

Comment on “Draft Referral Materials for Cedar LNG Project” on behalf of Douglas Channel Watch

J. David Hughes

1. Introduction

The comments herein relate to the following documents made available for public review September 21 to October 14, 2022, as well as the Cedar LNG Project application and relevant legislation:

1. draft Assessment Report, including Executive Summary, prepared for both provincial and federal decision-makers
2. proposed draft provincial Project Description
3. proposed draft provincial Conditions (measures required to mitigate adverse effects if the project were approved)
4. proposed draft federal conditions with Description of Designated Project

This comment begins with an overview of the main concerns with the Cedar LNG Project which relate mainly to the substantial increase in greenhouse gas emissions that would compromise Canada’s and B.C.’s commitments to net-zero emissions by 2050. Deficiencies with the above documents provided for review are then discussed.

2. Overview of Cedar LNG Project and Principal Concerns

The Cedar LNG Project would, if approved, liquefy 400 million cubic feet of natural gas per day at a floating terminal to be constructed near Kitimat, B.C. The terminal would produce 3 million tonnes of LNG per year to be sold overseas on international markets. The terminal would commence operation in 2027 and has a planned lifespan of 40 years.¹

Environmental impacts of the Project would include land clearing and disturbance during construction and operation, as well as very substantial greenhouse gas emissions. It is these greenhouse gas emissions that are the principal concern of Douglas Channel Watch (hereinafter DCW), as they would increase B.C.’s emissions significantly at a time when emissions must be radically reduced to minimize the impact of climate change and meet B.C.’s and Canada’s emissions reduction commitments.

B.C. has committed to a 40% reduction in emissions from 2007 levels by 2030 and net-zero emissions by 2050.² Yet, as of 2020, a year when emissions were unusually low due to the COVID19 pandemic, emissions were down only 1.4% from 2007 levels (as of 2019 emissions

¹ Cedar LNG Project Environmental Assessment Certificate Application, February, 2022.

² Clean B.C. Roadmap to 2030, October, 2021, https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf.

were up 1.04% from 2007).³ Similarly, Canada will have to reduce its emissions from 2020 levels by between 34% and 39% by 2030 in order to meet its emissions reduction commitments (40-45% reduction from 2005 levels by 2030).^{4,5}

Despite this dismal performance on emissions reduction, the B.C. and Canadian governments have approved LNG Canada, which will export 14 megatonnes of LNG annually beginning in 2025, making emissions reduction commitments extremely difficult or impossible to achieve. Cedar LNG, if approved, would add another 3 million tonnes annually of LNG production and associated emissions.

Greenhouse gas emissions from Cedar LNG have been estimated by Stantec Consulting Limited (hereinafter Stantec) in Appendix 8B of the Cedar LNG Project Environmental Assessment Certificate Application (hereinafter Cedar application).⁶ Stantec estimated emissions from construction and operation of the Cedar LNG liquefaction terminal, and used the recommended emissions intensities of Environment and Climate Change Canada (ECCC)⁷ to estimate the upstream emissions from production, processing and pipeline transport of the 400 million cubic feet per day of natural gas required by the liquefaction terminal. Stantec's estimates of emissions from the Cedar LNG Project are presented in Table 1. Total emissions from the Project are estimated at 1.2 megatonnes per year throughout its 40-year lifespan. The Cedar application states that "*activities upstream of the Project will be located entirely in northeast British Columbia*" which confirms that all of the emissions from the Project would be counted against B.C.'s emissions quota.

The Cedar application also notes that upstream emissions from the Project are "*incremental to what would occur if the Project were not to occur*" (page 27⁶). That is, without the Project, upstream emissions of 0.96 megatonnes per year would not occur. The emissions intensity of the Project is 0.4 tonnes of emissions per tonne of LNG produced, 80% of which are a result of incremental upstream emissions with only 20% from the terminal itself.

The "Strategic Assessment of Climate Change"⁸ (SACC) document prepared by ECCC provides guidance on the implementation of the Impact Assessment Act which became law in 2019. The

³ B.C. Provincial Gas Emissions Inventory, 2022, https://www2.gov.bc.ca/assets/gov/environment/climate-change/data/provincial-inventory/2020/provincial_inventory_of_greenhouse_gas_emissions_1990-2020.xlsx.

⁴ National inventory report: greenhouse gas sources and sinks in Canada, 2022, https://publications.gc.ca/collections/collection_2022/eccc/En81-4-2020-1-eng.pdf .

⁵ 2030 Emissions Reduction Plan, March, 2022, <https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/erp/Canada-2030-Emissions-Reduction-Plan-eng.pdf>.

⁶ Stantec Consulting Ltd, November, 2021, Strategic Assessment of Climate Change Technical Report, Appendix 8B of Cedar LNG Project Environmental Assessment Certificate Application, February, 2022.

⁷ Environment and Climate Change Canada, August, 2021, Draft technical guide related to the strategic assessment of climate change, <https://www.canada.ca/en/environment-climate-change/corporate/transparency/consultations/draft-technical-guide-strategic-assessment-climate-change.html>

⁸ Environment and Climate Change Canada, October, 2020, Strategic Assessment of Climate Change, <https://www.strategicassessmentclimatechange.ca/>

SACC states “Proponents of projects with a lifetime beyond 2050 will be required to provide a credible plan that describes how the project will achieve net-zero emissions by 2050”. The SACC also requires a quantitative estimate of upstream emissions (provided in the Cedar application – see Table 1) and a qualitative assessment of the incrementality of the upstream emissions (which were determined to be fully incremental in the Cedar application).

Year	Direct Terminal Emissions	Acquired Terminal Emissions	Upstream		Purchased carbon offsets	Total
			Production and Processing	Pipeline Transport		
2023	9.2	0.0	0.0	0.0	0.0	9.2
2024	9.2	0.0	0.0	0.0	0.0	9.2
2025	9.2	0.0	0.0	0.0	0.0	9.2
2026	9.2	0.0	0.0	0.0	0.0	9.2
2027	215.7	19.9	767.0	207.0	0.0	1209.6
2028	215.7	19.7	767.0	206.0	0.0	1208.4
2029	215.7	19.6	762.0	204.0	0.0	1201.3
2030	215.7	19.0	757.0	201.0	0.0	1192.7
2031	215.7	18.4	757.0	201.0	0.0	1192.1
2032	215.7	17.8	757.0	201.0	0.0	1191.5
2033	215.7	17.8	757.0	201.0	0.0	1191.5
2034	215.7	17.7	757.0	201.0	0.0	1191.4
2035	215.7	17.5	757.0	201.0	0.0	1191.2
2036	215.7	17.2	757.0	201.0	0.0	1190.9
2037	215.7	17.5	757.0	201.0	0.0	1191.2
2038	215.7	18.3	757.0	201.0	0.0	1192.0
2039	215.7	21.2	757.0	201.0	0.0	1194.9
2040	215.7	22.1	757.0	201.0	0.0	1195.8
2041	215.7	23.7	757.0	201.0	0.0	1197.4
2042	215.7	25.0	757.0	201.0	0.0	1198.7
2043	215.7	25.1	757.0	201.0	0.0	1198.8
2044	215.7	23.2	757.0	201.0	0.0	1196.9
2045	215.7	22.4	757.0	201.0	0.0	1196.1
2046	215.7	24.0	757.0	201.0	0.0	1197.7
2047	215.7	25.9	757.0	201.0	0.0	1199.6
2048	215.7	28.2	757.0	201.0	0.0	1201.9
2049	215.7	29.5	757.0	201.0	0.0	1203.2
2050	215.7	29.4	757.0	201.0	0.0	1203.1
2051	215.7	29.4	757.0	201.0	-245.1	958.0
2052	215.7	29.4	757.0	201.0	-245.1	958.0
2053	215.7	29.4	757.0	201.0	-245.1	958.0
2054	215.7	29.4	757.0	201.0	-245.1	958.0
2055	215.7	29.4	757.0	201.0	-245.1	958.0
2056	215.7	29.4	757.0	201.0	-245.1	958.0
2057	215.7	29.4	757.0	201.0	-245.1	958.0
2058	215.7	29.4	757.0	201.0	-245.1	958.0
2059	215.7	29.4	757.0	201.0	-245.1	958.0
2060	215.7	29.4	757.0	201.0	-245.1	958.0
2061	215.7	29.4	757.0	201.0	-245.1	958.0
2062	215.7	29.4	757.0	201.0	-245.1	958.0
2063	215.7	29.4	757.0	201.0	-245.1	958.0
2064	215.7	29.4	757.0	201.0	-245.1	958.0
2065	215.7	29.4	757.0	201.0	-245.1	958.0
2066	215.7	29.4	757.0	201.0	-245.1	958.0
2067	215.7	29.4	757.0	201.0	-245.1	958.0

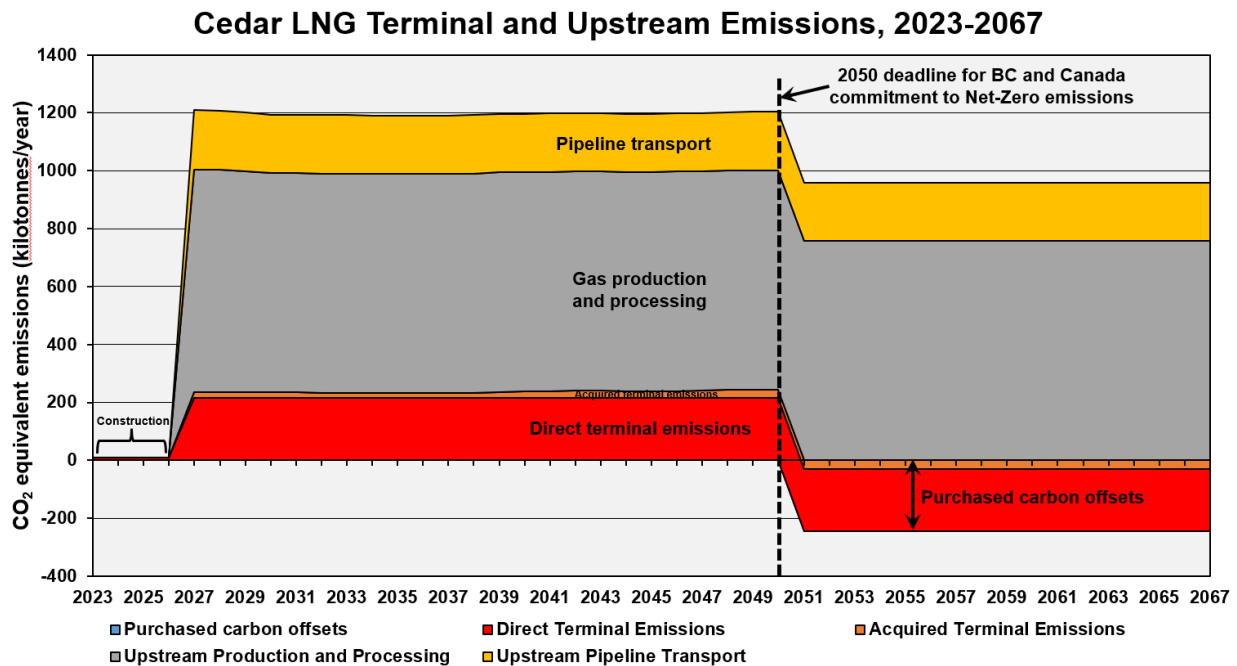
Table 1 – Estimated terminal and upstream emissions from the Cedar LNG Project developed by Stantec in the Cedar application based upon ECCC requirements (see text). Data are from tables 4 and 11 in Appendix 8B.⁶ Note that although upstream emissions are shown only to 2050 in Table 4 of the Cedar application, these emissions will continue unabated throughout 2051-2067.

The SACC defines net-zero emissions as:

$$\text{Net GHG emissions} = \text{Direct GHG emissions} + \text{Acquired energy GHG emissions} - \text{CO}_2 \text{ captured and stored} - \text{Avoided domestic GHG emissions} - \text{Offset credits}$$

Offset credits according to the SACC can only be applied to terminal emissions and cannot be applied to upstream emissions (section 2.1.4.1⁷). This means that 80% of the Project’s emissions, amounting to nearly one megatonne per year, will be added to B.C.’s total even if sufficient offset credits can be purchased to offset emissions from the terminal itself. Figure 1 illustrates emissions from the Project as projected in the Cedar application, including nearly one megatonne annually from upstream emissions after 2050 when B.C.’s emissions are supposed to be net-zero.

As for the net-zero plan required by the regulations, the Cedar application simply states “*it is assumed that Cedar will purchase offset credits to achieve net-zero in 2050*”. There is no gradual reduction in emissions as 2050 is approached, nor any discussion of how to mitigate upstream emissions. The Cedar application projects emissions at 1.2 megatonnes per year from the start of the Project through 2050 when carbon offsets are purchased to offset terminal emissions, and one megatonne per year thereafter until the Project ends in 2067. Nor is there any discussion in the Cedar application of offset costs, or their possible effect on the Project’s economics.



© Hughes GSR Inc, 2022

(Data from February, 2022, Cedar application, Stantec Cedar_EAC_Appendix_8B_SACC_TDR, pages 10 and 52)

Figure 1 – Emissions from the Cedar LNG Project over its proposed 40-year lifespan by component (see Table 1 and Appendix 8B of the Cedar application⁶).

With regard to offset credits, the SACC states that “*offset credits applied against the new emissions of a project under the SACC must be sourced from a project registered in a Canadian federal, provincial or territorial regulatory offset program that aligns with the best practices*

outlined in the Canadian Council of Ministers of the Environment Pan-Canadian Offsets Framework” and that “Foreign Offset Credits or Internationally Transferred Mitigation Outcomes (ITMO)s are not acceptable as an offset credit at the time of publication of this draft technical guide”.

It is highly uncertain if sufficient credits would be available for purchase in 2050 to offset the terminal emissions of Cedar LNG, or what they would cost if they were available. Existing carbon capture, utilization and storage projects (CCUS) are attached to specific projects and do not generate offset credits for sale.⁹ By 2030 Canada aspires to 15 megatonnes per year of CCUS capacity, which would amount to only 2.2% of 2020 emissions if successfully completed. Approving a project that would substantially increase emissions with a nebulous promise to offset 20% of them beginning in 2050 with carbon credits is the antithesis of what is needed for a credible net-zero plan.

3. Specific comments on review documents

3.1 Proposed draft federal conditions with Description of Designated Project

This document notes the overriding jurisdiction of the Impact Assessment Act. It states:

The Designated Project would be allowed to proceed if: the Minister decides that the adverse effects within federal jurisdiction — and the adverse direct or incidental effects — of the Designated Project are, in light of the factors referred to in section 63 of the Impact Assessment Act and the extent to which these effects are significant, in the public interest; or if the Minister refers the matter of whether these effects are in the public interest to the Governor in Council, and the Governor in Council determines that these effects are, in light of the factors referred to in section 63 and the extent to which these effects are significant, in the public interest.

The factors referred in section 63 of the Impact Assessment Act¹⁰ are not in the public interest for the following reasons:

- a) *“the extent to which the designated project contributes to sustainability”* (Section 63a of the Impact Assessment Act). Natural gas is a finite, non-renewable resource, and therefore by definition it is not a sustainable resource over the long-term. The gas from this Project would not be used to provide energy for Canadians – instead it would be exported. Drilling for gas involves significant environmental disturbance through the construction of well pads, roads and substantial emissions as documented in Table 1. Most if not all of the gas for the Project would come from the Montney Formation of northeast B.C. The Montney is one of the last major sources of natural gas in Canada, and the B.C. portion of the Montney is forecast by the Canada Energy Regulator¹¹ to provide 53% of all Canadian production over 2022-2050. As stated in the Cedar application, the

⁹ Center for Strategic & International Studies, 2022, Canada’s Carbon Capture Industrial Strategy, <https://www.csis.org/analysis/canadas-carbon-capture-industrial-strategy> .

¹⁰ Impact Assessment Act of 2019, updated as of September 22, 2022, <https://laws.justice.gc.ca/PDF/I-2.75.pdf> .

¹¹ Canada Energy Regulator, 2021, Canada’s Energy Future 2021 - evolving policies scenario, <https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2021/> .

Project is incremental, meaning that these resources and associated environmental disturbance would not occur without the Project, and hence without the Project these resources would remain for use by Canadians in the future should they be needed. The Project therefore potentially compromises the future energy security of Canadians.

- b) *“the extent to which the adverse effects within federal jurisdiction and the adverse direct or incidental effects that are indicated in the impact assessment report in respect of the designated project are significant”* (Section 63b of the Impact Assessment Act).

The Cedar LNG Project would require 5.844 trillion cubic feet of gas over its projected 40-year lifespan. The B.C. Government estimates that the ultimate gas recovery from horizontal, hydraulically fractured (fracked), gas wells in the Montney averages about 5 billion cubic feet per well. This means that the Project would require 1,169 new wells, which, assuming an average of five hectares per well for a drilling pad and access roads, would mean a total land disturbance due to the Project of 5,844 hectares or 58.4 square kilometres, which is a very significant impact. Emissions from the production and processing of this gas would add nearly one megatonne per year of unmitigated emissions (as discussed above), which would significantly impact the net-zero commitments of B.C. and Canada to the detriment of all Canadians.

- c) *“the impact that the designated project may have on any Indigenous group and any adverse impact that the designated project may have on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the Constitution Act, 1982”* (Section 63d of the Impact Assessment Act).

The Blueberry First Nation, whose Treaty 8 lands overlie much of the Montney Formation, won a very significant B.C. Supreme Court victory in 2021. The court ruled that the rights of the Blueberry First Nation under Treaty 8 had been compromised by natural gas drilling and other resource activities.¹² This judgement can be expected to restrict or possibly eliminate the drilling activity and associated adverse environmental impacts required by projects such as Cedar LNG.

- d) *“the extent to which the effects of the designated project hinder or contribute to the Government of Canada’s ability to meet its environmental obligations and its commitments in respect of climate change”* (Section 63e of the Impact Assessment Act).

The Project would substantially hinder the Government of Canada’s ability to meet its environmental obligations and its commitments in respect of climate change. As noted above, the Project would add 1.2 megatonnes of emissions annually up to 2050 and approximately one megatonne per year thereafter assuming terminal emissions could be reduced to zero by purchasing offset credits.

¹² CBC News, July, 2021, [After landmark court victory, Treaty 8 Nations lay out vision for energy development in northeastern B.C. | CBC News.](#)

Other requirements in this document that are not met by the Cedar application include:

- 5.1 “*Commencing on January 1, 2050, the Proponent shall ensure that the Designated Project does not emit greater than net 0 kilotonnes of carbon dioxide equivalents per year (kt CO₂ eq/year)*”. Although the proponent claims that terminal emissions will be reduced to zero by purchase of offset credits, there is no assurance that such offset credits will be available in 2050 or analysis of how purchasing them would affect project economics. There is no plan to deal with upstream emissions which would account for 80% of the Project’s emissions and continue at about one megatonne per year after 2050 until the end of the Project in 2067.
- 5.2 “*The Proponent shall develop... ..a credible Net-Zero Plan*”. There is no net-zero plan in the Cedar application beyond “it is assumed that Cedar will purchase offset credits to achieve net-zero in 2050” (page 51⁶) and this applies only to the terminal emissions, not the 80% of emissions from upstream gas production, processing and pipeline transport caused by the Project.

There is no mention or specific discussion in this document on dealing with upstream emissions, even though these emissions constitute 80% of the emissions associated with this Project. Therefore, this document is deficient in dealing with the actual impact of the Cedar Project on Canada’s and B.C.’s emissions reduction commitments.

3.2 Draft Assessment Report, including Executive Summary, prepared for both provincial and federal decision-makers

This document is flawed in several respects, most egregiously in ignoring the upstream emissions caused by the Cedar LNG Project:

- Although this document acknowledges (page 388) that the Project will result “*in approximately 959 to 975 kt CO₂e of upstream GHG emissions annually during operations*”, it then states “*These upstream GHG emissions are not considered to be as a result of Cedar LNG*”. The Cedar application clearly states that these upstream emissions are incremental and would not occur without the Project “*the upstream GHG emissions from production of natural gas within Canada should be considered incremental to what would occur if the Project were not to occur*” (see page 17 of Appendix 8B in the Cedar application⁶). Upstream emissions from the Cedar LNG Project will certainly be counted against B.C.’s and Canada’s commitments to net-zero by 2050. Ignoring them in this and other review documents is a violation of the intent of the Impact Assessment Act.
- This document goes on to state (page 391) “*Cedar LNG could have a positive impact on GHG emissions globally, if the importing countries were to use the natural gas as a replacement for coal in power production, due to the fact that natural gas-fired electricity generation results in approximately 40 percent less GHG emissions than coal-fired electricity generation*”. This is false as it reflects only burner tip and

liquefaction emissions, not other life-cycle emissions from the production, processing, pipeline transport, shipping and regasification of LNG. A discussion of life-cycle emissions from the Cedar LNG Project burned in Asia, along with a comparison to other life-cycle studies, can be found in DCW's April, 2022, submission on Cedar LNG.¹³ Depending on assumptions, particularly for fugitive methane which has a 20-year global warming potential of 86 times that of carbon dioxide, life-cycle emissions for LNG from B.C. burned in Asia may be worse than best-technology coal, particularly when considering global-warming impact over a 20-year timeframe.

- Although this document recommends mitigation measures that (page 395) "*Meet the federal requirement that Cedar LNG does not emit greater than net 0 kt CO₂e/yr by January 1, 2050*", its earlier statement indicates that such a plan would not have to include the Project's emissions from upstream gas production, processing and transport.

By ignoring upstream emissions this document fails to address 80% of the Cedar LNG Project's impact on B.C.'s and Canada's net-zero emissions reduction commitments. This is a blatant violation of the intent of the Impact Assessment Act.

3.3 Proposed draft provincial Conditions (measures required to mitigate adverse effects if the project were approved)

This document is entitled "DRAFT TABLE OF CONDITIONS FOR THE CEDAR LNG PROJECT (PROJECT) ENVIRONMENTAL ASSESSMENT CERTIFICATE". As such, it does not impose restrictions on the approval process for granting an Environmental Assessment Certificate – it simply lists conditions assuming a certificate is granted.

As noted above, unless upstream emissions are recognized as significant adverse component of the Cedar LNG Project, which has not been addressed in the Cedar net-zero plan as required by the Impact Assessment Act, there is no credible way an Environmental Assessment Certificate can be granted.

¹³ [Submission on the Cedar LNG Project on behalf of Douglas Channel Watch](#), April, 2022.

3.4 Proposed draft provincial Project Description

This document is entitled “DRAFT PROJECT DESCRIPTION FOR THE CEDAR LNG PROJECT (PROJECT) ENVIRONMENTAL ASSESSMENT CERTIFICATE. As such it simply describes the Project if it were to go ahead without any consideration of upstream emissions. There is no mention of upstream emissions or any constraints that would be applied for the project approval process. This document is therefore a complete description of the Project only if it is approved without the inclusion of mitigation required for upstream emissions which are 80% of the Project’s total.

4. Summary and Conclusions

The Cedar LNG application properly accounts for terminal and upstream emissions as required by the SACC to conform to the Impact Assessment Act, but does not provide the required plan to reduce net emissions to zero by 2050. Instead, The Cedar application addresses only terminal emissions, meaning that emissions of nearly one megatonne per year will continue after 2050 until the end of the Project in 2067. There appears to be no way to reduce terminal emissions significantly without using offset credits, hence the net-zero plan in the Cedar application is reduced to “*it is assumed that Cedar will purchase offset credits to achieve net-zero in 2050*”.

Upstream emissions would account for 80% of the emissions resulting from the Cedar LNG Project. These emissions would be counted against B.C.’s and Canada’s net-zero commitments by 2050. As such, the Cedar LNG Project would significantly “*hinder...the Government of Canada’s ability to meet its environmental obligations and its commitments in respect of climate change*” as outlined in the Impact Assessment Act. Unless mitigation of upstream emissions is addressed, it is very difficult to see how the Cedar LNG Project could be approved without violating the SACC and intent of the Impact Assessment Act.

The upstream production and processing of natural gas for the Cedar LNG Project would also require extensive surface land disturbance for well pads and access roads in northeast B.C. The Project would require 5.84 trillion cubic feet of gas over its 40-year life which would require approximately 1,169 horizontal wells at an average recovery five billion cubic feet of gas per well. Allowing five hectares per well for a drilling pad and access road, 58.4 square kilometres of surface area would be disturbed due to the Project. This drilling would also likely impact the Treaty 8 lands of the Blueberry First Nation which overlie much of the Montney Formation where the gas would be sourced (the Blueberry First Nation won a major court victory over the B.C. Government on management of Treaty 8 lands in 2021).

The four documents provided for review do not address upstream emissions, which amount to 80% of the adverse impact of the Project on B.C.’s and Canada’s climate commitments, or the surface disturbance required to obtain gas for the Project. Until a plan to mitigate both upstream and terminal emissions from the Project is developed and these documents are revised, there is no credible process by which the Cedar LNG Project can be approved.