

September 7, 2016

The Honourable Catherine McKenna, P.C., M.P.  
Minister of Environment and Climate Change  
House of Commons  
Ottawa, Ontario  
Canada K1A 0A6

**Re: Pacific NorthWest LNG's carbon pollution under B.C.'s new climate plan**

Dear Minister McKenna:

In light of the B.C. government's recently released climate plan, we have revisited our analysis of the Pacific NorthWest (PNW) LNG project ("the Project"), with a focus on the carbon pollution from the terminal and its associated upstream development.<sup>1</sup>

Based on this updated analysis, the carbon pollution from the Project and its associated upstream development will be in the range of 8.9–9.6 Mt CO<sub>2</sub>e in 2030. This will increase to 9.6–10.5 Mt CO<sub>2</sub>e by 2050 as shale gas wells mature and become less productive.<sup>2</sup>

Ten million new tonnes of annual carbon pollution are significant in both the B.C. and Canadian contexts. These emissions would make the Project one of Canada's largest sources of carbon pollution. They would stem from technologies that are in some cases 4.7 times more polluting than leading alternatives.<sup>3</sup> They would make it virtually impossible for B.C. to achieve its 2050 climate target of 13 Mt CO<sub>2</sub>e.<sup>4</sup>

It is for these reasons that the Pembina Institute recommends that the Environmental Certificate for the Project be rejected. Please don't hesitate to contact me if you have any questions about the analysis or our recommendation.

Sincerely,  
Matt Horne  
Associate B.C. Director, Pembina Institute

cc: The Honourable James Gordon Carr, P.C., M.P., Minister of Natural Resources  
Canadian Environmental Assessment Agency

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<sup>1</sup> Appendix A details the methodology.

<sup>2</sup> Appendix B provides detailed results.

<sup>3</sup> Appendix C compares PNW LNG with leading alternatives.

<sup>4</sup> Appendix D puts PNW LNG's carbon pollution in the context of B.C.'s climate targets.

# Appendix A: Methodology

B.C.'s recently announced climate plan includes two policy commitments that apply to the carbon pollution from the Project's associated upstream natural gas production:

- Reducing methane emissions by 45% by 2025
- Providing financial support for upstream electrification infrastructure and for programs to equalize the cost of electricity to natural gas

No new policies were introduced to decrease emissions from the terminals.

For context, the province's Climate Leadership Team's recommendations would have put the province on track for its 2050 climate target and included the following policies for LNG terminals and associated upstream development:

- Increasing the carbon tax by \$10/year starting in 2018
- Broadening the carbon tax to include non-combustion sources by 2021
- Reduce the PST by 1% and eliminate the PST on all electricity rates
- Establish a targeted and transparent mechanism for emission-intensive and trade-exposed industries to mitigate competitiveness pressures from stronger climate policies
- Reducing fugitive and vented methane emissions by 40% within 5 years
- Instruct B.C. Hydro to develop a strategy to provide clean electricity to electrify upstream operations, LNG, and associated infrastructure

We updated our analysis of the Project and its associated upstream activity by including the two above described policy commitments in our [B.C. Shale Scenario Tool](#). The model settings for these policies are:

- Methane management: reduce venting and fugitive methane emissions by 45% for all stock starting in 2020
- Upstream electrification: implementing upstream electrification for 10%<sup>5</sup>, 21%<sup>6</sup>, and 31%<sup>7</sup> of new stock, to represent three possible scenarios that are based on best available information

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<sup>5</sup> The Northern Montney Power Supply (NMPS) transmission line has been reported to provide 100 MW to Progress Energy and reduce emissions by 400 kt by Minister Bennett (<https://www.biv.com/article/2015/11/peace-power-plans-cant-wait-public-review-minister/>). This is 10% of the upstream combustion emissions associated with PNW LNG under a BAU scenario.

<sup>6</sup> The CLP says that emissions can be reduced from electrification of Montney by a total of 4.0 Mt, and that 1.6 Mt has already been achieved (almost all would be from the Dawson Creek/Chetwynd Area Transmission [DCAT] line). As such, we assume an incremental reduction from electrification from the CLP of 2.4 Mt. It has been reported that the Peace Region Electricity Supply (PRES) will equal DCAT in capacity and emissions reductions. This would leave 0.8

In our updated analysis, we also reduced formation CO<sub>2</sub> venting emissions by 90% from the default gas supply scenario to represent the gas coming from the low formation CO<sub>2</sub> Montney basin, which is where Progress Energy is planning to develop.

All other model settings are the same as in our original analysis, including the terminal size (19.2 Mt of LNG per year), terminal emissions intensity (0.255 t-CO<sub>2</sub>e/t-LNG)<sup>8</sup>, and methane global warming potential (34 over a 100-year time frame).<sup>9</sup>

Two caveats should be applied to our assessment of these policies:

1. The announced methane regulations do not increase on the ambition of proposed federal standards. The federal commitments were not accounted for in Pembina Institute's earlier analysis or the draft report from CEAA, so they are included here.
2. The upstream electrification in the B.C. plan results from provincial and federal subsidies for transmission infrastructure and for programs to equalize the cost of electricity. It is uncertain how large a combined subsidy will be made available and what level of electrification will be achieved as a result. For this analysis, we have used the reductions anticipated in the B.C. plan.

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Mt of reductions from NMPS, which is 21% of PNW upstream combustion emissions (assuming no other electrification measures are undertaken).

<sup>7</sup> The third scenario assumes that the electrification will be split between PRES and NMPS, and that no other emissions reductions occur from other electrification projects. This would be a 1.2 Mt reduction, or 31% of the upstream combustion emissions associated with the PNW LNG project.

<sup>8</sup> Canadian Environmental Assessment Agency, *Letter from Pacific North West LNG to CEAA* (February 2, 2016). <http://www.ceaa.gc.ca/050/documents/p80032/104791E.pdf>

<sup>9</sup> IPCC, *Working Group 1 Contribution to the IPCC Fifth Assessment Report: Climate Change 2013: The Physical Science Basis*. [https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/drafts/fgd/WGIAR5\\_WGI-12Doc2b\\_FinalDraft\\_Chapter08.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/drafts/fgd/WGIAR5_WGI-12Doc2b_FinalDraft_Chapter08.pdf)

## Appendix B: Detailed results

Our analysis indicates the carbon pollution from the Project and its associated upstream development will range from 8.9–9.6 Mt CO<sub>2</sub>e in 2030. This will increase to 9.6–10.5 Mt CO<sub>2</sub>e by 2050 as wells mature and become less efficient. In both cases the range is dependant on the degree of electrification achieved in upstream operations. The results are provided in greater granularity in Table 1.

Table 1: Carbon pollution sources associated with PNW LNG

Source of carbon pollution	Carbon pollution estimate (Mt CO <sub>2</sub> e)	
	2030	2050
Terminal	4.9	4.9
Upstream methane	0.8	1.0
Upstream formation CO <sub>2</sub>	0.2	0.2
Flaring	0.3	0.3
Upstream combustion - 10% electrification	3.5	4.1
Upstream combustion - 21% electrification	3.1	3.6
Upstream combustion - 31% electrification	2.8	3.2
Total (w/ 10% electrification)	9.6	10.5
Total (w/ 21% electrification)	9.2	10.0
Total (w/ 31% electrification)	8.9	9.6

## Appendix C: PNW LNG in comparison to leading alternatives

The Project is not designed to best possible practices, and there remain opportunities to cut carbon pollution significantly that are not yet captured by provincial and/or federal policy. This is clearly demonstrated when assessing the emissions performance of the LNG terminal.

According to comments from the proponent made earlier this year, the terminal will result in emissions of 4.9 Mt CO<sub>2</sub>e. This equates to an emissions intensity of 0.255 t-CO<sub>2</sub>e/t-LNG.<sup>10</sup> This intensity is significantly above the provincial benchmark of 0.16 t-CO<sub>2</sub>e/t-LNG. It is also higher than other LNG projects proposed for B.C.'s coast. For example, the LNG Canada project will have an emissions intensity of 0.15 t-CO<sub>2</sub>e/t-LNG, or 41% better than PNW LNG. The Woodfibre LNG project plans to achieve 0.054 t-CO<sub>2</sub>e/t-LNG, or 79% better. In other words, the Project would be 4.7 times more polluting than the leading option proposed for B.C.

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<sup>10</sup> Assuming exports of 19.2 million tonnes of LNG per year.

## Appendix D: The Project's carbon pollution in the context of B.C.'s targets

It is the Pembina Institute's expectation that each province will need to meet, and ultimately exceed, their individual targets for Canada to meet the commitments made in the Paris Agreement and the Vancouver Declaration.

B.C.'s emissions have started to rise again, and the province will unfortunately fail to achieve its 2020 climate targets because new climate policies have not been implemented since 2012. The B.C. government's Climate Leadership Team (CLT) provided a package of recommendations to get the province back on track for its 2050 target and recommended an interim 2030 target. The B.C. government did not implement most of the CLT's recommendations in the recently announced climate plan, including the central ones of increasing and expanding the carbon tax.

As a result, B.C.'s new climate plan will not reduce emissions from current levels by 2030 (and interim analysis suggests that emissions in 2030 will be higher than today). This is driven in large part by increasing emissions from the natural gas and LNG sector.<sup>11</sup>

The PNW LNG project will account for 74% to 81% of B.C.'s 2050 target of 13 Mt, leaving almost no room for the rest of the economy – an implausible scenario. As such, the commitments in B.C.'s new climate plan do not articulate how B.C. could meet its climate target if PNW LNG proceeds.

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<sup>11</sup> Environment and Climate Change Canada, *Canada's Second Biennial Report on Climate Change* (2016). <https://www.ec.gc.ca/GES-GHG/default.asp?lang=En&n=02D095CB-1>