nations Framework Convention on

Climate Change (UNFCCC), in accordance with the UNFCCC Reporting Guidelines up to the 2023 edition, and using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories since 2024. The 2025 NIR, which tracks greenhouse gas emissions data between 1990–2023, was published by the federal government in March 2025.

Emissions intensity is calculated on a real GDP basis using total Canadian GDP value. Real GDP for 2025 is projected to grow by 1.2% according to RBC Economics.

As they are not included in the latest NIR, we estimate national emissions for 2024 and 2025 as described below. The NIR provides a breakdown of national emissions by economic sector—oil and gas, electricity, transport, heavy industry, buildings, agriculture, waste, and others sectors. We therefore estimate the emissions for each economic sector and sum these to arrive at the estimated national emissions.

Sectoral emissions for oil and gas, electricity, and transportation are based on estimates as described in the methodology section for the relevant Sectoral Climate Action Index. Emissions for 2024 for heavy industry, buildings, agriculture, waste and other sectors are taken from the latest independent Early Estimate of National Emissions, which is published by the Canadian Climate Institute in collaboration with Stiebert Consulting. For 2025, we calculate the year-over-year percentage change for each sector between 2024 and the most up-to-date 2025 data from the greenhouse gas emissions projections published by Environment and Climate Change Canada on February 26, 2025, and apply the percentage change to the 2024 values.

Both absolute and intensity-based emissions are indexed and then aggregated using equal weights. Final scores are inverted, such that decreasing emissions contribute positively to the emissions score.

E. Technology (10% weight)
The Technology score tracks the adoption readiness of major anticipated technologies: CCUS, hydrogen, small modular nuclear reactors, utility scale batteries and anerobic digestors.

In evaluating the adoption readiness of various technologies, we used a similar approach to the U.S. Department of Energy's Adoption Readiness Assessment. Our research team selected 8 criteria: (1) price, (2) development stage, (3) infrastructure, (4) technological maturity, (5) supply chains, (6) regulatory environment, (7) market opportunity, and (8) market competitiveness – that are aimed at illustrating the viable ecosystem for the commercial deployment of the technology through market forces. Our research team attempts to evaluate each technology across the above criteria on a 1 to 4 scoring scale, where the lowest score is meant to illustrate the following:

1. no pricing signal;
2. R&D development stage;
3. no available infrastructure for deployment;
4. Global Technology Readiness Level from Energy Technology Perspectives published by the International Energy Agency;
5. no upstream or downstream value chains;
6. no regulations or environment;
7. lack of target market;
8. limited viability and only via government support.

Below is an example of what scoring is attempted to illustrate for pricing criteria:

- Score of 1: Price level continues to fluctuate with no benchmark level
- Score of 2: Technology reached a benchmark cost level which is substantially higher than alternatives
- Score of 3: Technology cost exhibits a declining trajectory
- Score of 4: Technology is cost competitive with alternatives

To gauge development stages, we also utilized data sets from Emissions Reduction Alberta, CleanBC, and Quebec's Technoclimat, as well as publicly available information that informed us about the number and progress status of related low-carbon projects.

Each technology score is weighted by its emissions reduction potential, which is determined by our estimate of total emissions from sources where these technologies could be applied.

2. Sectoral Climate Action Indices

The Sectoral Climate Indices is our diagnostic tool designed to track sector specific climate action across four key drivers (themes) of change—Policy, Action, Capital and Emissions—across six sectors: agriculture, buildings, electricity, heavy industry (comprising mining, smelting and refining (non-ferrous metals), pulp and paper, iron and steel, cement, and chemicals and fertilizers), oil and gas, and transportation.

Each theme's contribution to each sector's index score is equally weighted at 25%. Similar to the Climate Action Barometer, each theme consists of progress indicators that measure key decarbonization policies and activities for that theme. The choice of progress indicators was dictated by the availability of good quality time series proprietary or third-party data.

The measurement timeframe is from 2019 to 2025. Progress indicators track annual changes in stock or flow. Data values for 2025, and in some cases 2024, are estimates, based on projections or annualized year-to-date data, if applicable. Where data for a given year is unavailable, estimates are derived based on projections or annualized year-to-date data.

The index values are calculated and derived using the same approach as for the Climate Action Barometer. Each theme's index weight, a description of its progress indicators, and additional thematic specific calculations are outlined below.

A. Policy (25% weight)
Policy is scored both qualitatively and quantitatively across three policy mechanisms:

Carbon pricing references changes in the federal benchmark carbon price. Scoring is a function of both the nominal price of the carbon tax and the scope of GHG emissions coverage subject to the carbon tax.

Fiscal spending is qualitatively scored and takes into account direct and indirect spending by the federal and provincial governments.

Non-fiscal support (regulations, targets, etc.) encompasses policy measures impacting climate action. A maximum of three measures are selected and scored on policy progress (e.g., issuance of consultation paper, draft legislation and/or regulations, enacted legislation/regulations). Scoring is done both at the federal and provincial levels.

B. Action (25% weight)
The Action theme tracks each sector's key climate mitigation practices as aligned with GHG emission sources, according to Canada's official NIR.
Action metrics are aggregated as a physical metric, such as square footage for buildings or megawatts for electricity. If metrics cannot be aggregated into one physical unit, either the emissions abatement potential is used as a proxy (e.g., carbon emissions reduced), or each specific metric is indexed and then aggregated into one composite value (e.g., indexed to allow for comparability).

The sector specific progress indicators are noted below.

Agriculture
The agriculture's sector emissions come from three main sources (animal production, crop production, and on-farm fuel use). Through consultations with industry experts and reviewing the breakdown of GHG emission source lines presented in the NIR, the Climate Action Institute team selected six indicators that represent key climate actions in the sector that correlate with reported emissions:

- Reduction in on-farm diesel use
- Adoption of 4R Nutrient Stewardship Plan to improve fertilizer use
- Advancements in herd management that lead to herd size reductions
- Improvements in milk production per dairy cow
- Increases in meat production per animal to reduce animals required
- Adoption of reduced and no tillage

Buildings
Building action metrics are selected to represent emissions reduction initiatives across the major sources of sector emissions, i.e. embodied emissions (action metric: adoption of low-carbon construction materials, e.g., mass timber), emissions from energy consumption (action metrics: residential heat pump adoption and fossil fuel based home heating system deployment), and energy efficiency (action metric: new or retrofit of industrial, commercial and institutional (ICI) buildings that are LEED certified). As a result, our progress indicators for the sector focus on these areas:

- Residential heat pump adoption
- New or retrofit of ICI buildings that are LEED certified
- New ICI buildings constructed with low-carbon building materials, e.g. mass timber
- Fossil fuel home heating systems deployment (new)

Electricity
After a review of historical emissions from the most recent NIR, we identified that the majority of emissions decline within the sector was driven by the phaseout of coal generation in Canada. From a climate action perspective, this has been complemented by the buildout of solar and wind capacity. As a result, our progress indicators for the sector focus on these areas:

- Capacity additions in solar and wind power
- Reductions in coal-powered electricity generation

Heavy Industry
In our report, Canada's heavy industry sector comprises mining, smelting and refining (non-ferrous metals), pulp and paper, iron and steel, cement, and chemicals and fertilizers. Each of these sectors has unique decarbonization challenges, requires different technologies to decarbonize, and are largely still at nascent stages of technology deployment (e.g., low-emissions hydrogen, alternative feedstocks for cement manufacturing, non-emitting smelting technologies), resulting in a paucity of robust data to quantify emissions reduction

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- Reductions in coal-powered electricity generation

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- Changes in emissions intensity of final energy consumption
- Changes in emissions intensity of industrial production

Oil and Gas
Our oil and gas action metrics align with the largest historical source of emissions in the sector as detailed in the NIR (i.e., the Athabasca oil sands, and methane emissions within conventional oil and gas production). As a result, our progress indicators for the sector focus on these areas:

- Carbon sequestration from carbon capture applied to oil and gas facilities.
- Volumes of gas flared and vented
- Changes in steam-to-oil ratios

Transportation
Passenger cars, and medium- and heavy-duty vehicles account for 80% of the transportation sector's emissions. We identify electrification in the form of EV (defined as battery and plug-in hybrid electric vehicles) adoption as a primary driver of climate action, and hence track annual EV sales. We also include annual installations of public chargers, one of the main enabling factors of EV adoption. To account for relative size of the sales and total car stock that needs to be electrified, we also include internal combustion engine vehicle fleet size. Adoption, chargers and fleet size are equally weighted in construction of the action score. Our progress indicators for the sector focus on these areas:

- Adoption of passenger, medium- and heavy-duty EVs
- Deployment of public chargers
- Internal combustion engine vehicle fleet size (new)

C. Capital (25% weight)
Capital flows are aggregated across both the private and public sector.

Public sector climate spending is sourced from federal budgets and the budgets of the four largest provinces. Private sector spending includes climate-oriented private equity and venture capital fundraising and operator capital expenditures, where distinguishable.

The total dollar value of climate expenditures is aggregated and then adjusted relative to the level of capital expenditures required to achieve a net-zero transition—as outlined in The $2 Trillion Transition: Canada's road to net-zero. This adjustment to derive the final Capital score provides a more accurate comparison of capital progress across the six sectors.

What's new: The agriculture sector is also tracking agri-food supply chain investments in on-farm practice and technology adoption. These publicly disclosed annual investments are included in the annual capital accounting for the agriculture sector.

The buildings sector updated capital data for previous years with additional government spending on building decarbonization.

D. Emissions (25% weight)
The Emissions score tracks changes in both absolute emissions and emissions intensity.

Changes to both absolute and intensity-based emissions are indexed and then aggregated using equal weights. Final scores are inverted, such that decreasing emissions contribute positively to the emissions score.

Absolute emissions for each sector are sourced from the federal government's NIRs that are prepared and submitted annually to the UNFCCC, in accordance with the UNFCCC Reporting Guidelines up to 2023 edition, and using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories since 2024. The most recent NIR, which tracks greenhouse gas emissions data between 1990–2023, was published by the federal government in March 2025.

As they are not included in the latest NIR, we estimate sectoral emissions for 2024 and 2025 as follows:

Agriculture: Sector emissions are reported by Environment and Climate Change Canada's National GHG Emission Projections and supported by the Canadian Climate Institute's Early Estimate of National Emissions. The agriculture sector uses these reported estimates for absolute emissions.

Agriculture emissions intensity estimates are based on primary agriculture emissions and production outputs, covering on-farm nitrous oxide, carbon dioxide, and methane emissions from both crop and animal production. Emissions intensity is measured by dividing primary agriculture emissions (using the sources stated above for absolute emissions) by national total on-farm outputs, which is "agricultural production" (i.e., crops and animals in tonnes). The data sources for the estimated emissions intensity are annual emission estimates reported by Environment and Climate Change Canada in the National GHG Inventory Report and the National GHG Emission Projections, and annual agriculture production of crops and livestock are reported by Statistics Canada.

Buildings: Emissions are estimated based on the Canadian Climate Institute' Early Estimates of National Emissions and Environment and Climate Change Canada's 2024 Reference Case emissions projections. Emissions intensity estimates are defined as emissions (tonnes CO2 equivalent) per square meter of floor space. Emissions are sourced as noted above, and floor space data for residential and commercial buildings was sourced from Natural Resources Canada's Comprehensive Energy Use Database (NRCan). For years where NRCan estimates are unavailable, floor space was projected using a simple linear trend informed by recent historical growth, providing an indicative estimate aligned with current patterns in building activity.

Emissions intensities were calculated separately for the residential and commercial sectors, and rolled up into a single measure using a weighted average determined by floor space.

Electricity: Emissions for 2024 were taken from the Canadian Climate Institute's Early Estimate of National Emissions. For 2025, we estimated emissions based on our forecasted change in electricity generation from both coal and natural gas. Coal-powered electricity generation is estimated based on historical monthly reported data for coal use from Statistics Canada Table 25-10-0079-01, up to June 2025. For the second half of 2025, we take an average of the last three months of reported primary energy data (second quarter of 2025) and assume the same level of energy use for the second half of 2025.

Natural gas-powered electricity generation is estimated based on historical monthly reported data of natural gas based primary energy through Statistics Canada Table 25-10-0079-01 up to June 2025. For the second half of 2025, we take the trailing 12-month average of reported primary energy data as of June 30, 2025 and compare that percentage change relative to the trailing 12-month average of reported primary energy data as of June 30, 2024. That implied percentage increase is then applied to the total primary energy usage in 2024 to predict our value in 2025. The percentage share of total primary energy from natural gas usage is adjusted relative to historical trends to align with the NIR classification of electricity as an economic sector. This relationship is based on historical monthly generation under Statistics Canada Table 25-10-0015-01 and Statistics Canada Table 25-10-0084-01.

Emissions intensity is calculated as the sector's total GHG emissions divided by the total electricity generation in any given year.

Oil and Gas: Total sector emissions are driven primarily by changing volumes in production of oil and natural gas. For 2025, we derive our production data from Canada Energy Regulator data on the production of crude oil and equivalent and marketable produced gas volumes, annualized and adjusted for seasonality and aligned with RBC Capital Markets' fundamental supply and demand model for Canadian Oil and Gas production.

Emissions data is a bottoms-up build across oil sands, conventional liquids and conventional gas.

For oil sands, emissions projections are a function of the year-over-year change in production, as denoted in the Canada Energy Regulator production of crude oil and equivalent and aligned with the disclosed Steam to Oil ratios as disclosed under Alberta Energy Regulator Statistical Report ST53 and the resulting marginal decline in historical emissions intensity across Steam-Assisted Gravity Drainage (SAGD). For conventional liquids production, data is sourced from the Canada Energy Regulator production of crude oil and equivalent and calibrated with the historical trend in changing emissions intensity from 2020-2023 to predict emissions values based on estimated production. For natural gas, emissions data is a function of the year-over-year change in production, as denoted in the Canada Energy Regulator production of marketable natural gas production with emissions tracking the historical change in venting

and flared emissions. Venting and flared emissions are calculated based on historical emissions factors and reported volumes of flared and vented gas across the three major provinces of Alberta, Saskatchewan and British Columbia. For Alberta, vented and flared gas volumes are taken from Petrinex's Conventional Volumetric Data Download and calibrated with Alberta Energy Regulator historical data as denoted under Statistical Report ST60b. For Saskatchewan, vented and flared gas volumes are taken from Petrinex's Conventional Volumetric Data Download. For British Columbia, vented and flared gas volumes are taken from the BC Energy Regulator Well Flare and Facility Volumetrics data (BIL-311) report. Volumes of flared and vented gas are then calibrated to Canada's National Inventory Report and Statistical Annexes for each of the provinces, i.e., Alberta, Saskatchewan, and British Columbia as denoted under Table A11-19, Table A11-17 and Table A11-21, respectively. Predicted emissions for both flared and vented volumes are driven by the year-on-year change in reported and annualized volumes based on data reported through August 31, 2025, for Alberta, Saskatchewan and British Columbia. Volumes and emissions are then calibrated to Canada's National Inventory Report Table A9-2. Estimates for vented and flared emissions are based on volumes solely for Alberta, Saskatchewan and British Columbia as the three provinces accounted for 92% and 97% of reported flared and vented gas volumes in 2023, as reported under National Inventory Report Table A9-2. Emissions intensity is calculated as the sector's total GHG emissions divided by the total combined oil and gas production (barrels of oil equivalent) in any given year.

Transport: Sector emissions consist of five major categories: (1) cars, light trucks and motorcycles, (2) bus, rail and aviation, (3) heavy duty trucks, rail, (4) aviation and marine, and (5) other: recreational, commercial and residential.

Cars, light trucks and motorcycles, and heavy-duty trucks and rail make up about 80% of the sector emissions, which we attempt to estimate based on directional trends. For other categories we apply 10-year average for 2024 and 2025. We use data from IBIS World that provide total vehicle-kilometres driven (version published in Oct 2024), which represents "the total annual sum of kilometres driven by all motor vehicles over the calendar year." Further, we use 2009 Canadian Vehicle Survey Summary Report published by Natural Resources Canada, which breaks down kilometres driven by vehicle type–of which around 90% are travelled by light vehicles (gross vehicle weight less than 4.5 tonnes) and ~10% by medium and heavy trucks (gross vehicle weight between 4.5 and 15 t, and gross vehicle weight of 15 t or more). Using ICE vehicle fleet sizes for passenger and medium and heavy commercial vehicles, we derived historical emissions intensity per kilometre driven. Fleet size for passenger vehicles is sourced from Statistics Canada's Table 23-10-0308-01, and commercial vehicle fleet size is sourced from BloombergNEF's Long-Term Electric Vehicle Outlook 2025 dataset published in June 2025. Using the average of the derived ratio between 2021-2023, we estimate emission for both cars, light trucks and motorcycles, and heavy-duty trucks, rail categories for 2024 and 2025.

Sectoral emissions intensity is derived by ratio of total sectoral emissions and total vehicle-kilometres driven.

Heavy Industry: Emissions for 2024 were estimated using a combination of the Canadian Climate Institute's Early Estimate of National Emissions and Environment and Climate Change Canada's 2024 Reference Case Emissions projections.
Emissions for 2025 were held constant at 2024 levels, reflecting ongoing uncertainty in Canadian heavy industry output under U.S. tariffs. This approach helps ensure that any tariff-related declines in production, and the resulting emissions reductions (which are not driven by climate policy), do not artificially improve the emissions score.

We define emissions intensity in terms of kilotonnes of emissions (CO_2e) per kilotonne of industrial production across the following heavy industrial sub-sectors as stated in Canada's National Inventory Report: mining, smelting and refining (non-ferrous metals), pulp and paper, iron and steel, cement, and chemicals and fertilizers. Annual production figures (up to 2023) per sub-sector were sourced from the Canadian Energy and Emissions Data Centre, at Simon Fraser University, which are based on proprietary estimates as well as databases including World Steel and the Global Cement and Concrete Association. Annual emissions figures are sourced from the Canadian Climate Institute's Early Estimates of National Emissions. Emissions intensities per heavy industrial sub-sector were rolled up into a composite estimate using a weighted average, with weights corresponding to each sub-sector's contributions to Canada's heavy industry emissions across all stated sub-sectors.

Government Survey Methodology

The Climate Action Institute's team used federal budget documents between 2013 to 2025 to measure Canadian government climate sentiment.

First, we extracted sections from the table of contents from PDFs and matched respective texts from the documents.

Then we applied ClimateBERT—a large language model trained on climate-related research paper abstracts, corporate and general news and reports from companies—as a first-layer filter to classify and screen large volumes of text before applying more computationally intensive models.

Once filtered, we used OpenAI's GPT-5 reasoning model with high 'effort' specification to further evaluate filtered outputs. We fed detailed prompts with examples to identify whether a section is climate- or environment-related or not. In cases where it is, we further attempted to evaluate if the section outlines new climate- or environment-related funding, mentions new climate- or environment-related regulations and policies, commitments or plans, or refers to past actions and/or sets climate or environment as a contextual narrative. Additionally, based on the context of a section, we asked the reasoning model to classify it into one of six categories: Growth and Competitiveness; Mitigation, Net-Zero and Decarbonization; Energy Systems and Infrastructure; Adaptation and Resilience; Nature and Biodiversity; People, Jobs and Just Transition.

The count of the climate- or environment-related sections and breakdown by category or thematic focus was used to compile the sentiment value for the budget in a given year.

References

We relied on subscriber-only and public publications and data sets to inform our research and analysis. The references below are the public publications we accessed. The list excludes news articles, government legislation, regulations, policy directives, budgets and fall economic statements, regulatory and statutory reports, such as those published by auditor generals and the Parliamentary Budget Officer, climate strategic plans, such as the federal government's Emissions Reduction Plan, and data sets from federal and provincial departments.

Idea of the Year:
Climate Smart Buildings Alliance
David Messer, Executive Director, Climate Smart Buildings Alliance

Climate Action Barometer
Alberta Department of Energy and Materials, Quest Carbon Capture and Storage Project Annual Summary Reports.
BloombergNEF, Energy Transition Investment, 2025
BloombergNEF, Long-Term Electric Vehicle Outlook, 2025
Climate Action Tracker, Country Profiles: Canada
Canadian Climate Institute, 440 Megatonnes, Early Estimate of National Emissions
Canadian Federal Budgets, 2019-2024
Canadian Provincial Budgets, 2019-2025
Canadian Renewable Energy Association (CanREA), Energy Transition, By The Numbers
Environment and Climate Change Canada, National Inventory Report 1990-2023
Heating, Refrigeration and Air Conditioning Institute of Canada, Quarterly Statistics
International Energy Agency. ETP Clean Energy Technology Guide.
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Statistics Canada, New motor vehicle registrations.
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Agriculture and Agri-Food Canada. Historical Milk Production.
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Emissions Reductions Alberta. Projects, 2024.
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Office of the Auditor General of Canada. Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada - Agriculture and Climate Change Mitigation - Agriculture and Agri-Food Canada, 2024.
S&P Capital IQ, Transaction Screener
Statistics Canada. Supply and demand of primary and secondary energy in terajoules, annual.
Statistics Canada. Number of cattle, by class and farm type.
Statistics Canada. Cattle and calves, farm and meat production.
LSEG Refinitiv Workspace, Deals Screener
Trusted Advisor Partnership

Buildings
Natural Resources Canada National Energy Use Databases: Comprehensive Energy Use Database
Canadian Mortgage and Housing Corporation. Housing Supply Report, Spring 2024.
Green Building Council of Canada. Project Database.
Natural Resources Canada. Heat pumps uptake at a glance.

Statistics Canada. Table 38-10-0286-01 Primary heating systems and type of energy.
Intelligent City

Electricity
S&P Capital IQ PRO, Historical and Future Power Plant Capacity
Natural Resources Canada, Table A13-1, Electricity Generation and GHG Emission Details
Statistics Canada, Consolidated Energy Statistics (Table 25-10-0079-01)
Canadian Renewable Energy Association (CanREA), Energy Transition, By The Numbers
Statistics Canada, Electric Power Generation, Fuel Consumed and Cost of Fuel By Electricity Generating Thermal Plants (Table 25-10-0084-01)
Statistics Canada, Electric Power Generation By Type of Electricity (Table 25-10-0015-01)
Statistics Canada, Installed Plants, Annual Generating Capacity By Type of Electricity Generation (Table 25-10-0022-01)
Alberta Electric System Operator, Historical Generation
Alberta Electric System Operator, Current Supply Demand Report
Government of Alberta, Alberta Major Projects Database
Environment and Climate Change Canada, National Inventory Report 1990-2023
S&P Capital IQ, Transaction Screener
LSEG Refinitiv Workspace, Deals Screener
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Canadian Provincial Budgets, 2019-2024
Government of Canada, Various Enacted and Proposed Legislation
RBC Thought Leadership, The $2 Trillion Transition: Canada's Road to Net Zero
BloombergNEF, Climate-Tech Investment Database
Canadian Climate Institute, 440 Megatonnes
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Canadian Energy and Emissions Data Centre, Simon Fraser University
Global Cement and Concrete Association
World Steel Association
Natural Resources Canada National Energy Use Databases: Comprehensive Energy Use Database
Natural Resources Canada, Minerals and Metals Division
Pulp and Paper Products Council
Elysis

Oil and Gas
Government of British Columbia, Environmental Assessment Office
Petrinex, Conventional Volumetric Data Download
British Columbia Energy Regulator, Data Centre
Statistics Canada, Supply and Disposition of Natural Gas (Table 25-10-0055-01)
Statistics Canada, Supply and Disposition of Crude Oil and Equivalent (Table 25-10-0063)
Canada Energy Regulator, Marketable Natural Gas Production in Canada
Canada Energy Regulator, Estimated Production of Canadian Crude Oil and Equivalent
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Alberta Energy Regulator, ST39, Alberta Mineable Oil Sands Plant Statistics
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Alberta Energy Regulator, ST60b, Upstream Petroleum Industry Emissions Report
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Forward-looking statements are typically identified by words such as "believe", "expect", "aim", "achieve", "suggest", "seek", "forecast", "schedule", "anticipate", "estimate", "commit", "goal", "plan", "objective", "target", "outlook" and "project" and similar expressions of future or conditional verbs such as "will", "may", "should", "could", "can" or "would" or negative or grammatical variations thereof.

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We caution readers not to place undue reliance on these statements as a number of risk factors could cause the actual results to differ materially from the expectations expressed in such forward-looking statements. These factors – many of which are beyond our control and the effects of which can be difficult to predict – include: the need for more and better climate data and standardization of climate-related measurement methodologies, the need for active and continuing participation and action of various stakeholders (including governmental and non-governmental organizations, other financial institutions, businesses and individuals), technological advancements, the evolution of consumer behaviour, evolving social views on climate and sustainability-related topics, varying decarbonization efforts across economies, the need for thoughtful climate policies around the world, the challenges of balancing emission reduction targets with an orderly, and inclusive transition and geopolitical factors that impact global energy needs. We caution that the foregoing list of risk factors is not exhaustive.

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of this report may subsequently turn out to be inaccurate. In addition, many of the assumptions, estimates, standards, taxonomies methodologies, scenarios, metrics and measurements used in preparing the analyses contained in this report continue to evolve and may differ significantly from those used by other companies and those that may be used by us in the future. Legislative and regulatory changes, market developments, technological, economic and political changes and/or changes in data availability and reliability could also materially affect these assumptions, estimates, standards, taxonomies, methodologies, scenarios, metrics and measurements used by us and/or other companies, and could therefore materially affect the comparability of the information and data across industries or companies and from one report to a subsequent report.

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Endnotes

[1]Canada’s official greenhouse gas inventory - Canada.ca
[2]We track climate related funding and expenditures announced in the budgets of the federal government and the four largest provincial governments (British Columbia, Alberta, Ontario and Quebec). This includes announced plans towards climate- and environment-related initiatives focused on decarbonization, innovation, energy efficiency, fuel switching, clean and low-carbon technology manufacturing and deployment, skills, research and planning. It also includes transfer payments, program spending, tax expenditures, and select public financing. Total expenditure amounts are equally spread over timeframe announced in the budgets. For select items, expenditure amounts are distributed over the years as prescribed in the budgets.
[3]Refer to endnote 2.
[4]Angus Reid Institute: Environment & Climate Change
[5]Emissions intensity for the electricity sector is calculated as the sector's total GHG emissions divided by the total electricity generation in any given year. Emissions for 2024 were taken from the Canadian Climate Institute's Early Estimate of National Emissions. For 2025, we estimated emissions based on our forecasted change in electricity generation from both coal and natural gas. For information on how we forecasted the changes in electricity generation from coal and natural gas, refer to the Methodology section: Sectoral Climate Action Indices, Section D. Emissions - Electricity.
[6]For buildings, emissions intensity estimates are defined as emissions (tonnes CO2 equivalent) per square meter of floor space. Emissions data was sourced from the Canadian Climate Institute’s Early Estimates of National Emissions and Environment and Climate Change Canada’s 2024 Reference Case emissions projections. Floor space data for residential and commercial buildings was sourced from Natural Resources Canada’s Comprehensive Energy Use Database. For years where NRCan estimates were unavailable, floor space was projected using a simple linear trend informed by recent historical growth, providing an indicative estimate aligned with current patterns in building activity. Emissions intensities were calculated separately for the residential and commercial sectors and rolled up into a single measure using a weighted average determined by floor space.
[7]Total oil and gas production in 2025 is derived from Canada Energy Regulator data on the production of crude oil and equivalent and marketable produced gas volumes, annualized and adjusted for seasonality and aligned with RBC Capital Markets’ fundamental supply and demand model for Canadian oil and gas production. Total oil and gas emissions are summed up from estimated emissions as noted in detail in Endnotes 81-85.
[8]Agriculture emissions intensity estimates are based on primary agriculture emissions and production outputs, covering on-farm nitrous oxide, carbon dioxide, and methane emissions from both crop and animal production. Emissions intensity is measured by dividing primary agriculture emissions by national total on-farm outputs (i.e., crops and animals in tonnes). The data sources for the estimated emissions intensity are annual GHG emission estimates reported by Environment and Climate Change Canada in the National GHG Inventory Report and the National GHG Emission Projections, and annual agriculture production of crops and livestock are reported by Statistics Canada.
[9]Transportation sector emissions consist of five major categories: (1) cars, light trucks and motorcycles, (2) bus, rail and aviation, (3) heavy-duty trucks, rail, (4) aviation and marine, and (5) other: recreational, commercial and residential. Cars, light trucks and motorcycles, and heavy-duty trucks and rail make up about 80% of the sector emissions, which we attempt to estimate based on directional trends. For other categories we apply 10-year average for 2024 and 2025. We use data from IBIS World that provide total vehicle-kilometres driven (version published in Oct 2024), which represents “the total annual sum of kilometres driven by all motor vehicles over the calendar year.” Further, we use 2009 Canadian Vehicle Survey Summary Report published by Natural Resources Canada, which breaks down kilometres driven by vehicle type–of which around 90% are travelled by light vehicles (gross vehicle weight less than 4.5 tonnes) and ~10% by medium and heavy trucks (gross vehicle weight between 4.5 and 15 t, and gross vehicle weight of 15 t or more). Using ICE vehicle fleet sizes for passenger and medium and heavy commercial vehicles, we derived historical emissions intensity per kilometre driven. Fleet size for passenger vehicles is sourced from Statistics Canada’s Table 23-10-0308-01, and commercial vehicle fleet size is sourced from BloombergNEF’s Long-Term Electric Vehicle Outlook 2025 dataset published in June 2025. Using the average of the derived ratio between 2021-2023, we estimate emissions for both cars, light trucks and motorcycles, and heavy-duty trucks, rail categories for 2024 and 2025. Sectoral emissions intensity is derived by ratio of total sectoral emissions and total vehicle-kilometres driven.
[10]For heavy industry, we define emissions intensity in terms of kilotonnes of emissions (CO2e) per kilotonne of industrial production across the following heavy industrial sub-sectors as stated in Canada’s National Inventory Report: mining, smelting and refining (non-ferrous metals), pulp and paper, iron and steel, cement, and chemicals and fertilizers. Annual production figures

(up to 2023) per sub-sector were sourced from the Canadian Energy and Emissions Data Centre, at Simon Fraser University, which are based on proprietary estimates as well as databases including World Steel and the Global Cement and Concrete Association. Annual emissions figures are sourced from the Canadian Climate Institute's Early Estimates of National Emissions. Emissions intensities per heavy industrial sub-sector were rolled up into a composite estimate using a weighted average, with weights corresponding to each sub-sector's contributions to Canada's heavy industry emissions across all stated sub-sectors.

[11]TMX Pipeline emissions are as disclosed in TMX's 2024 ESG report. LNG Canada Phase 1 emissions data is sourced from British Columbia's Environmental Assessment Office (EPIC database), as detailed in the Greenhouse Gas Management Technical Data Report Table 6.0-1. Total oil and gas emissions calculation is shown in greater detail in Endnote 81 and methane emissions (venting) are shown in greater detail in Endnote 84 and 85. Emissions intensity measures emissions per unit of production, compared to total emissions.

[12]Climate Watch: Historical GHG emissions

[13]Latest available global emissions data is from 2022.

[14]IEA: World Energy investment 2025

[15]Record monthly EV sales, breaking the two million mark

[16]Emissions Gap Report 2024 | UN Environment Programme

[17]Climate Change: Global Temperature | NOAA Climate.Gov

[18]India Sees Emissions Peaking in 2045 Under New Climate Plan - Bloomberg

[19]Carbon Capture Utilisation and Storage - Energy System - IEA

[20]Biofuels - Energy System - IEA

[21]Greenhouse gas emissions - Canada.ca

[22]Global land and carbon consequences of mass timber products | Nature Communications

[23]Home - Canada Plastics Pact NEW

[24]Responsible Buildings Pact – 2025-26 Pilot Year 2 Terms of Reference

[25]Responsible Buildings Pact Annual Report

[26]Canada partners with Heidelberg Materials to drive cement industry decarbonization - Canada.ca

[27]We track climate related funding and expenditures announced in the budgets of the federal government and the four largest provincial governments (British Columbia, Alberta, Ontario and Quebec). This includes announced plans towards climate- and environment-related initiatives focused on decarbonization, innovation, energy efficiency, fuel switching, clean and low-carbon technology manufacturing and deployment, skills, research and planning. It also includes transfer payments, program spending, tax expenditures, and select public financing. Total expenditure amounts are equally spread over timeframe announced in the budgets. For select items, expenditure amounts are distributed over the years as prescribed in the budgets.

[28]Pembina Institute, Renewable energy project cancellations in Alberta hit alarming milestone

[29]Based on data from BloombergNEF's Energy Transition Investment and Asset Finance datasets, and increased planned projects capacity between late 2023 and now, by our count, in eastern provinces using power plant level data from S&P Capital IQ.

[30]Statistics Canada, Table 20-10-0085-01

[31]The total estimated value for heat pump adoption was calculated using quarterly statistics from The Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) on central heat pump and ductless split system shipments, and applying various proxies, such as heat pump to A/C only ratio based on previously reported ductless split system shipments.

[32]Government of Ontario, Ontario Launches New Energy Efficiency Programs to Save You Money

[33]Internal RBC Social Values Survey.

[34]Refer to Climate Action Barometer methodology on estimation of emissions and emissions intensity. Absolute emissions are sourced from the Canadian federal government's NIR that are prepared and submitted annually to the United Nations Framework Convention on Climate Change (UNFCCC), in accordance with the UNFCCC Reporting Guidelines up to 2023 edition, and using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories since 2024. Emissions intensity is calculated on a real GDP basis. Real GDP for 2025 is projected to grow by 1.2% according to RBC Economics. For 2024 and 2025, emissions are estimated as following: national emissions are a sum of economic sectors' emissions as described in NIR. Sectoral emissions for oil and gas, electricity, and transportation are based on estimates as described in the methodology section of Sectoral Climate Action Indices. Emissions for 2024 for heavy industry, buildings and agriculture are taken from the latest independent Early Estimate of National Emissions published by Canadian Climate Institute in collaboration with Stiebert Consulting; for 2025, we apply the year-over-year change from 2024 for each sector derived from the latest (Feb 26, 2025 version) Greenhouse gas emissions projections published by Environment and Climate Change Canada (ECCC).

[35]Agriculture and Agri-Food Canada. Living Lab — Atlantic research solidifies enhanced efficiency fertilizer as a win-win for farmers and the environment, 2023.

[36]Bloomberg NEF. Regenerative Agriculture Dashboard, 2025.

[37]Agriculture emissions intensity estimates are based on primary agriculture emissions and production outputs, covering on-farm nitrous oxide, carbon dioxide, and methane emissions from both crop and animal production. Emissions intensity is measured by dividing primary agriculture emissions by national total on-farm outputs (i.e., crops and animals in tonnes). The data sources for the estimated emissions intensity are annual GHG emission estimates reported by Environment and Climate Change Canada in the National GHG Inventory Report and the National GHG Emission Projections, and annual agriculture production of crops and livestock are reported by Statistics Canada.

[38]National annual agriculture emissions are reported by Environment and Climate Change Canada in the National Inventory Report 1990-2023 (2025) and the 2024 and 2025 estimated emissions are reported by Environment and Climate Change Canada in the National GHG Emission Projections (2025).

[39]The GHG National Inventory Report does not account for all climate-smart practices in agriculture. The challenge is documented in the annual NIR report with plans to address it in the coming years through improved activity data and research that informs emission factors.

[40]Environment and Climate Change Canada (ECCC). Canada's Greenhouse Gas Offset Credit System: Protocols, 2025.

[41]Prime Minister Carney launches new measures to protect, build, and transform Canadian strategic industries, 2025.

[42]Paustian, K. et al. Climate Smart Soils. Nature, 2016.

[43]Statistics Canada. Census Of Agriculture, 2021.

[44]World Business Council for Sustainable Development. Scope 3 land-based emissions.

[45]These benefits can take several years to have real on-farm impacts and are based on peer-reviewed research including Xing et al., 2025.

[46]Emissions decline is estimated based on the percentage change in CO2e emissions between 2019 and 2025. Emissions figures are sourced from the Canadian Climate Institute' Early Estimates of National Emissions and Environment and Environment and Climate Change Canada's 2024 Reference Case emissions projections. Emissions intensity estimates are defined as emissions (tonnes CO2 equivalent) per square meter of floor space. Floor space data for residential and commercial buildings was sourced from Natural Resources Canada's Comprehensive Energy Use Database. For years where NRCan estimates were unavailable, floor space was projected using a simple linear trend informed by recent historical growth, providing an indicative estimate aligned with current patterns in building activity. Emissions intensities were calculated separately for the residential and commercial sectors and rolled up into a single measure using a weighted average determined by floor space.

[47]Estimates of LEED-certified floor stock and mass timber use were obtained from the Canada Green Building Council Project Database and the State of Mass Timber in Canada Database respectively.

[48]Heat Pumps Uptake At A Glance - Natural Resources Canada

[49]Primary Heating Systems And Type Of Energy

[50]The reduction in private capital inflow was based on in-house analysis of Bloomberg New Energy Finance's Climate Tech Investment Database.

[51]Ontario's New and Expanded Energy Efficiency Programs

[52]Emissions reductions estimates are based on Environment and Climate Change Canada's Greenhouse Gas Emissions projections under the 2024 Reference Case scenario.

[53]High Rise, Low Carbon: Canada's $40 billion Net Zero building challenge

[54]Mass timber construction in Canada - Natural Resources Canada

[55]Mass timber buildings are sustainable, safe and healthy

[56]Prime Minister Carney announces new measures to transform Canada's softwood lumber industry | Prime Minister of Canada

[57]Renewable energy project cancellations in Alberta hit alarming milestone | Pembina Institute

[58]We arrived at an estimated six terawatt hours of coal-generated power through the following calculations: We sourced coal-based primary energy from Statistics Canada Table 25-10-0079-01, measured in joules up until June 30, 2025. For the second half of 2025, we took an average of the last three months of reported primary energy data (Q2 2025) and assumed the same level of energy use for H2/2025. Coal as a form of primary energy is then converted into implied electricity generation, based on historical conversion factors from 2019-2023 reported data under Table A13-1 as part of Canada's National Inventory Report Statistical Annex 13 Electricity Intensity. The total generation for 2025 (estimate) is then compared to the total generation for 2024 as reported under Table 25-10-0079-01.

The emissions decline resulting from decreased coal-powered electricity generation is taken from historical emissions factors and implied coal-based generation as reported under Table A13-1 as part of Statistical Annex 13 Electricity Intensity.

[59]Toronto Hydro: Company overview

[60]Natural gas powered electricity generation is estimated based on historical monthly reported data of natural gas based primary energy through Statistics Canada Table 25-10-0079-01, measured in Joules up until June 30, 2025. For the second half of 2025, we took the trailing 12-month average of reported primary energy data as of June 30, 2025 and compared that percentage change relative to the trailing 12-month average of reported primary energy data as of June 30, 2024. That implied percentage increase was then applied to the total primary energy usage in 2024 to predict our value in 2025. The percentage share of total primary energy from natural gas usage within electric utilities listed under Electricity as an economic sector within the NIR and the share not attributed to electricity, i.e., used within cogeneration within the oil and gas sector (i.e., the utilities vs cogen split within reported electricity generation by class of

producer) is predicted based on historical monthly generation under Statistics Canada Table 25-10-0015-01 classified either as electric utilities and also historically based on thermal electric power generation split between coal and natural gas based on historical data as denoted in Statistics Canada Table 25-10-0084-01.

The emissions impact from the estimated increase in natural gas powered generation is based on historical conversion factors from 2019-2023 reported data under Table A13-1 as part of Statistical Annex 13 Electricity Intensity.

Total sector emissions within electricity in 2025 are the summation of the estimated decline in emissions from coal-powered electricity generation and the increase in natural gas-powered electricity generation as detailed above. These values are then compared relative to 2005 and 2019 as disclosed under Table A13-1 as part of Statistical Annex 13 Electricity Intensity.

[61]Our estimate of $1 trillion takes into account multiple public assessments of long-term electricity system needs. The 2023 Public Policy Forum report—Project of the Century: A Blueprint for Growing Canada's Clean Electricity Supply – and Fast—includes estimates such as the Conference Board of Canada's The Cost of a Cleaner Future: Examining the Economic Impacts of Reducing GHG Emissions (~$1.7 trillion), the University of Montreal's 2021 Canada Energy Outlook (~$1.1 trillion), and provincial estimates from Ontario ($375-425 billion), Quebec ($185 billion to 2035, with higher cumulative needs through 2045), and Alberta (~$44-52 billion in 2041). Together, these provincial figures approach ~$847 billion before accounting for British Columbia and other provinces, supporting the use of a $1-trillion directional estimate.

[62]Emissions intensity for the electricity sector is calculated as the sector's total GHG emissions divided by the total electricity generation in any given year. Emissions for 2024 were taken from the Canadian Climate Institute's Early Estimate of National Emissions. For 2025, we estimated emissions based on our forecasted change in electricity generation from both coal and natural gas. For information on how we forecasted the changes in electricity generation from coal and natural gas, refer to the Methodology section: Sectoral Climate Action Indices, Section D. Emissions - Electricity.

[63]CER – Canada's Energy Future 2023: CER's first long-term Outlook modeling Net-Zero by 2050

[64]Electricity Demand in Ontario to Grow by 75 per cent by 2050

[65]Northland Power: Oneida Energy Storage

[66]Tesla Dominated The Home Battery Market—Will Its Reign Last? | Energysage

[67]We calculated emissions decline since 2019 as a percentage change between 2019 emissions (in kilotonnes CO2 equivalent) and 2024 emissions (in kilotonnes CO2 equivalent) as published in the Canadian Climate Institute's Early Estimate of National Emissions.

[68]Institute for Energy Economics and Financial Analysis Algoma Steel: Electric Arc Furnace-Page 7

[69]Dow Delays Plans For $8.9B Net-Zero Project In Alberta's Industrial Heartland | CBC News

[70]We define emissions intensity in terms of kilotonnes of emissions (CO2e) per kilotonne of industrial production across the following heavy industrial sub-sectors as stated in Canada's National Inventory Report: mining, smelting and refining (non-ferrous metals), pulp and paper, iron and steel, cement, and chemicals and fertilizers. Annual production figures (up to the year 2023) per sub-sector were sourced from the Canadian Energy and Emissions Data Centre, at Simon Fraser University, which are based on proprietary estimates as well as databases including World Steel and the Global Cement and Concrete Association. Annual emissions figures are sourced from the Canadian Climate Institute's Early Estimates of National Emissions. Emissions intensities per heavy industrial sub-sector were rolled up into a composite estimate using a weighted average, with weights corresponding to each sub-sector's contributions to Canada's heavy industry emissions across all stated sub-sectors.

[71]The estimate of venture capital deployed is based on in-house analysis of data from Bloomberg New Energy Finance's Climate Tech Investment Database and considers companies whose products could directly contribute to emissions reductions in heavy industrial sub-sectors across mining, smelting and refining (non-ferrous metals), pulp and paper, iron and steel, cement, and chemicals and fertilizers.

[72]The $79 million year-to-date estimate is based on Bloomberg New Energy Finance Climate-Tech Investment Database. An example of government investment: Government of Canada investing in Foran Mining Corporation's critical minerals production in Saskatchewan.

[73]Apple 2025 Environmental Progress Report

[74]GHG emissions and electricity | Hydro-Québec

[75]Elysis Moves Toward Commercialization Of Inert Anodes

[76]Apple 2025 Environmental Progress Report

[77]Rio Tinto to install carbon free aluminum smelting cells using first ELYSIS technology licence

[78]Basf, Sabic, And Linde Celebrate The Start-Up Of The World's First Large-Scale Electrically Heated Steam Cracking Furnace

[79]Dow And Shell's 'E-Cracker' Technology Now Operational

[80]The emissions estimate builds on the federal government's National Inventory Report for 2023. We then analyzed monthly production data across the oilsands, conventional liquids and natural gas for 2024 and 2025 to estimate the sector's emissions that are aligned with the recent sector trend of decarbonization since 2019 (the start of our tracking period for our sectoral indices). Our estimate of increased emissions aligns with the Canadian Climate Institute's Early Estimates of National Emissions. For 2025, we used RBC Capital Markets' fundamental supply and demand model out to 2030 for both Canadian oil and gas production.

[81]Trans Mountain Pipeline emissions data for 2024 is taken from the company's 2024 ESG report. For 2025, we estimated TMX's emissions based on annualization of reported volumes as disclosed by the Canada Energy Regulator.

[82]For LNG Canada, we sourced emissions data from the operator's submission to British Columbia's Environmental Assessment Office (EPIC database). Estimated emissions from LNG Canada Phases 1 and 2 are detailed in its Greenhouse Gas Management Technical Data Report Table 6.0-1.
We adjusted the disclosed emissions to reflect both the start date, June 30, 2025, and quoted capacity of 14 megatonnes in Phase 1.

[83]We used Canada Energy Regulator data for marketable produced gas volumes for 2023. For 2024 and 2025, we used the same datasets as above along with RBC Capital Markets' fundamental supply and demand model out to 2030 for Canadian oil and gas production. For vented gas and flared gas (Bullet 2), we used data from Petrinex's Conventional Volumetric Data Download, which provides a number of measured metrics, by month, by well for Alberta and Saskatchewan, with most recent data complete to August 2025, and also used facility data from the B.C. Energy Regulator. We then used the official National Inventory Report provincial breakdown of vented and flared emissions across the oil and gas industry for historical years to calibrate gas volumes to emissions (2021-2023). Because Alberta reports its basin wide flared and venting data, we used the actual reported flaring and venting gas volumes from AER ST60b and overlaid that with the official NIR emissions from flared and vented gas in Alberta to calculate an implied emissions factor for both venting and flared gas volumes. We then used the volumes of gas flared and reported (Petrinex for Alberta and Saskatchewan, BC Energy Regulator for British Columbia) as the driver for our 2024 and 2025 predicted values. This analysis was done only for Alberta, Saskatchewan and British Columbia, which we view as representative of the entire industry as these three provinces account for 92% of total flared and 97% of vented emissions across Canada's oil and gas sector.

[84]Environment and Climate Change Canada released an update on its Path Forward for Oil and Gas Sector Methane Mitigation on September 2023.

[85]Canada-Alberta Memorandum of Understanding | Prime Minister of Canada

[86]World Energy Outlook 2024

[87]EPA: The importance of methane

[88]Prospects For Natural Gas Certification – Analysis - IEA

[89]Prospects for Natural Gas Certification – Analysis - IEA

[90]Prospects for Natural Gas Certification

[91]EO100+Normative-Supporting-References+2022.pdf

[92]FNNGA Alliance Links Up With Equitable Origin

[93]UN: Department of Economic and Social Affairs Indigenous People

[94]Building Together: How Indigenous economic reconciliation can fuel Canada's resurgence - RBC

[95]In 2024 the U.S. produced 104 bcf/d of dry gas and Canada produced 18 bcf/d of dry gas.

[96]IEA: Prospects for Natural Gas Certification

[97]EV refer to battery and plug-in hybrid electric vehicles

[98]S&P Global Mobility, Canadian EV Insights, Q4 2024

[99]Statistics Canada, Table 20-10-0085-01, New motor vehicle sales, monthly.

[100]BloombergNEF, Long-Term Electric Vehicle Outlook 2025 – Data

[101]Emissions are based on our estimate from calculations for Sectoral Climate Action indices as specified in the methodology. Historical emissions data is source from National Inventory report, and for years 2024 and 2025 are estimates based on proxies using total vehicle-kilometres and estimated ICE vehicle fleet size. Emissions intensity is defined as total sectoral emissions per vehicle-kilometre. We sourced vehicle-kilometre from IBIS World's projections dated Oct 2024.

[102]IBISWorld, Total vehicle-kilometres, dated Oct 2024.

[103]Statistics Canada, Table 36-10-0230-01 Tourism demand in Canada, constant prices (x 1,000,000)

[104]City News: Toronto & GTA Gas Prices

[105]Statistics Canada, Table 20-10-0085-01, New motor vehicle sales, monthly; We divided total sales volume in monetary units by total vehicle sales count to derive average sales prices.

[106]Natural Resources Canada, Updated forecasts of vehicle charging needs, grid impacts and costs for all vehicle segments, prepared by Dunsky Energy + Climate Advisors. The ratio for charging infrastructure needs for light duty vehicles is around 20-21 EVs/public charging port across two scenarios of high and low home charging access. We estimate current ratio based on total and new EV registrations data from Statistics Canada (Tables 23-10-0308-01 and 20-10-0025-01) up to second half of 2025, and total public charging ports count retrieved in July of 2025 from NRCAN's Electric Charging and Alternative Fuelling Stations Locator to be 21 EVs per public charging port.

[107]Cars And Vans - Energy System - IEA

[108]PowerCo Equity Story

[109]Volkswagen Group Sites | Volkswagen Group

[110]Ontario: Clean electricity snapshot - Canada.ca

[111]Ontario Launches Plan To Secure Energy For Generations

[112]PBO Pegs Total Cost Of Federal Government's Volkswagen Plant Deal At $16.3 Billion

[113]Volkswagen-backed PowerCo SE reaches significant milestone in St. Thomas gigafactory project | Volkswagen Group

[114]Volkswagen-backed PowerCo SE reaches significant milestone in St. Thomas gigafactory project | Volkswagen Group

[115]Ontario Celebrates PowerCo Construction Milestone in St. Thomas | Ontario Newsroom

[116]Volkswagen And Powerco Make Strategic Investment In North American Lithium Company Patriot Battery Metals | Volkswagen Group
[117]Canadian business leaders see themselves on the frontlines of climate action
[118]Climate Action 2025
[119]Canadian Wildland Fire Information System | Canadian National Fire Database (CNFDB)
[120]We track climate related funding and expenditures announced in the budgets of the federal government and the four largest provincial governments (British Columbia, Alberta, Ontario and Quebec). This includes announced plans towards climate- and environment-related initiatives focused on decarbonization, innovation, energy efficiency, fuel switching, clean and low-carbon technology manufacturing and deployment, skills, research and planning. It also includes transfer payments, program spending, tax expenditures, and select public financing. Total expenditure amounts are equally spread over timeframe announced in the budgets. For select items expenditure amounts are distributed over the years as prescribed in the budgets.
[121]This number only refers to data calculated from the 2016 federal budget. It's based on our tracking of budgeted climate-related spending from the federal government and the four largest provinces.
[122]Based on original announcements across federal budgets. Budget 2024 updates the total value to $93 billion, and PBO's Long-Term Fiscal Cost of Major Economic Investment Tax Credits estimates the cost at $103 billion.
[123]Refer to endnote 119.

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