

Technical backgrounder

Meeting the emissions cap

A pathway for the oil and gas sector

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Summary

The proposed federal oil and gas emissions cap aims to reduce emissions and prompt investment in decarbonization from Canada's highest-emitting sector. We find in our analysis that the proposed cap is realistic and achievable by 2030. This proposed cap will not be met in a business-as-usual scenario; industry will have to take action, make investments, and accelerate their plans to decarbonize. In this backgrounder, we lay out a feasible pathway to meeting the cap based on public industry commitments, forthcoming methane regulations, and potential electrification of upstream processes.

In December 2023, Environment and Climate Change Canada released the Regulatory Framework for an Oil and Gas Sector Greenhouse Gas Emissions Cap. Broadly speaking, we find the proposed emissions cap to be a reasonable policy to reduce emissions from Canada's highest emitting sector.¹

The Alberta government and industry representatives have spoken publicly against the emissions cap, citing concerns about the impacts of the cap on the oil and gas sector, on the technical feasibility of reducing emissions by 2030, and on the complexity of additional policy on top of existing provincial regulations. We find in our analysis that technically achievable emissions reductions are available to the sector that could be implemented to meet the proposed level of the cap. To be clear, this proposed cap will not be met in a business-as-usual scenario; industry will have to take action, make investments, and execute their plans to decarbonize.

Existing policies are not working fast enough or going far enough to reduce oil and gas emissions. There have been improvements in emissions intensity over the last 15 years, but

¹ Read our full comments regarding the framework: Janetta McKenzie, *Design recommendations for a national oil and gas emissions cap* (Pembina Institute, 2024). <https://www.pembina.org/pub/design-recommendations-national-oil-and-gas-emissions-cap>

emissions from the sector continue to increase. The proposed regulatory cap is one part of the policy landscape, combined with tax incentives like those announced for CCUS, methane regulations, and industrial carbon pricing systems.

Cap is realistic without impacting production

Oil and gas is Canada's highest-emitting sector, and it is critical that steps are taken now to decarbonize in the short term. While the world is not yet aligned with a net-zero by 2050 trajectory, the energy transition is accelerating every year.

We find the cap to be responsible and realistic given that it can be achieved simply through the voluntary commitments already made by oilsands companies, like the Pathways Alliance plan to reduce emissions by 22 Mt per year by 2030² and federal and provincial targets to reduce oil and gas methane by 75%. The components of emissions reductions that could meet the emissions cap framework are illustrated in Figure 1.³

² Pathways Alliance, "Q and A: Progress on the Pathways Alliance net zero goal," March 9, 2023. <https://pathwaysalliance.ca/news/q-and-a-progress-on-the-pathways-alliance-net-zero-goal/>

³ The assumptions in our analysis of the emissions reduction pathways in Figures 1 and 3 are described in detail in Appendix A of our submission to the proposed regulatory framework: Janetta McKenzie, *Design recommendations for a national oil and gas emissions cap* (Pembina Institute, 2024). <https://www.pembina.org/pub/design-recommendations-national-oil-and-gas-emissions-cap>

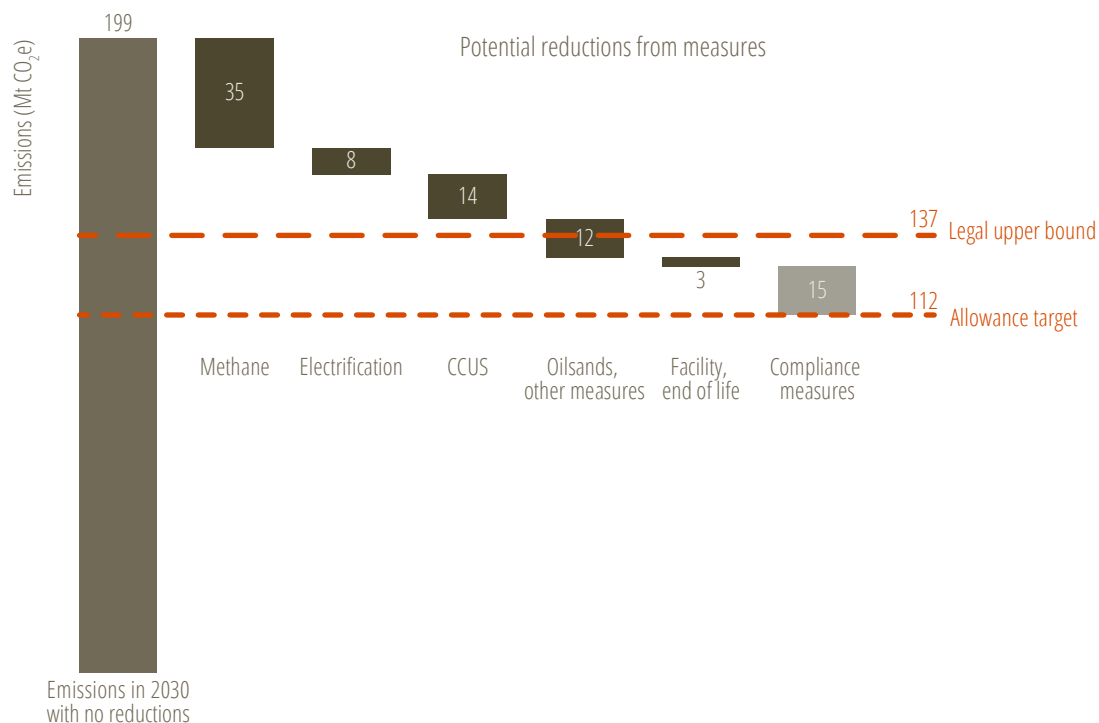


Figure 1. Measures that could reduce GHG emissions to meet the proposed oil and gas emissions cap framework

Production is aligned with the CER's Canada Net-zero scenario: global market-driven demand for oil and gas results in increased production until 2030 and emissions increase from 171 Mt in 2019 to 199 Mt in 2030. Long-term decline in demand begins after 2030.

Carbon capture is a key technology for reducing emissions in the combustion-heavy oilsands, as the Pathways Alliance has acknowledged by announcing in 2021 a foundational CCUS hub and several capture projects, aiming to reduce emissions by at least 10 Mt per year. We also find potential reductions of up to 4 Mt from capturing and storing carbon dioxide (CO₂) vented from gas production and processing, although this application of carbon capture is still in early stages of development.⁴ And CCUS has plenty of public support: the federal investment tax credit for CCUS is expected to be finalized this year and retroactively available for purchases made since January 2022, and the Alberta government recently announced the Alberta Carbon Capture Incentive Program to further defray the costs of these projects. These projects are capital-intensive and take time to develop and construct—but despite being announced in 2021, there has been little transparency regarding updates on progress, or expected operational dates.

⁴ See Appendix A in *Design recommendations for a national oil and gas emissions cap* (Pembina Institute, 2024), for further explanation of assumptions. We assume a 90% capture rate for venting emissions from natural gas production and processing, which are reported in:

Environment and Climate Change Canada, *National Inventory Report 1990-2021 (2023)*, Common Reporting Format Tables, <https://unfccc.int/documents/627831>

It is important that the proposed cap take into account a reasonable market-based decline in demand for Canada’s oil and gas. The world, including the largest emitters like the United States, China, and the European Union, has committed to ambitious climate action before 2030. It is important to assume reasonable market assumptions that reflect the reality of the energy transition, otherwise one would risk overestimating emissions associated with the sector. The proposed cap uses a production forecast based on the Canada Energy Regulator’s Canada net-zero scenario, which anticipates a moderate increase in Canadian oil and gas production before long-term decline (Figure 2).

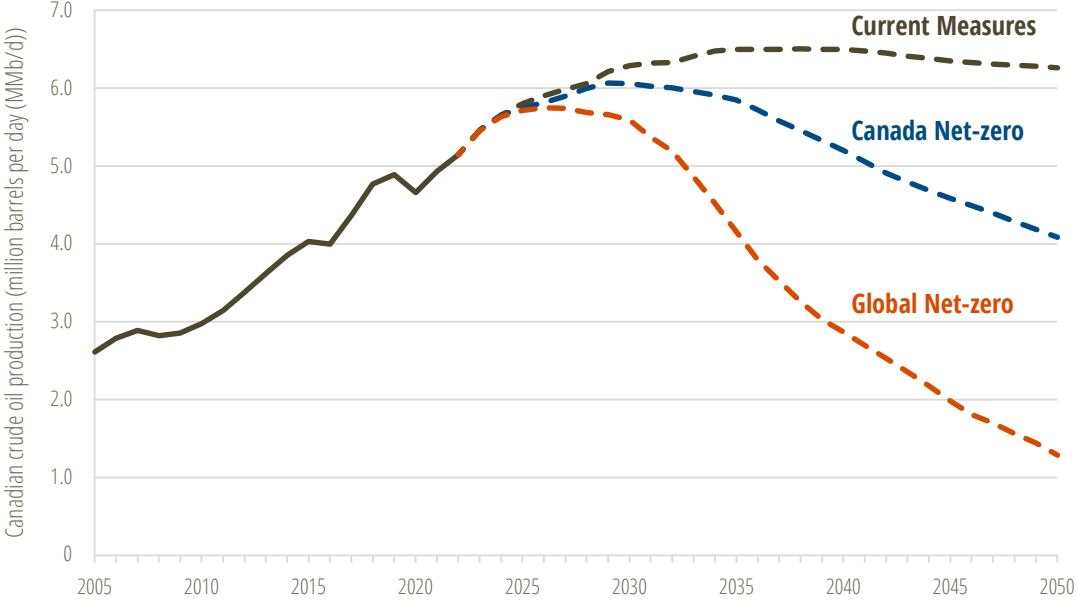


Figure 2. Canadian oil production under the Canada Energy Regulator's net-zero scenarios

Production is aligned with the CER's Canada Net-zero scenario: global market-driven demand for oil and gas results in increased production until 2030 and emissions increase from 171 Mt in 2019 to 199 Mt in 2030. Long-term decline in demand begins after 2030.

Adapted from: Canada Energy Regulator⁵

Under a more ambitious Global net-zero scenario (Figure 3), where global climate action accelerates and demand for Canada’s oil and gas declines faster, one can see that the proposed level of the cap would be achievable without compliance flexibilities.

⁵ Canada Energy Regulator, *Canada’s Energy Future 2023*, Figure ES.8. <https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/index.html>

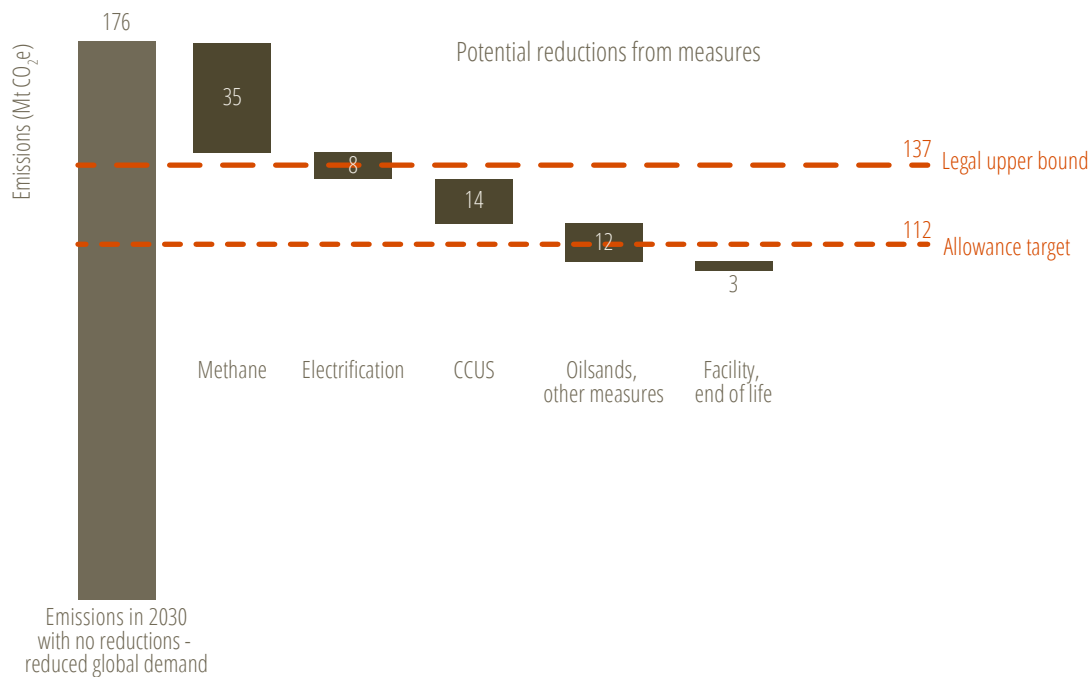


Figure 3. Effect of reduced global demand on reaching oil and gas emissions cap

Production is aligned with the CER's Global Net-zero scenario: stronger action on climate change means global demand for oil and gas declines sooner and faster. The cap would be technically feasible without the need for compliance measures, and emissions could fall below the intended allowance target of 112 Mt.

The net-zero economy is being created now, and Canada needs to be prepared

Much of the opposition to the proposed cap relies on the assumption that demand for Canada's oil and gas will continue to increase, even as the world moves away from using fossil fuels and towards renewable energy. While the world is not yet aligned with a net-zero by 2050 trajectory, it's overly risky to assume that the energy transition will slow down and that fossil fuel demand will continue to grow.

Investments in clean energy have outpaced those in fossil fuels since 2018, with US\$1.7 trillion invested in clean energy in 2023, compared to US\$1 trillion in fossil fuels.⁶ Sales in EVs, which are a leading indicator of long-term oil demand as road transport is responsible for almost half of global oil consumption, have continued to accelerate.⁷ Costs of renewable energy have declined significantly, and renewable power helped to mitigate high natural gas prices in the

⁶ International Energy Agency, *World Energy Investment 2023*, Overview and key findings. <https://www.iea.org/reports/world-energy-investment-2023/overview-and-key-findings>

⁷ Colin McKerracher, "Zero-Emission Vehicles Factbook: COP28 Edition," *BloombergNEF*, December 5, 2023. <https://about.bnef.com/blog/zero-emission-vehicles-factbook-cop28-edition/>

European Union in 2022.⁸ The Canada Energy Regulator notes in its net-zero scenario analysis that as the world continues to implement increasingly ambitious climate policies and align with net-zero by 2050, demand for (and consequently, production of) oil and gas will decline. The proposed cap bases its 2030 trajectory on the Canada net-zero scenario, which recognizes the planned work of Canada and other countries to reduce their emissions but also acknowledges the uncertainties associated with implementing announced climate policy internationally.

The global energy marketplace is changing, and Canada needs to be prepared for a world in which demand for oil and gas is declining, while emissions associated with those products are more closely scrutinized. The European Union is developing methane intensity requirements for fossil fuel imports, aiming to have these in place before the end of the decade. And industry is starting to anticipate these changes in the marketplace, with 50 of the world's largest firms signing the Oil and Gas Decarbonization Charter at COP28 aiming to reach net-zero by 2050, and near-zero methane emissions and zero routine flaring by 2030. Canadian oil, specifically oil derived from the oilsands, is some of the most emissions-intensive in the world, and Canada's competitors are not waiting until 2050 to accelerate the race to net-zero emissions.

Several firms in Canada's oil and gas sector have made commitments to be net-zero by 2050, and some have 2030 goals for methane reduction; for instance, the Pathways Alliance has committed to net-zero by 2050, and Cenovus announced an industry-leading target to reduce methane in upstream operations 80% by 2028.

Provisions in the proposed regulatory framework of the emissions cap give flexibility for firms to make investments, procure technology, and get larger projects up and running. Multi-year compliance periods would give facilities three years to reconcile their emissions with their cap allowance, providing flexibility to deploy technology and build new projects like carbon capture facilities to reduce emissions on-site. Facilities would also have the ability to "bank" credits in the cap-and-trade system for six years, to mitigate higher costs of certain types of emissions reductions. The proposed cap also includes the ability to use a limited amount of high-quality Canadian offsets. The flexibility is here; the time to make progress is now.

The Pembina Institute acknowledges that the work we steward and those we serve span across many Nations. We respectfully acknowledge the space our organization is headquartered in as the traditional and ancestral territories of the Blackfoot Confederacy, comprised of the bands Siksika, Piikani, and Kainai, the Îyârhe Nakoda Nations, including the bands of Goodstoney, Chiniki, and

⁸ International Energy Agency (2023), *Renewable Energy Market Update - June 2023*, <https://www.iea.org/reports/renewable-energy-market-update-june-2023>

Bearspaw, and the Tsuut'ina Dené. These Lands are also home to the Métis Nation of Alberta — Region 3 whose Peoples have deep relationships with the Land.

These acknowledgements are some of the beginning steps on a journey of several generations. We share them in the spirit of truth, justice, reconciliation, and to contribute to a more equitable and inclusive future for all of society.