Raising the Bar

How targets and measurement are crucial to leadership on oil and gas methane

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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.

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Executive summary

Over the last few years, several jurisdictions have claimed a position of international leadership in tackling methane emissions from their respective oil and gas industries. In North America alone, national and subnational governments including Canada, British Columbia, California, Colorado and New Mexico have set the bar for action on mitigating this potent greenhouse gas.

But what does 'leadership' mean in the context of oil and gas methane?

One important metric is megatonnes of emissions reduced. After all, this is what ultimately matters to the climate. And given that methane has a powerful near-term warming impact — over 80 times more potent over twenty years than carbon dioxide — every tonne not put into the atmosphere today will pay dividends in terms of avoided future climate impacts.

But methane measurement and mitigation is also rapidly evolving, and governments need to keep up. For example, governments can set reduction targets, apparently meet them, and then — due to better measurement techniques resulting in historical upward revisions to methane emissions estimates — learn their actions have not had the impact they previously thought. Megatonnes were still reduced, and this is good, but perhaps not enough to be in line with a net-zero trajectory.

Being a leader in this space therefore requires policymakers to get comfortable with evolving information and not let uncertainty preclude them from making progress. They must continue to set ambitious targets while remaining committed to measurement initiatives that ensure the best possible methane data is being collected and adjusting their approach as they learn more. Sometimes, this will mean revising their view of what success or failure looks like. Meeting a target that was based on inaccurate or incomplete data is not necessarily a success; partially meeting a target that is based on more accurate data is not necessarily a failure.

Given that methane abatement can often be done at no net cost to industry and demand for low-emissions oil and gas products is likely to keep growing, abating methane is a win-win-win for governments, industry and the climate. To be leaders, governments must strive for a ceiling, not a floor, of progress. This should include being as transparent as possible about the data, emissions models, and inventories they use to track progress. This is as important as taking steps to support the development of best-in-class abatement technologies.

This report examines the ways in which the adoption of methane targets, the methodology of target setting, the communication of targets, the assessment of progress, as well as the collection and dissemination of data, are all crucial aspects of leadership on oil and gas methane. If governments demonstrate this leadership, they will be better placed to capitalize on the

economic opportunities associated with the methane abatement industry and will set their oil and gas industries up to compete in a world that is increasingly likely to prefer demonstrably low-emissions energy products.

Recommendations

We recommend that all levels of government:

- Continue to create near-term methane reduction targets, which should be clearly defined and accompanied by robust, transparent measurement data to credibly demonstrate emissions reductions.
- Describe targets and underlying assumptions with as much clarity and precision as possible.
- Share emissions models publicly and harmonize inventories.
- Translate targets into absolute terms regularly (while acknowledging that absolute targets will likely change over time).
- Ensure that assessments of progress are sensitive to changes in production.

We recommend that the Government of Canada:

- Maintain the oil and gas methane reduction target of 75% by 2030 (from 2012 levels) and immediately finalize regulations to achieve it, while continuing to allow provinces to develop made-in-province regulations to achieve equivalent outcomes.

We recommend that the Government of Alberta:

- Formally adopt the considered oil and gas methane emissions reduction target of 75-80% by 2030 (from 2014 levels).
- Collect more comprehensive measurement data, integrate measurement standards into reporting requirements, and make emissions modelling publicly transparent.

We recommend that the Government of B.C.:

- Begin developing regulations to meet its target of near-zero methane emissions from industrial sources by 2035.
- Continue to use measurement data to assess regulatory effectiveness, including in the planned review of the regulations that were introduced in 2024.

We recommend that the Government of Saskatchewan:

- Adopt an ambitious 2030 reduction target comparable to the federal target.
- Enhance provincial measurement, monitoring, reporting and verification requirements.

1. Introduction

Methane is a powerful climate warmer, with over 80 times the warming power of carbon dioxide in a 20-year timespan.[1] Canada's oil and gas sector accounts for 40% of the country's methane emissions.[2] The methane emitted by the oil and gas sector in 2023 was equivalent to the carbon dioxide emissions from 12.2 million passenger vehicles driven for a year, 16.9 trillion litres of gasoline consumed, or 89.8 million barrels of oil consumed.[3]

Proven and cost-effective solutions already exist to reduce methane emissions. The world's major oil and gas producing companies (including BP, Chevron, Equinor, ExxonMobil and Shell) have committed to near-zero methane emissions by 2030.[4] As oil and gas companies internationally make methane reductions part of their business strategies, Canada must keep in step with — and surpass — those efforts. This is key to staying competitive as importing countries begin to take measures to reduce emissions from fossil fuel imports. For instance, the European Union has proposed methane intensity standards for imported oil and gas, and Japan and South Korea have launched the Coalition for LNG Emission Abatement toward Net-zero (CLEAN) Program. Ambitious, clear methane reduction targets supported by stringent policy not only reduce a potent greenhouse gas but also signal a commitment to reducing emissions where global competitors are doing the same.

Abating methane emissions from oil and gas production is one of the lowest-cost, highest-impact ways to:

- leverage the best of Canadian innovation and expertise, creating new export opportunities for Canadian-made technology and solutions

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[1] P. Forster et al., *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC, 2021). Section 7.6.1.1, Table 7.15. https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-7/

[2] Government of Canada, "Proposed Amendments to the Federal Methane Regulations for the Oil and Gas Sector – Technical Backgrounder." https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/reducing-methane-emissions/proposed-amendments-federal-methane-regulations-oil-gas-sector.html

[3] Government of Canada, *National Inventory Report 1990–2023: Greenhouse gas sources and sinks in Canada* (2025), Part 3, Annex 9: Canada's Greenhouse Gas Emission Tables by IPCC Sector, 1990–2023, Table A9-3; Annex 11: Provincial and Territorial Greenhouse Gas Emission Tables by IPCC Sector, 1990–2023, Table A11-17, Table A11-19, Table A11-21. Available at Environment and Climate Change Canada Data Catalogue, "Canada's Official Greenhouse Gas Inventory." https://data-donnees.az.ec.gc.ca/data/substances/monitor/canada-s-official-greenhouse-gas-inventory/B-Economic-Sector/?lang=en

Natural Resources Canada, "Greenhouse Gas Equivalencies Calculator." https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/calculator/ghg-calculator.cfm

[4] Oil and Gas Climate Initiative, "Methane Emissions." https://www.ogci.com/methane-emissions

- create good jobs[5]
- increase the efficiency of oil and gas operations
- prevent lost royalties and revenues[6]
- future-proof Canadian industry for the emerging new energy economy[7]
- diminish the near-term effects of climate change
- improve air quality and health outcomes[8]

Many of these benefits, such as more good jobs, preserved royalties, and export opportunities are especially important given the likely impact of U.S. trade protectionism on Canada's economy in the next few years.[9] Over time, many abatement activities save companies more than they cost upfront and can be implemented without impacting levels of oil and gas production.[10]

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[5] Unifor, "Keep it in the Pipe." https://www.unifor.org/campaigns/all-campaigns/keep-it-pipe

Ari Pottens, "SNEAK PEAK: New maps detail Canada's robust and growing methane mitigation industry," *Environmental Defense Fund*, February 13, 2025. https://blogs.edf.org/energyexchange/2025/02/13/sneak-peek-new-maps-detail-canadas-robust-and-growing-methane-mitigation-industry/

[6] Aaron Wolfe and Scott Seymour, "Wasted Gas, Wasted Royalties – How Common-Sense Climate Policy Can Put Money Back in People's Pockets," *EDF Blogs*, February 13, 2024. https://blogs.edf.org/energyexchange/2024/02/13/wasted-gas-wasted-royalties-how-common-sense-climate-policy-can-put-money-back-in-peoples-pockets/

[7] Amanda Bryant, "Newly adopted European Union methane regulations are a game-changer", *Pembina Institute,* June 4, 2024. https://www.pembina.org/blog/newly-adopted-european-union-methane-regulations-are-game-changer

Janetta McKenzie, Scott MacDougal, and Eyab Al-Aini, *Survival of the Cleanest* (Pembina Institute, 2023). https://www.pembina.org/pub/survival-cleanest

[8] Amanda Bryant, "Methane is an Air-Quality Problem, So Treat it Like One," *Canada's National Observer*, July 4, 2023. https://www.nationalobserver.com/2023/07/04/opinion/methane-air-quality-problem-so-treat-it-like-one

[9] Amanda Bryant, "Action on methane makes sense now more than ever," *Pembina Institute*, February 12, 2025. https://www.pembina.org/blog/action-methane-makes-sense-now-more-ever

[10] Dunsky, *Canada's Methane Abatement Opportunity: A Marginal Abatement Cost Curve for Methane Emissions in Canada's Upstream Oil and Gas Sector* (2023). https://dunsky.com/project/methane-abatement-opportunities-in-the-oil-gas-extraction-sector/

International Energy Agency, *Marginal Abatement Cost Curve for Methane from Oil and Natural Gas Operations, 2023*. https://www.iea.org/data-and-statistics/charts/marginal-abatement-cost-curve-for-methane-from-oil-and-natural-gas-operations-2023

Gustaw Szarek, Namit Sharma, and Paul Gargett, with Pawel Torbus, "The True Cost of Methane Abatement: A Crucial Step in Oil and Gas Decarbonization," *McKinsey & Company*, November 21, 2024. https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-true-cost-of-methane-abatement-a-crucial-step-in-oil-and-gas-decarbonization

Jared Connoy, Janetta McKenzie, and Jan Gorski, *Success in Eliminating Methane from Alberta's Peace River Region* (Pembina Institute, 2022). https://www.pembina.org/pub/methane-peace-river

Other costs of methane

The social cost of methane in 2025 is $2,589 per tonne of methane,[11] which means each Mt of methane reduced avoids $2.58 billion in damages. The social cost of methane is an estimate of the economic damages that are expected from each additional tonne of methane emitted into the atmosphere. It accounts for the economic costs of climate change, such as the costs of declining agricultural productivity and increasing health impacts and property damage.

How much gas is that?

One million tonnes, or one "megatonne" (Mt), of methane emissions is equivalent to the carbon dioxide emissions from:

- 6.4 million cars driven for a year
- 8.9 billion litres of gasoline consumed
- 875 million home BBQ propane cylinders[12]

As a result of the 'common-sense' nature of methane mitigation, methane policy also has significant public support.[13] Canada's oil and gas industry likewise believes that deep methane emissions reductions are achievable.[14]

Ambitious action to reduce oil and gas methane emissions is therefore a win-win-win. While leading companies with the necessary knowledge and corporate culture are working hard to drive down methane emissions, we need all hands on deck. That's why ambitious targets backed by strong regulations are critical.

[11] Government of Canada, "Social Cost of Greenhouse Gas Emissions." https://www.canada.ca/en/environment-climate-change/services/climate-change/science-research-data/social-cost-ghg.html

[12] Natural Resources Canada, "Greenhouse Gas Equivalencies Calculator."

[13] Pembina Institute, "New poll shows clear public support for tackling methane emissions," news release, April 2, 2024. https://www.pembina.org/media-release/new-poll-shows-clear-public-support-tackling-methane-emissions

[14] Chris Varcoe, "Varcoe: Alberta vows to fight new federal methane target, while oilpatch says 75 per cent cut is 'achievable'" *Calgary Herald*, December 4, 2023. https://calgaryherald.com/opinion/columnists/varcoe-alberta-vows-fight-federal-methane-target

2. Methane targets

Methane's status as a high-potency climate warmer and its association with air quality and health harms have led to an international spotlight on the greenhouse gas. High-profile announcements and targets from leading governments have been common at COP (the annual Conference of the Parties to the Paris Agreement) for several years running.

This section takes stock of some notable examples. The picture that emerges is one in which methane emissions are a clear global priority.

2.1 Why targets matter

Targets should be ambitious enough to catalyze creative problem-solving and drive innovation, while still being achievable. That can be a difficult balance to strike. We will see in a later section that setting methane reduction targets can be tricky because of data gaps and uncertainty regarding historical and current emissions.

Given these difficulties and considering that most countries, including Canada, tend to miss their climate targets,[15] one might wonder whether governments should bother setting targets at all. However, targets are important tools, which add value in several important ways.

Sending a signal

When nations announce methane reduction commitments in prominent venues like COP, they send a clear signal that cutting methane emissions is a priority. As more nations do this, it shows that methane reduction is increasingly a global priority. This creates greater awareness of the issue and puts pressure on nations that have not yet made such commitments. It is important that such signals not be mere virtue signalling without follow-through. On the contrary, they must be paired with meaningful policies to deliver promised reductions.

Calibrating ambition

We will see in a later section that relative reduction targets are impossible to compare without knowing emissions in baseline years and, by extension, what the targets mean in absolute terms. Nevertheless, when nations converge around targets such as a 45% reduction by 2025, they roughly calibrate international ambition. They are saying that whatever each nation judges to be an appropriate domestic reference point, they should reduce methane emissions by 45% from

[15] Office of the Auditor General of Canada, *Report 5: Lessons Learned from Canada's Record on Climate Change* (2021). https://www.oag-bvg.gc.ca/internet/docs/parl_cesd_202111_05_e.pdf

that point by 2025. This creates shared expectations regarding the approximate level of appropriate ambition.

Setting the bar

When a government commits to a target, it needs to follow through with policies to achieve it. Having a target in place can meaningfully constrain policy-making. For instance, draft regulations must be stringent enough that they are expected to achieve the target. When governments collect feedback on proposed regulations through public consultation and engagement, vested industry interests often push back on what is proposed. Having a target in place means that proposed regulations can only be watered down so much.

In Canada, the federal methane reduction targets have also played an important pace-setting role. B.C., Alberta and Saskatchewan were given leeway to create their own made-in-province regulations, with one major caveat: their regulations had to be modelled to achieve equal or greater methane reductions. While there is some doubt as to whether the regulations are genuinely equivalent,[16] the equivalency process challenges the provinces to develop regulations that are more stringent than they might otherwise be.

Raising the bar

High achievers such as performance athletes know that continually identifying areas for improvement and setting relevant goals is essential to performing their best. Without those goals, performance would plateau or drop off. Continued goal-setting keeps them on track and pushes them to always do better.

By the same token, there is value in setting sequential near-term targets, such as a 2025 target, followed by a more ambitious 2030 target, followed by a still more ambitious 2035 target, and so on. This challenges jurisdictions to keep pushing the pace. It means that once one set of problems is solved, decision-makers must identify remaining problems (such as regulatory gaps) and develop creative solutions.

[16] Matthew Johnson and David Tyner, "A Case Study in Competing Methane Regulations: Will Canada's and Alberta's contrasting regulations achieve equivalent reductions?," *Elementa: Science of the Anthropocene* 8 (2020), 7. https://doi.org/10.1525/elementa.403

Office of the Auditor General of Canada, *Report 5—Emission Reductions Through Greenhouse Gas Regulations—Environment and Climate Change Canada* (2023), 18. https://www.oag-bvg.gc.ca/internet/docs/parl_cesd_202304_05_e.pdf

2.2 International targets

Examples of international targets

Global Methane Pledge

The Global Methane Pledge (GMP) is a multi-national commitment to reduce human-caused global methane emissions by 30% by 2030 (from 2020 levels). The pledge was introduced at COP26 in 2021, at which time Canada became part of the original cohort of pledge nations. The intent of the pledge is to ensure that nations address the human sources of methane to help limit global warming to 1.5°C above pre-industrial levels.

By joining the pledge, nations promise to contribute to the 30% reduction. There are now 158 participating nations, including high emitters such as Australia, Brazil, Indonesia, Pakistan, Nigeria, Mexico, Turkmenistan, and the U.S., as well as regions with significant importing power such as the European Union, Japan, and the Republic of Korea. For its leadership in strengthening domestic methane mitigation efforts, Canada was recognized as a GMP Champion in 2023, along with the EU, Japan, the U.S. and others.

Voluntary initiatives

Action to reduce methane emissions is also driven by voluntary corporate commitments and initiatives, such as:

- the industry-led Oil and Gas Climate Initiative (OGCI) to achieve near-zero methane emissions from operated assets by 2030[17]
- the World Bank Zero Routine Flaring initiative to end routine flaring by 2030[18]
- the Oil and Gas Methane Partnership (OGMP) 2.0 to promote transparent and measurement-based methane emissions reporting[19]
- MiQ Gas Certification to independently certify or "differentiate" gas based on its methane intensity (methane emissions relative to production levels)[20]

[17] OGCI, "Aiming for Zero." https://aimingforzero.ogci.com/about/

[18] World Bank Group, "Zero Routine Flaring by 2030 (ZRF)." https://worldbank.org/en/programs/zero-routine-flaring-by-2030

[19] OGMP, "The Oil and Gas Methane Partnership 2.0." https://ogmpartnership.com/

[20] MiQ, "MiQ is the Fastest Growing and Most Trusted Methane Emissions Certification Standard." https://miq.org/

National reduction targets

Many nations have net-zero by 2050 targets that extend to all greenhouse gases, including methane, and across all economic sectors. However, some have set methane-specific reduction targets. Some of these targets apply to all human-caused methane and some apply to methane emissions from the energy, agriculture, or waste sector specifically.

As of 2023, 40 nations had methane-specific targets in their Nationally Determined Contributions (NDC) to the Paris Agreement.[21] NDCs are national plans to reduce greenhouse gas emissions in line with the Paris Agreement goal of limiting global temperature rise to 1.5°C. Nations create plans that align with the goal and that also reflect their individual capacity. Governments that include methane in their NDC therefore believe that methane emissions reduction is both feasible for their country and potentially impactful with respect to the Paris Agreement target. For instance, Micronesia's NDC includes a target to reduce black carbon and methane emissions from diesel-powered electricity generation by more than 65% below 2000 levels.[22]

Other international jurisdictions that have set methane-specific reduction targets include Panama, which has a target to reduce methane emissions from the energy sector by 44% by 2030 (relative to the projected trend for that year).[23] Likewise, the Netherlands has a plan to reduce overall methane emissions by 30% by 2030 (from 2020 levels).[24] New Zealand has a target to reduce biogenic methane emissions, i.e. methane from animal agriculture, by 10% (from 2017 levels) and net methane emissions by 50% (from gross 2005 levels) by 2030.[25] The Republic of Korea also has a target to reduce methane emissions by 30% by 2030 (from 2020

[21] Global Methane Pledge, "Methane Plans and Policies." https://www.globalmethanepledge.org/annual-report/methane-plans-and-policies

[22] The Federated States of Micronesia, *Updated Nationally Determined Contribution of the Federated States of Micronesia for the Period Through 2030*, 4. https://unfccc.int/sites/default/files/NDC/2022-10/Updated%20NDC%20of%20the%20MICRONESIA.pdf

[23] Jessica Roccard et al., *Roadmap for the Mitigation of Short-Lived Climate Pollutants (SLCPs) in Panama,* República de Panamá, 7. https://www.ccacoalition.org/sites/default/files/resources/files/LRC_%201.5.1%20Roadmap%20for%20the%20Mitigation%20of%20Short-lived%20Climate%20Pollutants%20%28SLCPs%29%20in%20Panama.pdf

[24] Netherlands Central Government, *Nationale Methaanstrategie* (2022), 2. https://open.overheid.nl/documenten/ronl-58633e5c94e98000e7ee9713c6357796811271be/pdf

[25] New Zealand Government, *Aotearoa New Zealand's Methane Emissions Reduction Action Plan* (2022), 3. https://www.mfat.govt.nz/assets/Climate-Change-Programme-images/Aotearoa-New-Zealands-Methane-Emissions-Reduction-Action-Plan-Full-Version.pdf

levels). Specifically, it aims to reduce methane by 34.2% in the agriculture and livestock sector, 49% in the waste sector, and 22.7% in the energy sector by 2030.[26]

What about China?

Some argue that Canada's oil and gas industry has less of a moral imperative to reduce emissions compared to heavier emitters like China. They argue that strong regulations to reduce oil and gas emissions, including methane, unduly disadvantage Canadian industry if major players like China are not doing their part.

However, it is important to recognize that China does have a methane emissions reduction strategy.[27] Like Canada's methane regulations, China's strategy aims to reduce venting and flaring, promote leak detection and repair, and mandate independent inspections. Relative strengths of the plan are that it enhances measurement and monitoring by implementing drone and satellite technologies and standardizes methane emissions accounting nationally and provincially.

Moreover, Canada is one of the highest greenhouse gas emitters in the developed world on a per capita basis, and its highest emitting sector is oil and gas.[28] As a wealthy nation that has financially benefited from high-emitting heavy industries, Canada has a duty to show leadership in reducing emissions and managing its resources ethically and sustainably, including in a way that limits global temperature rise. Doing so does not disadvantage Canadian industry but prepares it to maintain international market access in a low-carbon energy economy, including in markets like the EU, which is setting stringent emissions intensity and reporting standards for imports.[29]

While the U.S. and EU have shown significant leadership in developing world-leading methane regulations, neither has an official 2030 target guiding that regulatory development. Early versions of the EU regulation on energy sector methane reportedly aimed to reduce methane

[26] Republic of Korea, "Republic of Korea's 2030 Methane Emissions Reduction Roadmap." https://www.ccacoalition.org/sites/default/files/resources/files/2030%20Methane%20Emissions%20Reduction%20Roadmap%28RoK%29.pdf

[27] International Energy Agency, "National Methane Action Plan." https://www.iea.org/policies/16940-national-methane-action-plan

[28] Canada Energy Regulator, "Provincial and Territorial Energy Profiles – Canada." https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-canada.html

[29] Bryant, "Newly adopted European Union methane regulations are a game-changer."

emissions 35% by 2030 (from 2005 levels).[30] The U.S. modelled the expected outcomes of its regulations and anticipated that between 2024 and 2038 they would result in an approximate 80% reduction below emissions projected to have been produced in that timeframe without the rule.[31]

However, as of April 2025, it is unclear whether or which aspects of the U.S. methane commitments and regulations will remain in place. The Trump administration has declared its intent to scale back a range of climate policies and environmental regulations,[32] including methane regulations for new and existing facilities (known as OOOOb and OOOOc). In March 2025, the U.S. Congress passed a joint resolution to overturn the U.S. Environmental Protection Agency (EPA)'s implementation rule for the Waste Emissions Charge, which was a fee on excess methane emissions.[33] The Trump administration has also frozen funds earmarked for plugging orphaned wells[34] — a program that had been successful at increasing rates of plugging.[35] The EPA plans to stop requiring the submission of emissions data under the Greenhouse Gas Reporting Program.[36] Finally, the EPA has also moved to eliminate its own authority to regulate greenhouse gas emissions.[37] Undoing federal regulations will be a complex, potentially years-

[30] Ken Silverstein, "The EU's Methane Regulations Will Impact U.S. Oil And Gas Producers," *Forbes*, July 1, 2024. https://www.forbes.com/sites/kensilverstein/2024/07/01/the-eus-methane-regulations-will-impact-us-oil-and-gas-producers/

[31] U.S. Environmental Protection Agency (EPA), "Biden-Harris Administration Finalizes Standards to Slash Methane Pollution, Combat Climate Change, Protect Health, and Bolster American Innovation," news release, December 2, 2023. https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-standards-slash-methane-pollution-combat-climate

U.S. EPA, "Key Things to Know About EPA's Final Rule to Reduce Methane and Other Pollution from Oil and Natural Gas Operations." https://www.epa.gov/system/files/documents/2023-12/key-things-to-know-about-epas-final-rule-for-oil-and-natural-gas-operations.fact-sheet.pdf

[32] The White House, "Unleashing American Energy," *Presidential Actions*, January 20, 2025. https://www.whitehouse.gov/presidential-actions/2025/01/unleashing-american-energy/

U.S. EPA, "EPA Launches Biggest Deregulatory Action in U.S. History," news release, March 12, 2025. https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history

[33] Environmental Protection Agency, "Waste Emissions Charge." https://www.epa.gov/inflation-reduction-act/waste-emissions-charge

[34] Nick Bowlin, "Trump Halts Historic Orphaned Well-Plugging Program," *High Country News*, March 27, 2025. https://www.hcn.org/articles/trump-halts-historic-orphaned-well-plugging-program/

[35] Commonwealth of Pennsylvania Newsroom, "Shapiro Administration Plugs 300th Orphaned or Abandoned Well, Continuing Historic Progress Strengthening Communities and Creating Jobs," news release, March 12, 2025. https://www.pa.gov/governor/newsroom/2025-press-releases/shapiro-administration-plugs-300th-orphaned-or-abandoned-well.html

[36] Sharon Lerner, "Trump's EPA Plans to Stop Collecting Greenhouse Gas Emissions Data from Most Polluters," *ProPublica*, April 10, 2025. https://www.propublica.org/article/trump-epa-greenhouse-gas-reporting-climate-crisis

[37] Jean Chemnick, Zack Colman, Alex Guillén and Timothy Cama, "EPA Moves to Ditch Finding that Greenhouse Gases Cause Harm," *Politico*, February 26, 2025. https://www.politico.com/news/2025/02/26/epa-greenhouse-gases-00204866

long and legally risky undertaking.[38] Perhaps more immediately consequential is the EPA's decision to cut staff[39] and reduce enforcement of methane regulations.[40]

While the current reversal of U.S. federal leadership on methane policy is disheartening, some states are continuing to show leadership. For example, even in the midst of extreme policy uncertainty at the federal level, in February 2025, Colorado updated its methane regulations to phase out emitting pneumatic devices.[41] New Mexico's strong regulations are expected to stay in force and ensure that federal deregulation does not undermine progress in the state.[42] Moreover, California has launched a new methane tracking satellite, which will enhance monitoring capacity even as the EPA scales back oversight and enforcement.[43]

Likewise corporate leadership continues, spurred on by international import standards. In particular, U.S. liquefied natural gas exporters have committed to continue to monitor and reduce methane emissions.[44]

Subnational jurisdictions lead the way

At COP28 in December 2023, the Government of California launched an international initiative to coordinate subnational action on methane. The 15 participating signatories included British Columbia, Colorado, Cross River State (Nigeria), Delhi (India), and Yucatan

[38] Kevin Book et al., *Will Trump Mend or End Federal Methane Rules?* (Center for Energy and Environmental Systems Analysis, 2025). https://static1.squarespace.com/static/66f440245e8cad0f685673ec/t/6792b95bba2c704e76780b96/1737668958638/Jan+2025+White+Paper_FINAL_V3.pdf.

[39] Rachel Frazin, "EPA Fires Nearly 400 Workers after OPM Order," *The Hill*, February 14, 2025. https://thehill.com/policy/energy-environment/5146618-epa-fires-employees-500-probationary/

[40] Mark Brownstein, "EPA Announces Plan to End Enforcement of Methane Rules on Oil and Gas Industry," *Environmental Defense Fund*, March 14, 2025. https://www.edf.org/media/epa-announces-plan-end-enforcement-methane-rules-oil-and-gas-industry

[41] Colorado Department of Public Health & Environment, "Colorado Takes Action to Further Reduce Methane Emissions from Oil and Gas Operations," news release, February 21, 2025. https://cdphe.colorado.gov/press-release/colorado-takes-action-to-further-reduce-methane-emissions-from-oil-and-gas-operations

[42] Roz Brown, "NM's State Methane Regulations Expected to Thwart Federal Rollbacks," *Public News Service*, March 21, 2025. https://www.publicnewsservice.org/2025-03-21/energy-policy/nms-state-methane-regulations-expected-to-thwart-federal-rollbacks/a95915-1

[43] Governor Gavin Newsom, "As U.S. EPA Rolls Back Protections, California Launches Satellite Project to Detect and Reduce Dangerous Methane Leaks," news release, March 21, 2025. https://www.gov.ca.gov/2025/03/21/as-u-s-epa-rolls-back-protections-california-launches-satellite-project-to-detect-and-reduce-dangerous-methane-leaks/

[44] Valerie Volcovici, "US LNG exporters stick with methane measures despite EPA rollbacks," *Reuters*, March 20, 2025. https://www.reuters.com/business/energy/us-lng-exporters-stick-with-methane-measures-despite-epa-rollbacks-2025-03-20/

(Mexico).[45] Participating members commit to developing strategies to achieve goals and targets for the identification and reduction of methane emissions.[46] California set a target of 40% methane reduction from all sources by 2030 (compared to 2013 levels) and 45% reduction in leaks from oil and gas operations by 2030 (compared to 2017 levels).[47]

Challenges in comparing targets

A challenge that immediately arises when presented with these various commitments is that they are difficult, if not impossible, to compare in apples-to-apples terms. Without knowing what emissions were in the relevant baseline years (or, in some cases, were projected to be in target years), these targets are effectively meaningless to third parties that do not have access to — or cannot easily find — the relevant government emissions models or inventories. **For that reason, it should be standard practice for governments to regularly translate reduction targets into absolute terms**. This means that, in addition to communicating a percentage target, governments should say how many megatonnes their target amounts to, according to their current accounting. At the same time, they should acknowledge that, since estimates of historical emissions sometimes change to reflect new data, the absolute number will likely change over time.

What is clear from surveying these international targets is that countries around the world — including oil-and-gas-producing nations and importing nations — recognize that methane emissions are an important priority. Setting targets is a key step that precedes policy and regulatory design to meet those targets.

Relative reduction targets versus intensity targets

Another issue, which will be explored in more detail in the next section, is that we lack measurement data for all of the baseline years against which governments are tracking their methane progress. Therefore, some have argued that percent-based reduction targets are not meaningful.[48] One alternative is to use methane intensity targets. Methane intensity is the

[45] California Air Resources Board, "California launches methane-cutting effort with subnational governments at COP28," *California Air Resources Board News*, December 3, 2023. https://ww2.arb.ca.gov/news/california-launches-methane-cutting-effort-subnational-governments-cop28

[46] Subnational Methane Action Coalition, "Statement of Purpose." https://www.energy.ca.gov/sites/default/files/2024-02/Subnational_Methane_Action_Coalition_SIGNED_ada.pdf

[47] California Air Resources Board, *Short-Lived Climate Pollutant Strategy* (2017). https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf

[48] Bradley Conrad, David Tyner, and Matthew Johnson, "The Futility of Relative Methane Reduction Targets in the Absence of Measurement-Based Inventories," *Environmental Science & Technology*, 57, no. 50 (2023). https://doi.org/10.1021/acs.est.3c07722

amount of methane emitted relative to oil or gas produced. Best practice for methane intensity is considered 0.2%. This best practice was established by the Oil and Gas Climate Initiative led by BP, Chevron, ExxonMobil, Shell, and others.[49]

The advantage of intensity targets is that they avoid the problem of knowing the baseline. Instead, you can get a clear snapshot of current operational efficiency by measuring current emissions and comparing them with the current level of production. An intensity target can also drive companies to innovate and improve efficiency, which in turn leads to meaningful emissions reduction progress.

The disadvantage is that by focusing solely on intensity, we risk losing sight of absolute emissions, which is what really matters when it comes to climate. Efficiency gains can be offset by production increases. For example, in Alberta's oilsands, average GHG emissions intensity decreased by 22% from 2011 to 2022, but absolute GHG emissions continued to grow, as a result of production increases during the same period.[50] This underscores that, while emissions intensity is a valuable metric for measuring progress in the short and medium term, as we get into the 2030s and beyond, it will be vital to keep absolute emissions in sight — so that we can be sure we are on track to meeting our net-zero goal. Moreover, there are different ways of calculating methane intensity, which means that setting intensity targets still introduces a risk of apples to oranges comparisons.

Each form of target has advantages and drawbacks. For that reason, we do not recommend any one type of target be used to the exclusion of others. Rather, **we recommend that target-setters describe their targets and the underlying assumptions used to inform target-setting with as much clarity and precision as possible.**

[49] Oil and Gas Climate Initiative, "Methane Emissions." https://www.ogci.com/methane-emissions

[50] Matt Dreis, *Waiting to Launch: 2024 mid-year update* (Pembina Institute, 2024), 7-8. https://www.pembina.org/pub/waiting-to-launch-2024

3. Methane emissions data

Despite the number of reduction commitments reviewed in the previous section, global human-caused methane emissions continue to rise.[51] This means that targets alone are not enough. Rather, targets must be paired with effective policies, as well as robust measurement to ensure policies are working.

3.1 Challenges with the data

Methane emissions reduction targets can be hard to understand, compare, and assess progress towards. That is because the true level of methane emissions is uncertain. The science of methane measurement is rapidly and continuously evolving and, with it, our understanding of methane emissions. In general, reporting requirements and official inventories have not kept pace with this evolution and therefore tend to generate an imperfect picture of methane emissions. Inventories (which are official government and company accounts of emissions) and emissions models (which compile data from various sources and extrapolate historical and future emissions) are also diverging. While there is no perfect way of quantifying methane emissions, and there are benefits and drawbacks to different quantification methods that inform inventories and models, in practice this means that different stakeholders lack a shared reality against which to understand emissions goals and assess progress over time.

Methane emissions are underestimated

There is a great deal of uncertainty regarding current and historical methane emissions levels. Official inventories rely on industry self-reporting: operators estimate methane emissions based on the number of pieces of equipment they have on site, whether and when leaks were detected and when they were repaired, as well as 'emissions factors'. Emissions factors are formulas that are intended to represent average emission rates for specific types of equipment. However, standard emissions factors are often inaccurate, partly because they do not adequately account for equipment failures. Equipment failures result in an extreme distribution of methane leaks — meaning some equipment fails badly and leaks a lot of gas very quickly (in other words, it has a high leak rate or 'flux'), which in turn pulls up the average leak rate. A decade of research has

[51] R. Jackson et al., "Human activities now fuel two-thirds of global methane emissions", *Environmental Research Letters* 19, no. 10 (2024) 101002. https://doi.org/10.1088/1748-9326/ad6463

shown that because of this and other factors, official methane inventories in Canada and around the world underestimate emissions by a factor of 1.5 to 2 times or more.[52]

Measurement science is advancing quickly and has significantly improved our understanding of methane emissions from oil and gas production. Nevertheless, we typically lack measurement data for baseline years (2012 for the federal target, 2014 for B.C. and Alberta, and 2015 for Saskatchewan), because methane measurement campaigns did not begin ramping up until the late 2010s. This means that emissions in baseline years are a best guess based on modelling.

Models and inventories are diverging

Methane emissions models incorporate a wide range of data, some of which is public and some of which is not. This data includes companies' reports of their own venting and flaring activity, gas composition data, facility counts, average component numbers, leak detection and repair data, destruction efficiencies (meaning engineering estimates of how good equipment is at 'destroying' waste gas through combustion vs. allowing it to escape into the atmosphere), and operating conditions (meaning whether systems have operated normally or whether abnormal events such as malfunctions or shut-downs have occurred). Each region typically does its own emissions modelling, and the models are usually not public. This lack of transparency makes it difficult to explain differences between inventories, assess modelling assumptions and methods, and independently verify modelled reductions.

The modelling also changes over time to reflect new data and methodological improvements. For instance, in 2024, Canada's National Inventory Report (NIR) updated its modelling methodology by integrating aerial measurement studies (changes which have been preserved in the 2025 NIR).[53]

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[52] Katlyn MacKay et al., "Methane emissions from upstream oil and gas production in Canada are underestimated," *Scientific Reports* 11, no. 1 (2021). https://doi.org/10.1038/s41598-021-87610-3

Evan Sherwin et al., "US oil and gas system emissions from nearly one million aerial site measurements," *Nature* 627, no. 8003 (2024). https://doi.org/10.1038/s41586-024-07117-5

Bradley 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 & Environment* 4, no. 1 (2023). https://doi.org/10.1038/s43247-023-01081-0

Scott Seymour et al., "Saskatchewan's oil and gas methane: How have underestimated emissions in Canada impacted progress toward 2025 climate goals?" *Environmental Research Letters* 18, no. 8 (2023). https://doi.org/10.1088/1748-9326/ace271

[53] *National Inventory Report 2024*, Part 2, Section A3.2.2.1.5. https://publications.gc.ca/collections/collection_2024/eccc/En81-4-2022-2-eng.pdf

Aerial measurement is vitally important

In aerial measurement, methane concentrations are measured using sensors attached to airplanes. Flying over oil and gas sites allows researchers to cover a lot of ground and quickly get a relatively comprehensive picture of emissions. This 'top-down' approach typically reveals more methane emissions than are captured by 'bottom-up' reported data based on equipment counts and emissions factors. While the detection capabilities of the instrument can limit researchers' ability to detect small leaks or to attribute emissions to specific equipment or components, the capabilities of these instruments are advancing rapidly. Integrating aerial measurement data with other forms of measurement and monitoring data is invaluable when it comes to accurately quantifying methane emissions and having a truly science-based inventory.

This methodological change to the NIR took a 'best of both worlds' approach by integrating aerial measurement data with bottom-up reported data to ensure comprehensiveness and accuracy. This resulted in upward revisions to historical emissions estimates, including the estimate for Canada's baseline year (2012).

3.2 Shifting goalposts

Revising historical emissions estimates means that, while Canada's methane emissions targets do not change, their concrete meaning does. For instance, while Canada's 2030 reduction target remains 75% below 2012 levels, 75% of a bigger baseline number equals a bigger absolute reduction. If you have two pies — one smaller and one larger — three-quarters of the larger pie will be a bigger chunk than three-quarters of the smaller one. This sort of change is expected when targets are appropriately science-based and simply reflects our evolving understanding of methane emissions.

And it isn't merely a matter of accounting; if our targets don't reflect true emissions as closely as possible, then when targets are met, we may believe we are further along toward net-zero than we really are. The stakes for the planet are high, so as better data becomes available, we have to be willing to re-evaluate what still needs to be done.

3.3 The need for good, transparent data

Setting clear targets, assessing progress toward them, and credibly telling success stories requires good, transparent data. The problem of underestimation and underreporting means

that both governments and companies have a special burden of proof. If they want credit for emissions reduction, they must have *and show* the measurement data to back it up.

Doing so will be necessary not only for continued social licence but also for international market access. The European Union is the first major importing jurisdiction to extend stringent measurement, monitoring, reporting and verification (MMRV) requirements to imported fossil fuels. The EU will put the MMRV data into a publicly accessible methane transparency database.[54] We believe this is a sign of things to come. In tomorrow's global energy economy, having low-carbon energy products — and credibly proving it — will be a prerequisite of doing business.[55]

The Pembina Institute therefore urges the federal and provincial governments to make their emissions models public and to harmonize inventories.

[54] International Energy Agency, "EU Methane Regulations." https://www.iea.org/policies/18209-eu-methane-regulations

[55] Bryant, "Newly adopted European Union methane regulations are a game-changer."

4. Methane reduction in Canada

4.1 Federal and provincial targets

In March 2016, Canada and the U.S. issued the Joint Statement on Climate, Energy, and Arctic Leadership, in which both countries committed to a 2025 reduction target for oil and gas methane emissions (of 40-45% from 2012 levels) and to developing regulations to achieve the target.[56] Part of Canada's intent was to use the federal government's constitutional authority over methane gas under the Canadian Environmental Protection Act (CEPA) to create a nationally standardized floor for action.

All provinces, including those with major oil and gas industries, then had the option to design and implement their own regulations, so long as they were recognized as generating emissions reductions equivalent to the federal rules. British Columbia, Alberta and Saskatchewan therefore all have their own targets and regulations, which have been determined to be effectively equivalent.[57]

In October 2021, the Minister of Environment and Climate Change Canada announced the next milestone target for oil and gas methane emissions reductions for 2030. The 2030 target was selected based on the International Energy Agency's determination that a 75% cut in methane emissions from fossil fuel operations between 2020 and 2030 is needed to limit warming to 1.5°C.[58]

To put the various jurisdictions' methane targets into perspective, Table 1 (below) assembles baseline emissions data and translates reduction targets into absolute terms.

The data in the table is based on the March 2025 federal inventory. The historical emissions estimates in the present federal inventory are likely higher than some provincial emissions inventories and models, because, as previously outlined, they now incorporate aerial

[56] President Barack Obama and Prime Minister Justin Trudeau, "U.S.-Canada Joint Statement on Climate, Energy, and Arctic Leadership," *Office of the Prime Minister,* March 10, 2016. https://web.archive.org/web/20241014000936/https://www.pm.gc.ca/en/news/statements/2016/03/10/us-canada-joint-statement-climate-energy-and-arctic-leadership

[57] The reason provinces can have their own targets indexed to their own baseline years is because the relative reduction targets have been determined to be equivalent in absolute terms. For instance, during equivalency negotiations, it was determined that Canada's 45% from 2012 levels target was effectively equivalent to Alberta's 45% from 2014 levels target in terms of emissions magnitudes (i.e. megatonne reductions). To illustrate this, notice that in Table 1, even though the provinces have different baseline years and individual targets, the absolute methane emissions reduction targets of the provinces roughly add up to Canada's absolute reduction target.

[58] Stéphanie Bouckaert et al., *Net Zero by 2050* (International Energy Agency, 2021), 104. https://www.iea.org/reports/net-zero-by-2050

measurement data, which typically captures more emissions than 'bottom-up' inventories based on activity data and emissions factors. We use the federal estimates for two reasons. First, aerial measurement data is key to overcoming underestimation and underreporting. Second, two independent, peer-reviewed studies have validated this methodology by showing that its results more closely agree with what researchers observe in the field.[59] That is to say, the updated, 'best of both worlds' NIR methodology has narrowed the gap between 'top-down' measurement data and measurement informed inventories, on the one hand, and 'bottom-up' industry self-reporting, on the other. Therefore, in our view, the current national inventory is the most credible methane inventory in Canada.

All producing provinces must do their fair share to reduce oil and gas methane emissions. Not surprisingly, Table 1 highlights that Alberta's fair share is proportionally much greater.

Table 1. Canada's federal and provincial methane reduction targets

Target year	Jurisdiction	Reduction target	Sectoral source	Baseline year	Baseline emissions (Mt CO_2e)	Absolute reduction target (Mt CO_2e)
2025	Canada	40-45%	Oil & gas	2012	86.58	34.63 – 38.96
	B.C.	45%	Oil & gas	2014	4.96	2.23
	Alberta	45%	Oil & gas	2014	53.09	23.89
	Saskatchewan	40%	Associated gas venting and flaring	2015	26.82	10.73
2030	Canada	75%	Oil & gas	2012	86.58	64.93
	B.C.	75%	Oil & gas	2014	4.96	3.72
2035	B.C.	Near elimination	All industry	2014	10.42	10.42

Data source: Government of Canada[60]

[59] Katlyn MacKay et al., "A Comprehensive Integration and Synthesis of Methane Emissions from Canada's Oil And Gas Value Chain," *Environmental Science & Technology*, 1 (2024). https://doi.org/10.1021/acs.est.4c03651

Elton Chan et al., "Hybrid bottom-up and top-down framework resolves discrepancies in Canada's oil and gas methane inventories," *Communications Earth & Environment* 5, no. 1 (2024). https://doi.org/10.1038/s43247-024-01728-6

[60] *National Inventory Report 2025,* Part 3, Table A9-3, Table A11-17, Table A11-19, Table A11-21.

Alberta

Table 1 does not include a 2030 target for Alberta. Alberta's Emissions Reduction and Energy Development Plan commits the province to engaging stakeholders to "assess potential pathways to achieve a provincial 75%-80% methane emission reduction target from the conventional oil and gas sector by 2030 (from 2014 levels)."[61] However, that target has not been formally adopted and therefore has been excluded from our baseline analysis and additional figures below.

As the largest provincial contributor of methane emissions in Canada, Alberta's efforts to reduce methane have an outsized impact on the country's ability to meet its overall methane emissions target. This underlines the importance — and fairness — of Alberta officially adopting at least a 75% reduction target and developing regulations to achieve it. Canada's methane-reduction aspirations largely hang on Alberta's willingness to continue pushing the pace to reduce its oil and gas methane emissions.

Saskatchewan

We have included Saskatchewan in our analysis, even though it does not have a methane reduction target as such. Saskatchewan's Methane Action Plan (MAP) describes what may appear to be targets but are in fact reductions in associated gas venting and flaring modelled to result from compliance with the province's Oil and Gas Methane Emission Management Regulations.[62] ('Associated gas' emerges as a byproduct of oil production.) Saskatchewan's MAP indicates that the province's methane regulations will result in a cumulative 38.2 Mt CO_2e reduction in methane between 2020 and 2030.[63]

It may seem like quibbling to distinguish between formal targets and modelled emissions reduction outcomes. However, the distinction is important because, as previously argued, formal targets that *precede* regulations provide important guardrails. They ensure that, during the development of regulations — when government and industry stakeholders engage in a degree of negotiation — the government nevertheless stays true to its ultimate ambition.

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[61] Government of Alberta, "Emissions Reduction and Energy Development Plan." https://www.alberta.ca/emissions-reduction-and-energy-development-plan

[62] Government of Saskatchewan, "Methane Action Plan," 4. https://www.saskatchewan.ca/business/environmental-protection-and-sustainability/a-made-in-saskatchewan-climate-change-strategy/methane-action-plan

[63] According to the Government of Saskatchewan, emissions from associated gas venting and flaring in the baseline year of 2015 were 10.9 Mt CO_2e. The baseline value in Table 1 is much higher, at 25.47 Mt CO_2e, which comes from Canada's Official Greenhouse Gas Inventory and represents all oil and gas sector venting and flaring in the baseline year (not just from associated gas). However, since Saskatchewan produces very little natural gas, most gas that is vented or flared would be associated gas from oil production.

While Saskatchewan's Methane Action Plan applies to vented and flared associated gas, we have included Saskatchewan's total oil and gas methane emissions in its baseline year to enable apples-to-apples comparison. However, its vented and flared emissions account for almost all of that number, the majority of which would be from associated gas.

B.C.

B.C. is the only Canadian jurisdiction so far to have set a methane target for 2035. In particular, it has adopted a target of near-elimination of industrial methane emissions by 2035. While this target is not set relative to a baseline, baseline industrial methane emissions are included in Table 1 for reference. The Pembina Institute has argued that near-elimination could be achieved as early as 2030.[64] Nevertheless, this is the strongest commitment we have seen from any government in Canada.

Recommendations for targets

As noted above, there is value in setting sequential near-term reduction targets. These should be clearly defined and accompanied by robust, transparent measurement data to credibly demonstrate emissions reductions.

We recommend that:

- The Government of Canada maintain its reduction target of 75% by 2030 (from 2012 levels) and immediately finalize regulations to achieve it, while continuing to give provinces the opportunity to develop made-in-province policies to achieve equivalent outcomes.
- The Government of Alberta officially adopt its considered reduction target of 75-80% by 2030 (from 2014 levels).
- The Government of B.C. begin developing regulation to meet its target of near-zero methane emissions from industrial sources by 2035.
- The Government of Saskatchewan adopt a comparable 2030 reduction target.

4.2 Production over time

This section examines the progress of Canadian jurisdictions toward their reduction targets. To set the stage, we will first consider how much oil and gas production has grown (or declined) across jurisdictions since each region's baseline year, as noted in the figures below.

[64] Jan Gorski et al., *Reducing Methane Emissions from B.C.'s Oil And Gas Sector* (Pembina Institute, David Suzuki Foundation, Clean Air Task Force, Environmental Defense Fund, and Canadian Association of Physicians for the Environment, 2023), 5. https://www.pembina.org/pub/reducing-methane-emissions-bcs-oil-gas-sector-0

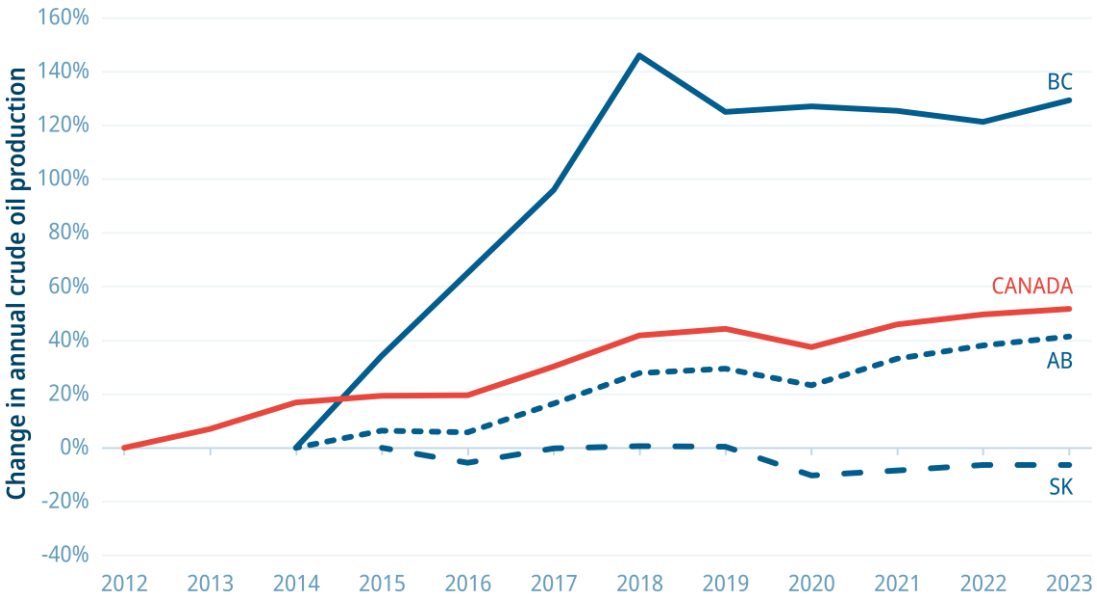

Figure 1. Change in average annual crude oil production from baseline years

Data source: Canada Energy Regulator[65]

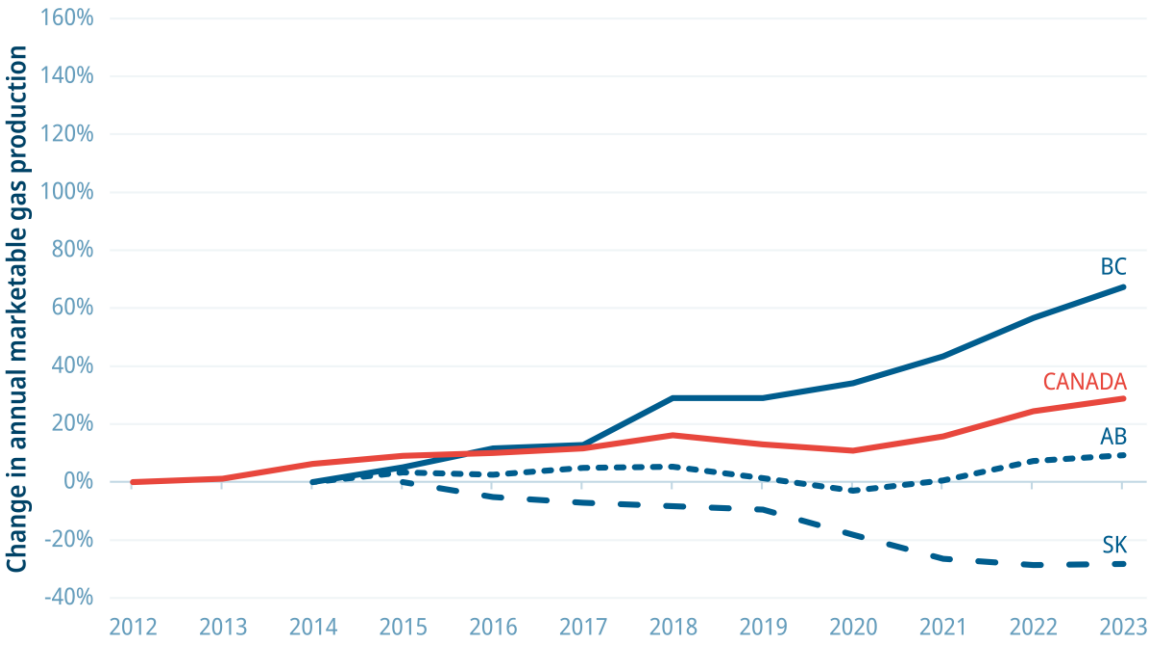

Figure 2. Change in average annual marketable gas production from baseline years

Data source: Canada Energy Regulator[66]

[65] Canada Energy Regulator, "Estimated Production of Canadian Crude Oil and Equivalent." https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/crude-oil-petroleum-products/statistics/estimated-production-canadian-crude-oil-equivalent.html

[66] Canada Energy Regulator, "Marketable Natural Gas Production in Canada." https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/natural-gas/statistics/marketable-natural-gas-production-in-canada.html

Growth in oil and gas production, such that seen in Alberta and B.C., can result in higher absolute methane emissions if the efficiency of operations does not increase to compensate. When production rises and emissions decline, it is due to improved efficiency (so long as emissions quantification is accurate). Declines in production, such as those seen in Saskatchewan, can also explain some methane emissions reductions. One study argues, for instance, that 90% of methane reductions in Saskatchewan are explained by decreasing heavy oil production.[67] **Assessments of methane reduction trends should be sensitive to production changes to ensure that policies are working and downward trends will persist if production grows.**

4.3 Tracking progress

A context of uncertainty

The question of progress toward reduction targets is just as fraught as the question of baselines and absolute reduction targets.

To characterize progress made, we continue to use Canada's current Official Greenhouse Gas Inventory. However, not all stakeholders accept that inventory, and it diverges significantly from some provincial inventories.

In particular, while the Government of Alberta announced that it achieved its 2025 reduction target as of 2022,[68] federal NIR data suggests it has not. Our purpose here is not to deny Alberta's progress but to encourage improved methane accounting and transparency. **We recommend that the Government of Alberta collect more comprehensive measurement data, integrate measurement standards into reporting requirements, and make its emissions modelling publicly transparent.**

Methane emissions reductions

The following figures show the progress Canadian jurisdictions have made toward their reduction targets as of 2023, first in relative terms (percent change from baseline, Figure 3) and second in absolute terms (Mt CO_2e, Figure 4), based on data in the NIR. Note that 2030 targets are not displayed for Alberta and Saskatchewan because they have no official 2030 targets.

[67] Conrad et al,. 'The Futility of Relative Methane Reduction Targets."

[68] Government of Alberta, "Alberta hits methane reduction target three years early," news release, November 28, 2023. https://www.alberta.ca/release.cfm?xID=89370E8084D20-DE6B-19C9-F36522142C6795F9

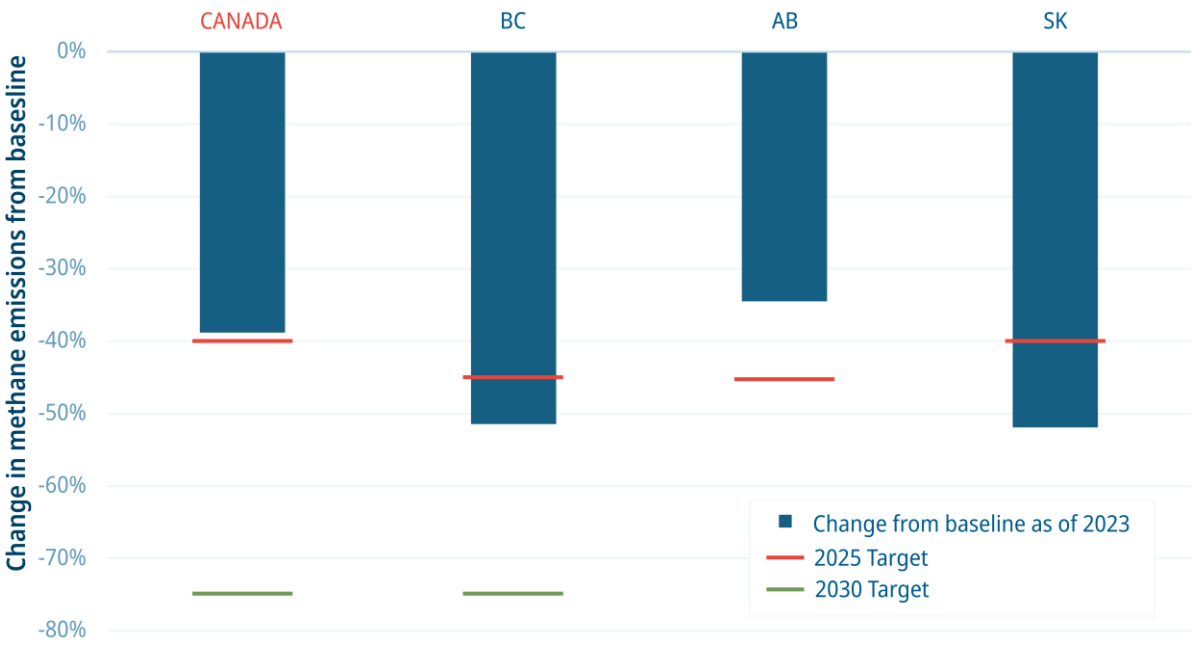

Figure 3. Progress of Canadian jurisdictions toward targets (relative)

Data source: Government of Canada[69]

Notably, while prior inventories showed slow progress in B.C., the inventory update in 2025 (which includes data for years up to and including 2023) shows that B.C. has achieved its 2025 reduction target ahead of schedule. Importantly, this reduction has occurred *despite* significant increases in the province's oil and gas production since the baseline year (see Figure 1 and Figure 2). This is an important success story backed by credible data. It shows that it pays to have a strong regulatory approach closely informed by measurement data. **We recommend that B.C. continue to use measurement data to evaluate the effectiveness of its regulations, including in the planned review of the regulations that were introduced in 2024, as well as in further regulatory development.**[70]

The data also suggests that Saskatchewan has achieved the 2025 reductions its regulations were designed to achieve; however, given simultaneous production declines, this decrease is not necessarily attributable to stringent regulation.

Saskatchewan's achievement of the 40% modelled reduction has been independently verified by an academic study.[71] However, the study cautioned that methane emissions from Saskatchewan's cold heavy oil production with sand (CHOPS) are underestimated by 30-40%. An additional study has shown than Saskatchewan's methane intensity is extraordinarily high,

[69] *National Inventory Report 2025,* Part 3, Table A9-3, Table A11-17, Table A11-19, Table A11-21.

[70] Government of British Columbia, "B.C. cuts harmful methane emissions from oil and gas sector," news release, September 9, 2024. https://news.gov.bc.ca/releases/2024EMLI0063-001456

[71] Seymour et al., "Saskatchewan's Oil and Gas Methane."

at 19%.[72] This means that the province still has work to do to improve measurement and reporting, as well as operational efficiency. **We recommend that Saskatchewan further enhance its regulatory regime, including measurement, monitoring, reporting and verification requirements.**

The following figure adds important context by showing progress in absolute terms.

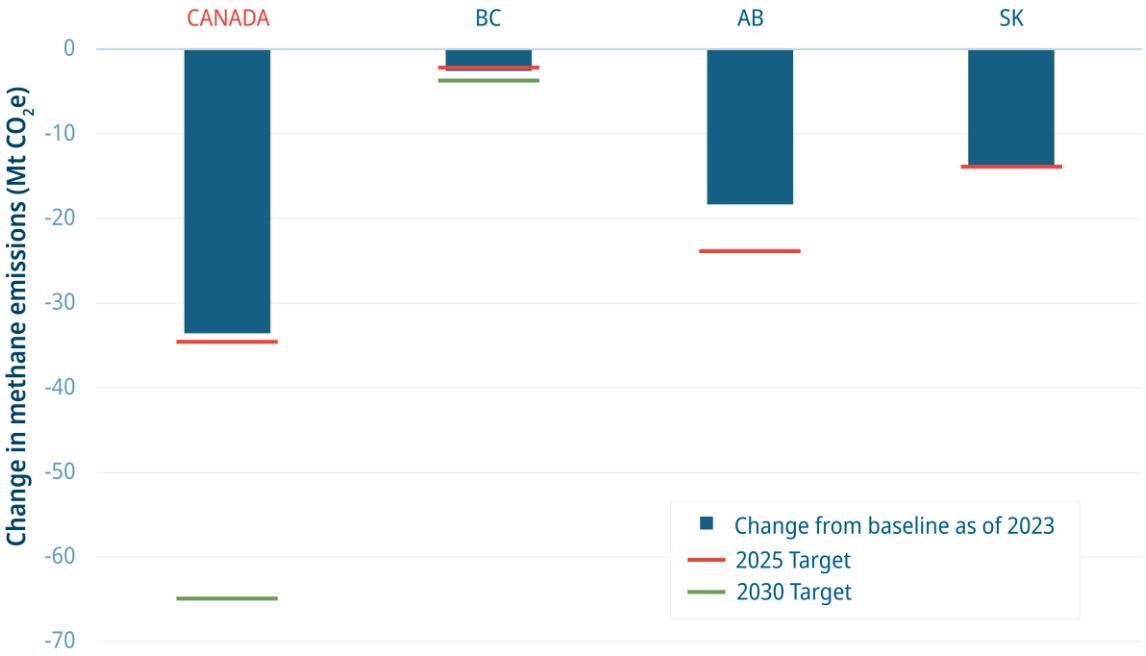

Figure 4. Progress of Canadian jurisdictions toward targets (absolute)

Data source: Government of Canada[73]

[72] Katlyn MacKay et al., "A Comprehensive Integration and Synthesis of Methane Emissions from Canada's Oil and Gas Value Chain," *Environmental Science & Technology* (2024). https://doi.org/10.1021/acs.est.4c03651

[73] *National Inventory Report 2025,* Part 3, Table A9-3, Table A11-17, Table A11-19, Table A11-21.

5. Conclusion

The number of government targets to reduce methane emissions has grown rapidly in recent years. This report has taken stock of many of those targets, highlighting that the world is recognizing the many co-benefits of urgently reducing methane emissions.

Those targets matter. They signal that methane mitigation is an important public priority, enable rough calibration of ambition, constrain policymaking, and — in federations like Canada — create a floor for subnational action. For these reasons, we urge that existing targets be maintained and that any jurisdictions that have not already done so formally adopt a 2030 reduction target.

When setting targets, striking the right balance of ambition and achievability is difficult, especially given high uncertainty. It is also difficult for stakeholders to understand, compare, and track progress toward targets when data is limited or inaccessible. Differences in baseline emissions estimates, current emissions inventories, and in the quality of data mean that conflicting conclusions are being drawn about progress in reducing methane emissions in pivotal regions like Alberta. That is why good, transparent measurement data is so important. Governments must support measurement initiatives; establish measurement-based reporting and inventories; ensure the data is publicly accessible and use it to assess progress, identify gaps, strengthen regulations, and ensure accountability.

Finally, while methane reduction targets are rising globally, so too are methane emissions. This means that targets alone are not enough. They must be paired with policies, including strong regulations, to ensure existing solutions are deployed at scale. Doing so not only mitigates near-term climate change and improves air quality and health outcomes; it also prepares companies to compete in global markets that will increasingly favour low-carbon energy products.

Photo: Roberta Franchuk, Pembina Institute

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