Submission on the *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)*
Environmental Defence Canada
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Introduction

Federal regulations[1] to reduce methane emissions from the upstream oil and gas sector are urgently needed in Canada for a few reasons. First, the oil and gas sector is the largest source of greenhouse gas (GHG) emissions in the country, and the fastest growing source of emissions.[2] In fact, recent research undertaken in both Alberta[3] and British Columbia[4] found that methane emissions from conventional oil and gas facilities are much higher than documented in Canada's greenhouse gas inventory.

Second, regulating methane emissions is the only policy in the pan-Canadian framework that focuses on the upstream oil and gas sector. Even with this measure, Environment and Climate Change Canada's analysis shows that upstream oil and gas sector is the only one that will continue to *increase* its emissions between now and 2030.[5]

Third, research shows that activities that reduce methane emissions are some of the lowest cost mitigation options for Canada. The 45% reduction target in methane emissions can be met at an average cost of $2.76/tonne.[6] It is useful to compare this figure to the $30/tonne carbon price that most sectors in British Columbia currently face or the $20/tonne carbon tax in Alberta. Methane emission reductions are very cost-effective because technology is readily available to significantly reduce or eliminate vented methane, and because methane is a potent greenhouse gas, with a global warming potential 85 times that of carbon dioxide over a 20-year span.

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[1] Government of Canada. (2017). "Canada Gazette: Vol. 151, No. 21 — May 27, 2017." Accessed at: http://www.gazette.gc.ca/rp-pr/p1/2017/2017-05-27/html/reg1-eng.php.
[2] Environment and Climate Change Canada. (2017). "National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada." Part 3, Table A9-2.
[3] Environmental Defence. (2017). "Canada's Methane Gas Problem: Why strong regulations can reduce pollution, protect health, and save money." Accessed at: 17-72_MethaneLeaks_Primer_FINAl.
[4] Atherton, E. *et al.* (2017). "Mobile measurement of methane emissions from natural gas developments in Northeastern British Columbia, Canada." *Atmospheric Chemistry and Physics.*
[5] Determined using Environment and Climate Change Canada. (2016). "Canada's 2016 greenhouse gas emissions: Reference Case." Accessed at: http://www.ec.gc.ca/GES-GHG/default.asp?lang=En&n=1F24D9EE-1&offset=2&toc=show, and Government of Canada. (2016). "Modelling of greenhouse gas projections." Accessed at: https://www.canada.ca/en/services/environment/weather/climatechange/climate-action/modelling-ghg-projections.html.
[6] ICF International. (2015). "Economic Analysis of Methane Emission Reduction Opportunities in the Canadian Oil and Natural Gas Industries." Prepared for Environmental Defense Fund. Accessed at: https://www.edf.org/sites/default/files/content/canada_methane_cost_curve_report.pdf.

For all these reasons, Environmental Defence is very supportive of the federal government developing and implementing regulations to reduce methane emissions in the oil and gas sector. Implementing these regulations without delay is one way to ensure that the oil and gas sector contributes to meeting Canada's greenhouse gas reduction targets.

Proposed amendments to the regulations to reduce methane emissions

There are a few objectives that should be met in the design and implementation of the regulations. Reaching the 40-45 per cent reduction target by 2025 is an important one. Minimizing cumulative emissions between now and the target date would also be key, especially given the strong global warming potential of methane over the short term. Looking beyond 2025 with an eye to continued emission reductions is also an important consideration. Environmental Defence believes that cost-effective solutions exist to reduce Canada's methane emissions from the upstream oil and gas sector to zero or near-zero by 2030. Finally, it would be important to ensure that the best available and most cost-effective technologies are employed so that the reductions are both feasible and affordable.

Using these criteria, we would like to recommend a few amendments to the proposed regulations as tabled in *Canada Gazette I* (CG1).

Reducing cumulative methane emissions and closing the 55 Mt CO2e gap

Modifications that Environment and Climate Change Canada made to the draft methane regulations from when they were first proposed in 2016 will result in significantly higher cumulative GHG emissions. Though analysis shows that Canada's 2025 emission reduction target will be reached, *cumulative* emissions between now and 2025 will be 55 Mt CO2e higher over that period because of the changes.[7] This is mostly because the proposed delay in implementing parts of the regulations will mean that activities to reduce methane emissions will happen later, but also because of changes to the regulations that make them less stringent.

This gap in cumulative GHG emissions is significant, approximately equal to current annual methane emissions from the upstream oil and gas sector. The federal government must rethink the changes that were made and consider readjusting the regulations as proposed in CG1 in order to close that gap as much as possible. That could be done by:

1. **Adjusting the implementation timetable:** Some sections of the federal regulations will come into force in 2020 (fugitive equipment leaks, compressors, and well completions by hydraulic fracturing) while other sections will come into force in 2023 (venting and pneumatic devices). The schedule should be modified so that the regulations are implemented in 2019 and 2021 respectively—both are interim timelines between the original proposal and the draft regulations—since that would avoid 33.5 Mt CO2e of emissions by 2025.[8]

2. **Increasing the frequency of leak detection and repair (LDAR):** If LDAR activities begin in 2019 and are undertaken four times per year rather than the proposed three times per year, that would reduce cumulative emissions an estimated 21.6 Mt CO2e.[9] Taken together, the measures would

[7] Calculated by the Pembina Institute using the Environment and Climate Change model.
[8] Calculated by Environmental Defense Fund using the Environment and Climate Change model.
[9] *Ibid.*

reduce total cumulative emissions by 47.4 Mt CO2e,[10] coming close to making up the 55 Mt gap. (Note that the reductions in 1 and 2 do not add perfectly because there is overlap in the reductions achieved by each measure.) The regulations should therefore increase the frequency of required LDAR inspections to quarterly, and monthly for the largest facilities.

3. **Tightening the potential to emit thresholds:** Additional GHG reductions could be achieved by having more oil and gas facilities be subject to the regulations by tightening the "Potential to Emit" (PTE) rules and threshold.[11] In particular, many heavy oil facilities will not be subject to the methane regulations despite having significant methane emissions, and potentially higher emissions that estimates would indicate. This should be addressed by requiring facilities to directly measure rather than estimate methane emissions and reducing the 60,000 m^3 PTE threshold.

Ensuring equivalency

Some provinces are expected to develop their own regulations to reduce methane emissions and ask that their regulations be considered equivalent to the federal ones. In order to maintain the integrity of the pan-Canadian climate framework and the federal methane regulations, the Government of Canada must ensure that the proposed provincial regulations will have at least the same environmental benefit as the federal ones. That means every province must both reach the same methane reduction target as the 2025 federal target *and* have the same or greater cumulative GHG and volatile organic carbon (VOC) reductions between 2018 and 2025.

Requiring best available technology

The long-term goal for the Government of Canada must be to mandate the use of best available technology and continue to reduce methane emissions in the upstream oil and gas sector until they are virtually eliminated. Given that technology is available and that low-cost reduction opportunities exist beyond the 45 per cent target, Environmental Defence favours a 2030 timeline for virtual elimination of these emissions.

It is therefore disappointing to see that the government foresees no emission reductions beyond 2025.[12] In several cases, the proposed methane regulations allow regulated entities to deploy technologies that are not the best available from an emissions perspective. For example, smaller facilities can deploy low-emitting pneumatic controllers, when zero-emitting controllers exist, and facilities with existing compressors will not be required to conserve gas.

In addition to known venting, low-emitting pneumatics fail regularly, leading to methane leaks that can go undetected for long periods of time. The regulations should require the use of zero-emitting pneumatics since these have the same operational effectiveness while eliminating emissions. For example, electrically-driven devices do not vent methane and have been used at in Alberta without

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[10] *Ibid.*

[11] Nelson, D. (2017). "On methane regs, Canada must stand tall against industry." Environmental Defense Fund. Accessed at: http://blogs.edf.org/energyexchange/2017/05/25/on-methane-regs-canada-must-stand-tall-against-industry/?utm_source=email&utm_campaign=expert_canada-methane_upd_ngas&utm_medium=email&utm_id=1495733698&utm_content=dnelson.

[12] Environment and Climate Change Canada. (2017). "Proposed methane regulations." Accessed at: https://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=BF68F2B3-1. Figure 1.

incident.[13] Replacing pumps and controllers now with zero-emitting technologies would be smart investments, given the potency of methane as a greenhouse gas and that these investments represent low-cost abatement options. If the government decides to allow low-bleed pneumatics in certain cases, the regulations should require that those pneumatics also be inspected quarterly.

Acting on commitment to eliminate routine flaring by 2030

Similar to pneumatic devices, allowing oil and gas facilities to flare methane represents a half-measure. Yet flaring is proposed as a replacement activity to venting at oil and gas facilities and during well completion for hydraulic fracturing.

Environmental Defence does not support routine flaring of methane unless for safety reasons. Environment and Climate Change Canada's analysis shows that emissions from flaring will increase Canada's carbon dioxide emissions by 14 Mt by 2035.[14]

More importantly, Canada has made a commitment to abandon routine flaring by 2030,[15] and upcoming regulations that allow facilities to flare methane rather than conserve it will jeopardize that commitment. That's because flaring technologies that are deployed over the coming years to meet regulations will have to be replaced in less than a decade.

The government should instead mandate that methane that would have been vented or flared be tied into existing pipeline networks. Where that is not possible, methane should be captured and stored. Environment and Climate Change Canada should also demonstrate the impact of the regulations on Canada's ability to meet its zero routine flaring commitment by 2030.

Forbidding the use of offsets

Any delay in the implementation of methane regulations should not be used for the financial benefit of Canada's oil and gas industry. A three-year delay in regulations coming into force *could* allow emission reduction activities by industry to be sold as offsets. Lobby documents obtained through access to information show that this is the intention of the oil and gas industry: to delay regulations, make them more voluntary, and then generate revenue by selling emission reductions as offsets.[16] This would constitute a pay-the-polluter approach rather than adhering to the polluter pays principle.

Instead, if investments in emission reductions are feasible over the short term, then they should be regulated on a shorter time frame than the one proposed. The alternative should be that these emissions face a carbon price at the level of the federal backstop, rather than allowing the industry to benefit financially through the creation of offsets.

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[13] GreenPath Energy Ltd. (2017). "GreenPath 2016 Alberta Fugitive and Vented Emissions Inventory Study." Commissioned by the Alberta Energy Regulator. Accessed at: http://www.greenpathenergy.com/wp-content/uploads/2017/03/GreenPath-AER-Field-Survey-Results_March8_Final_JG.pdf.

[14] Government of Canada. (2017). "Canada Gazette: Vol. 151, No. 21 — May 27, 2017." Accessed at: http://www.gazette.gc.ca/rp-pr/p1/2017/2017-05-27/html/reg1-eng.php.

[15] World Bank. (2017). "Zero Routine Flaring by 2030: Endorsers." Accessed at: http://www.worldbank.org/en/programs/zero-routine-flaring-by-2030#4.

[16] Canadian Association of Petroleum Producers. (Sept. 2016). "CAPP Assessment of Federal Draft Regulatory Model for Methane Emission Reductions." Accessed through Saskatchewan Freedom of Information request.

Conclusion

There are good reasons why the Government of Canada should amend the proposed methane regulations to make them more stringent and come into force earlier. These are low-cost emission reductions from a sector that has to date avoided the regulation of its greenhouse gas emissions. Also, U.S. states such as Colorado, Wyoming, and California have methane regulations already in place that are more stringent than Canada's proposed ones.

There are also co-benefits to regulating emissions in a more timely way. There are important health benefits to reducing methane emissions that are often accompanied by even more harmful gases. Firms in Canada have the expertise and technology to take advantage of regulations, which will create needed jobs in geographic regions that have had employment downturns over the last few years.[17]

This is not just the opinion of Environmental Defence. Over 5,300 citizens have signed our petition[18] and expect the Government of Canada to move with greater urgency to implement stringent methane regulations for the upstream oil and gas sector. The government should recognize the advantages, and its role, in maximizing the public benefit of federal policies.

[17] Blue-Green Canada. (2017). "Don't Delay: Methane Emission Restrictions Mean Immediate Jobs in Alberta." Accessed at: http://bluegreencanada.ca/methane

[18] Environmental Defence. (2017). "Tell the Canadian government to regulate oil and gas companies so they stop leaking methane." Accessed at: http://action.environmentaldefence.ca/p/dia/action4/common/public/?action_KEY=21948.