

Alberta's progress in reducing oil and gas emissions

Status of commitments made, and recommendations

by Matt Dreis | January 2024

In April 2023, the Alberta government released the Emissions Reduction and Energy Development (ERED) Plan. The plan outlines the course of action the province will take to cut emissions and reach a carbon-neutral economy by 2050 while increasing economic development and investment in new technologies.

Most of the emissions reduction initiatives and targets discussed in the ERED Plan were previously announced or implemented with deadlines fast approaching. What's needed now are forward-looking measures that could meaningfully bend the curve on emissions to 2030 and beyond. Unfortunately, very few measures like that have been announced by the Alberta government.

Table 1 presents an overview of the measures outlined in the ERED plan, along with the status of the commitments made under the plan, and our recommendations for measures that could significantly reduce emissions.

Table 1. Alberta’s oil and gas emissions reduction targets and status of commitments made

| | Measures in EREDP | Status | Recommendations |
|--|---|--|--|
| Oil and gas emissions | 2015: Committed to methane emissions reduction of 45% below 2014 levels by 2025. | <p>Methane emissions were reduced by 45% in 2022, reaching target three years earlier than planned.</p> <p>Alberta government is assessing an increase in methane emissions reduction target to 75%-80% by 2030.</p> <p>No oil and gas sector emission target.</p> | <p>Develop new methane regulations that align with the federal government’s 75% methane reductions by 2030 from 2012 levels.</p> <p>Improve measurement and monitoring requirements to improve accuracy of reported methane emissions.</p> |
| Oilsands emissions | 2015: Oilsands emissions are limited to 100 Mt per year, but not enforceable by regulation. | <p>Emissions from oilsands totalled 82.7 Mt in 2021, an increase from pre-pandemic levels in 2019 of 80.7 Mt.¹</p> <p>Alberta government is exploring the reduction of the oilsands emissions limit to align with Pathways Alliance reduction targets.</p> <p>TIER regulation was amended to include an emissions intensity tightening rate of 2% per year in 2023-2028, increasing to 4% in 2029 and 2030.</p> | <p>Tighten oilsands emissions limit and introduce regulations to enforce the limit.</p> <p>Develop sector-specific oil and gas emissions reduction targets to achieve net-zero by 2050, with interim targets starting in 2030.</p> |
| Carbon capture, utilization & storage (CCUS) | Alberta states CCUS will be critical to reduce provincial emissions, particularly for oilsands production and gas-fired electricity generation. | <p>Proposals for 25 CCUS hubs approved and moving to evaluation stage.</p> <p>12% grant on eligible capital costs for new CCUS projects.</p> | With sufficient funding support at both the provincial and federal level, no new CCUS incentives for oil and gas are needed. ² |

¹ Environment and Climate Change Canada, *National Inventory Report 1990–2021: Greenhouse Gas Sources And Sinks In Canada (2023)*, Part 3, Table A12-10: GHG Emissions for Alberta by Canadian Economic Sector. <https://publications.gc.ca/site/eng/9.506002/publication.html>

² Scott MacDougall, Jonathan Arnold, Janetta McKenzie, *Cash flow modeling shows carbon capture and storage can help meet climate goals* (Pembina Institute, 2023). <https://www.pembina.org/pub/cash-flow-modeling-shows-carbon-capture-and-storage-can-help-meet-climate-goals>

Discussion

Progress on methane, and measurement issues are persistent

In November 2023, Alberta announced the 45% methane emissions reduction target had been met in 2022, three years prior to the target date. At the same time, persistent issues with measurement indicate that methane emissions are significantly underestimated. A recent report by Carleton University's Energy and Emissions Research Lab suggest methane emissions from Alberta's oil and gas sector may be 50% higher than estimates.³

The ERED Plan includes discussions of an ambitious 75-80% reduction target by 2030, which is aligned with targets from B.C. and the federal government, but there has been no progress on the regulations since. Developing 2030 methane regulations in Alberta, with an emphasis on improving measurement, should be a short-term priority.

Carbon capture a big piece of Alberta's plan, and already has sufficient public funding

Carbon capture, utilization and storage (CCUS) is a feature of Alberta's ERED Plan, for the decarbonization of heavy industry including oilsands production, gas-fired electricity generation, and clean hydrogen. In total, 25 CCUS hub proposals have been approved and are moving to the evaluation stage. Furthering CCUS support, the government of Alberta announced the CCUS incentive program covering 12% of eligible capital costs from new CCUS projects.

It is good to see the Government of Alberta moving to incentivize decarbonization, there are proposed and existing policy measures — like the federal Investment Tax Credit — that already give most oil and gas CCUS projects adequate support, especially as the carbon price continues to increase.

Little progress on setting sector targets and limits

Alberta's plan does not include an emissions target specifically for the oil and gas sector. This is in marked contrast to the B.C. government's target of a 33-38% reduction for oil and gas emissions by 2030, or the federal government's regulatory framework for the oil and gas emissions cap which aims to achieve at least a 20% reduction by 2030 (inclusive of all

³ Bradley M. Conrad et al., "A measurement-based upstream oil and gas methane inventory for Alberta, Canada reveals higher emissions and different sources than official estimates," *Communications Earth and Environment* 4, 416 (2023). <https://doi.org/10.1038/s43247-023-01081-0>

compliance flexibilities). Setting sector-specific oil and gas goals would complement more targeted policies like methane regulations or reducing emissions from the oilsands.

In 2015, Alberta set an emissions limit from oilsands production of 100 Mt per year, far above existing oilsands emissions, which reached 82.7 Mt in 2021. Additionally, no regulations were implemented to enforce this limit. The Alberta government's ERED Plan indicates an intention to reduce the target in alignment with the Pathways Alliance stated net-zero by 2050 target; however, no progress has been announced on reducing and codifying this limit. The newly released CCUS incentives previously described, provide additional financial support for emissions reduction of oilsands operations, and a lower emissions limit should be considered as a result. Meanwhile, the federal government has taken a meaningful step forward in developing policy that can reduce oil and gas emissions, with the regulatory framework for the oil and gas emissions cap released in December 2023.

Context: Importance of the oil and gas sector

The oil and gas sector produces by far the largest single share of emissions in Alberta (52%).⁴ Alberta has made some headway on reducing emissions and emissions intensity within the oil and gas sector as we have begun to see a small decoupling of oil and gas production and emissions. However, total emissions from the sector have not yet begun to meaningfully decline (Figure 1).

⁴ Canada Energy Regulator, "Provincial and Territorial Energy Profiles – Alberta." <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-alberta.html#s3>

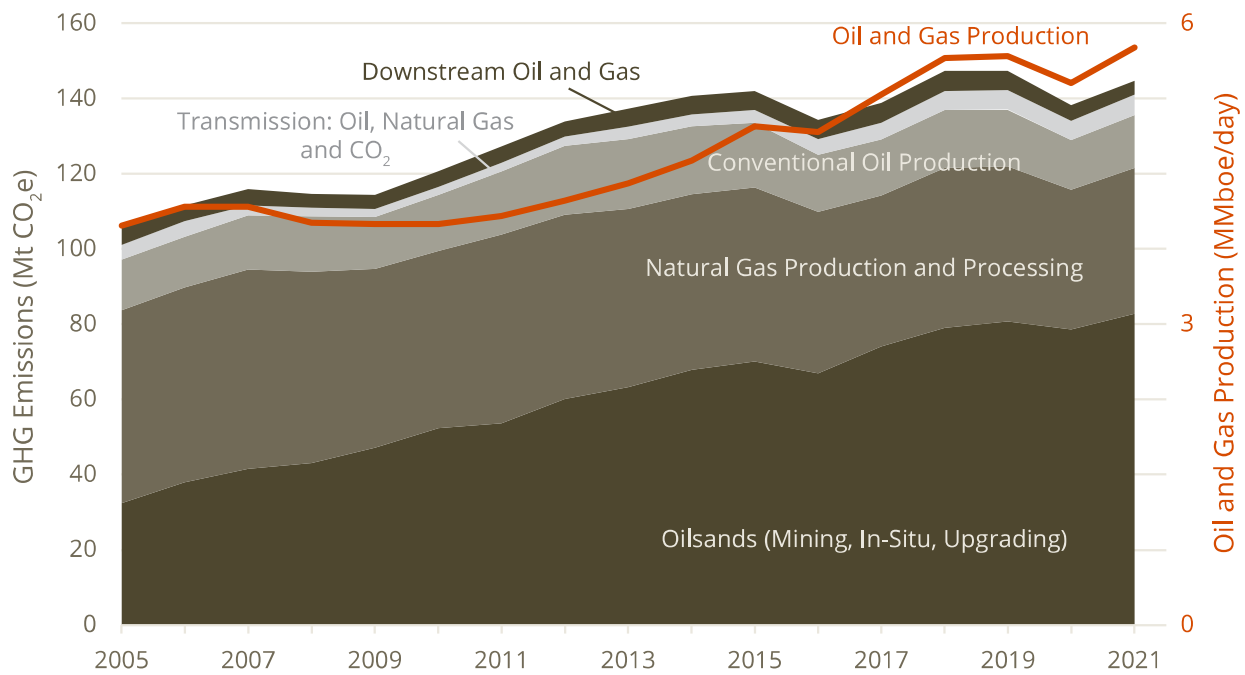


Figure 1. Alberta's oil and gas GHG emissions vs production

Data sources: Environment and Climate Change Canada, Canada Energy Regulator⁵

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 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.

⁵ Environment and Climate Change Canada, *National Inventory Report 1990–2021: Greenhouse Gas Sources And Sinks In Canada* (2023), Part 3, Table A12-10: GHG Emissions for Alberta by Canadian Economic Sector.

<https://publications.gc.ca/site/eng/9.506002/publication.html>

Canada Energy Regulator, *Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050, Data Appendices*. <https://apps.cer-rec.gc.ca/ftppndc/dflt.aspx?GoCTemplateCulture=en-CA>