

**VIA EMAIL**

February 2, 2016

Lisa Walls, Regional Director  
Canadian Environmental Assessment Agency  
410 - 701 West Georgia Street  
Vancouver, BC V7Y 1C6

Dear Ms. Walls,

**RE: Pacific NorthWest LNG Ltd.'s Environmental Assessment Ref. 80032 (the "Application")  
Pacific NorthWest LNG Project and Interim Approach for Federal Environmental Assessments**

We have reviewed your letter dated January 28, 2016 wherein you invite Pacific NorthWest LNG Ltd. (PNW LNG) to respond to the greenhouse gas (GHG) analysis, assumptions and methodology proposed by Environment and Climate Change Canada (ECCC) on the upstream emissions associated with the PNW LNG project contemplated in the Application (PNW LNG Project). In the preparation of this response we have relied on information and analysis provided by Progress Energy Canada Ltd. (PECL), an affiliate of PNW LNG and the intended supplier of natural gas feedstock to the PNW LNG project, and its advisors.

We also note that your summary indicates the GHG emissions from the PNW LNG Project are projected to be 5.2 Mt per year of CO<sub>2</sub>e at full build out. This is the same GHG emissions estimate submitted by PNW LNG in the Environmental Impact Statement in February 2014. Further engineering refinements have reduced that projection to 4.9 Mt per year of CO<sub>2</sub>e at full build out.

Your letter states that the ECCC has projected that GHG emissions in Canada associated with the natural gas production, processing and transmission of the natural gas used by the PNW LNG Project at full build out will range from 6.5 to 8.7 Mt per year of CO<sub>2</sub>e. In making that projection the ECCC has relied primarily on upstream emissions estimates from its own GHG projections to be published in Canada's Biennial Report and the Pembina Institute's British Columbia Shale Scenario Tool, which relies in part on emissions factors prepared by Clearstone Engineering.

As a general comment, we agree that the GHG projections provided by the ECCC are what they purport to be, that is, a projection of upstream GHG emissions associated with the volume of natural gas required by the PNW LNG Project based on GHG emissions factors for British Columbia and Alberta natural gas production on a non-specific basis. We also agree with the Agency's comments that: 1) these are rough estimates given the inherent uncertainties in the analysis, and 2) estimating GHG emissions from upstream stages with greater accuracy would require detailed knowledge of the facilities producing, processing and transporting the natural gas and their GHG emissions. In that regard, PNW LNG shares the Canadian Environmental Assessment Agency's concern that the ECCC's projections may not be indicative of the actual upstream GHG emissions associated with the PNW LNG Project, which is the focus of the Application.



Natural gas feedstock for the PNW LNG Project is intended to be sourced by PECL almost exclusively from its existing Montney assets, which external evaluations have established are capable of meeting the natural gas requirements for the entire operating life of Phase 1 of the PNW LNG Project, and possibly Phase 2.

PECL projects that the GHG emissions associated with the processing, production and transportation of natural gas from its Montney assets to the PNW LNG Project at full build out will be less than 5 Mt per year of CO<sub>2</sub>e. This projection is comprised of three components:

1. An estimate of GHG emissions from PECL's 2014 production and processing of Montney natural gas. This estimate was audited by Environmental Services Inc. (EIS) and reported to the British Columbia Climate Action Secretariat;
2. An estimate of GHG emissions of Montney natural gas production to levels required by the PNW LNG Project at full build out. This work is being performed by Clearstone Engineering; and
3. TransCanada Pipelines' annual GHG emissions forecast for transmission of natural gas to the PNW LNG Project at full build out.

In support of PECL's proposed GHG emission levels, please consider the following:

- Not all sources of natural gas are created equal. Some sources of natural gas (and hydrocarbons generally) contain more GHGs *in situ* and are much more GHG intensive to produce and process than others. Within the province of British Columbia, for example, the Montney shales have some of the lowest CO<sub>2</sub> content and are the least energy intensive to produce as compared to the Horn River, Cordova and Liard shales, which have a significantly higher CO<sub>2</sub> content and are more energy intensive to produce. Montney gas is one of the least GHG intensive sources of natural gas in British Columbia and Alberta. Because the ECCC's proposed GHG emissions rely on data that includes sources of natural gas that will not be part of the natural gas feedstock for PNW LNG and that are much more GHG intensive than Montney natural gas, we do not agree that the ECCC's projected GHG emissions for natural gas used by the PNW LNG Project are indicative of the GHG emissions associated with the natural gas actually supplied to the PNW LNG Project by PECL.
- The PNW LNG project is a fully integrated greenfield project. This means that the upstream production, processes and transportation will utilize new equipment and the latest technologies, which include improved leak detection and energy efficiencies, than that used in older natural gas developments. Since 2013, Progress has spent over \$5.9 billion in new drilling and new facilities as part of the development plan to meet the feedstock requirements of PNW LNG. In fact, the CO<sub>2</sub> figure submitted to the British Columbia Climate Action Secretariat for 2014 includes legacy production from older fields owned or operated by PECL that are not representative of the emission levels of new production that will be developed and brought on to supply the PNW LNG Project.

- Any natural gas used by the PNW LNG Project that is not produced from PECL's Montney assets will very likely be produced by other Montney producers who share similar GHG emission advantages over production from other shales and natural gas developments in western Canada.
- Because the Montney shales are one of the lowest cost sources of shale gas in western Canada, it is very likely that they will be developed to some degree irrespective of whether the PNW LNG Project is built, which reduces the incremental GHG emissions of the PNW LNG Project.

Please contact the undersigned if you have any questions regarding the foregoing.

Sincerely,

PACIFIC NORTHWEST LNG

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Mike Lambert  
Head, Environmental and Regulatory Affairs

cc: Ines Piccinino, Assistant Deputy Minister, Ministry of Natural Gas Development  
Kevin Jardine, Associate Deputy Minister, BC Environmental Assessment Office  
James Cummings, Director, Legal Services, Progress Energy