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**Attention:** John Antill (EAO) and Victoria Hart (IAAC)

**Re: Comments on Draft Assessment Report and Conditions for Ksi Lisims LNG**

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Ecojustice has been retained by Western Canada Wilderness Committee (“Wilderness Committee”), the Northwest Institute for Bioregional Research (“Northwest Institute”), and the Skeena Watershed Conservation Coalition (“Skeena Conservation”) for the purpose of reviewing and commenting on the BC Environmental Assessment Office’s (“EAO”) Draft Assessment and Conditions (“Draft Assessment Report”) of the proposed Ksi Lisims LNG export terminal (the “Project”).

Please accept the following submission on behalf of the Wilderness Committee, the Northwest Institute, and Skeena Conservation.

The Wilderness Committee, the Northwest Institute, Skeena Conservation, and Ecojustice acknowledge, respect, and support the authority of the Nisga’a Nation to develop projects on their lands, and the broader need across Canada for recognition of Indigenous sovereignty, rights and title, and reconciliation with Indigenous peoples. These submissions should not be perceived as being opposed to these goals. Instead, these submissions are directed at ensuring that a robust assessment takes place and that sufficient facts are before Indigenous, provincial, and federal governments in making a determination on the environmental, social and economic effects of this Project.

## 1. Overview

The Wilderness Committee, Northwest Institute, and Skeena Conservation are gravely concerned about the potential impacts of a second large liquefied natural gas (LNG) project on the north coast of British Columbia (BC), particularly on BC and Canada's abilities to meet their climate targets.

The Wilderness Committee is a non-profit organization founded in BC with a focus on strategic research, community mobilizing, and grassroots education to build support for actions to preserve nature, protect wildlife, defend parks, and fight for a safe and stable climate while standing in defense of Indigenous rights and title and the public good.

Northwest Institute is a non-profit organization based in Smithers, BC that has been working towards social and ecological sustainability in northwest BC since 1996. The Northwest Institute conducts research, publishes information, and engages British Columbians to advance conservation and environmentally sound, sustainable uses of natural resources in northwest BC.

Skeena Conservation is a non-profit organization based in Hazelton, BC that works to cultivate a sustainable future from a sustainable environment rooted in the region's culture and a thriving wild salmon ecosystem in the Skeena Watershed. Founded in 2004, Skeena Conservation engages in long-term stewardship planning, conducts and supports research, and engages British Columbias regarding proposed development in the Skeena Watershed.

In December 2023, the Wilderness Committee and Northwest Institute made a submission to the EAO setting out several important information gaps and inconsistencies in the proponent's Application in relation to project need, LNG markets, greenhouse gas (GHG) emissions, climate impacts and benefits, and electrification. The majority of these gaps and inconsistencies were not addressed by the proponents in their September 2024 Revised Application. Skeena Conservation also made a submission in December 2023 that highlighted numerous concerns about the Project, including concerns related to information gaps regarding climate impacts, upstream emissions, methane emissions, and electrification.

From reviewing the Draft Assessment Report, the Wilderness Committee, the Northwest Institute, and Skeena Conservation are deeply concerned that the EAO has failed to adequately consider the significant negative impacts of approving another fossil fuel export project during the worsening climate crisis. Instead, it appears that the EAO has simply accepted the flawed and incomplete information in the Revised Application at face-value and has not sought to rigorously scrutinize this information or fill in any gaps.

As a result, the assessment in the Draft Assessment Report fails to comply with the requirements of the *Environmental Assessment Act*<sup>1</sup> (EAA) and the *Impact Assessment Act*<sup>2</sup> (IAA). The conclusions in the Draft Assessment Report about environmental, economic, and social effects of the Project, effects on current and future generations, effects on GHG emissions and BC and Canada's ability to meet their

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<sup>1</sup> SBC 2018, c 51.

<sup>2</sup> SC 2019, c 28, s 1

emissions targets, and the Project's contributions to sustainability are not adequately supported by evidence and they cannot be reasonably relied upon to support a decision to approve the Project.

The EAO should revise the Draft Assessment Report to include an assessment of the impacts of Project electrification and update the assessment of GHG emissions to include an accurate accounting of all Project emissions, a comprehensive analysis of the Project's effects on BC and Canada's emissions targets and climate commitments, and a rigorous assessment of the proponents' Net-Zero Plan. These revisions will help ensure that provincial and federal decision-makers are provided with accurate and complete information that is supported by evidence prior to a decision on Project approval.

## 2. Project Electrification

The Project intends to power its operations from BC's electrical grid in order to reduce the Project's GHG emissions. However, connection to the grid is still uncertain and would be determined after the Project is approved. If the Project is electrified, it would take up a significant amount of BC's finite electrical supply that will be required by other users in BC. As such, electrifying the Project will have material impacts on BC. However, the EAO has failed to assess the impacts of Project electrification on the relevant matters under s.25(2) of the EAA and s.22(1) of the IAA, undermining the EAO's conclusions about the effects of the Project.

### 2.1 Background

The proponents propose to power the Project with electricity from the BC Hydro grid, which is necessary to minimize its operational emissions and foundational to its proposed "purpose and need" of producing low-emissions LNG. The timing of the grid connection is uncertain, and the Proponent has considered two scenarios that have different implications for the Project's GHG emissions:

- **Base Case.** The Project connects to the grid prior to the start of operations in 2028.
  - Construction emissions: 58,878 tCO<sub>2</sub>e/year
  - Operations emissions: 252,635 tCO<sub>2</sub>e/year
- **Alternative Case.** The Project is powered by temporary "power barges" that burn natural gas for a period of up to five years until the connection to the grid occurs. The Proponents expect that connection would occur in 2032.
  - Construction emissions: 212,110 tCO<sub>2</sub>e/yr
  - Operations emissions: 1,867,992 tCO<sub>2</sub>e/yr.

As such, the timing of Project electrification has significant impacts on GHG emissions and BC and Canada's ability to achieve their emissions targets. Neither BC nor Canada are on track to achieve their 2030 targets and, if the Project is not electrified on time or not at all, adding 1.8 Mt CO<sub>2</sub>e annually will make this task even more difficult.

If the Project is electrified, powering the Project will require a significant amount of BC's electrical supply, which is finite. The Revised Application states that the anticipated electricity consumption of the

Project is 4,700 GWh per year during operations, with 600 MW of instantaneous electricity demand.<sup>3</sup> The Revised Application does not state the amount of electricity required to power upstream natural gas production associated with the Project, but analysis from the Pembina Institute estimates that 4,957 GWh is required to partially electrify upstream production.<sup>4</sup> For context, the Site C dam has 1,100 MW of instantaneous capacity and will generate 5,100 GWh of electricity each year.<sup>5</sup>

Analysis by Clean Energy Canada concludes that, if all proposed LNG projects go ahead, they would require about 13 Terrawatt-hours (TWh) of electricity per year, while demand for upstream electrification would amount to another 30 TWh.<sup>6</sup> This is the equivalent to the power provided by more than eight Site C dams.<sup>7</sup> BC's total electricity demand in 2022 was 62 TWh, and BC Hydro forecasts total demand in 2030 to be 70 TWh.<sup>8</sup>

Connecting to the grid in BC is a "first-come, first served" process, in which new customers make a transmission load connection request to BC Hydro, which is entered into the "connection queue" in order of requests received. As part of the transmission connection process, BC Hydro requires several studies, including a system impact study (SIS),<sup>9</sup> but the exact scope of this study varies, and it is unclear whether BC Hydro has undertaken an SIS for Ksi Lisims. There has been no mention of an SIS in the EA process for Ksi Lisims, suggesting that it is not a consideration in the EAO's assessment and decision-making process. An electricity supply agreement (ESA) between BC Hydro and the customer is required prior to "energization"; this appears to occur at the end of the connection process.<sup>10</sup>

## 2.2 The EAA and IAA require an assessment of Project electrification

There are several required assessment matters under the EAA and IAA that are relevant to the impacts of Project electrification. Section 25(2) of the EAA requires that the assessment of the Project consider:

- (a) positive and negative direct and indirect effects of the reviewable project, including environmental, economic, social, cultural and health effects and adverse cumulative effects;
- (b) risks and uncertainties associated with those effects, including the results of any interaction between effects."
- (f) effects on current and future generations
- (h) greenhouse gas emissions and the potential effects on the province being able to meet its targets under the *Greenhouse Gas Reduction Targets Act*.

Section 22(1) of the IAA requires that the assessment of the Project consider:

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<sup>3</sup> Ksi Lisims LNG Revised Application – [08A – Greenhouse Gases Technical Data Report](#), ("Revised Application- 8A")p.24; Ksi Lisims LNG Revised Application – [08B – Strategic Assessment of Climate Change Technical Data Report](#), ("Revised Application- 8B") p.79.

<sup>4</sup> Gorski, J. & Lam, J. (2023) *Squaring the Circle: Reconciling LNG expansion with B.C.'s climate goals*, The Pembina Institute, [online](#), ("Squaring the Circle"), p.14.

<sup>5</sup> BC Hydro (n.d) *Site C Clean Energy Project*, [online](#).

<sup>6</sup> Pauer, S. & Elbrecht, J. (March 2024) *An uncertain future: expanding B.C.'s nascent LNG industry would require big tradeoffs for the province's economy, electricity system, and climate goals*, Clean Energy Canada, [online](#), ("An Uncertain Future"), p.17.

<sup>7</sup> An Uncertain Future, p.17.

<sup>8</sup> An Uncertain Future, p.17.

<sup>9</sup> BC Hydro (2024) *Transmission connections*, [online](#).

<sup>10</sup> BC Hydro (2024) *Business Practice For Load Interconnection Queue Management*, [online](#).

- (h) the extent to which the designated project contributes to sustainability;
- (i) 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.

Assessing the effects of Project electrification is required by the above provisions in the EAA and IAA because of the Project's significant electrical demand, impact of Project GHG emissions from electrification, the uncertainty associated with the availability of sufficient electricity when the Project needs, and the timing of Project approval.

There are two scenarios that demonstrate the need for EAO assessment: insufficient electricity and the diversion of electricity from other uses in BC.

### **2.2.1 Insufficient electricity.**

If the Project is granted an EA Certificate, it could receive a final investment decision (FID) and commence operations using the gas-fired "temporary power barges" as there is no agreement or project condition that would prevent it from doing so. However, BC Hydro may not have sufficient electrical capacity available for the Project by 2032, either because not enough capacity has been built in time, the capacity has been taken up by competing demands, and/or the government of BC decides to allocate the available supply to better uses, similar to the recent restriction on cryptocurrency electrification.<sup>11</sup>

At this point, the proponents will have sunk considerable costs into building and commencing the Project and have started receiving revenue from the Project, raising a real potential that the proponents would seek to continue operating the Project using the gas-fired power barges past 2032 and perhaps for the life of the Project. This may require an amendment to the EA Certificate, but this is possible.

The continued use of the power barges would emit 1.8 Mt CO<sub>2</sub>e/yr which would exacerbate climate change (with its consequent impacts on BC's environment, economy, society, and current and future generations) and impact BC and Canada's ability to achieve their longer-term emissions targets and climate commitments (e.g. in 2035, 2040 and 2050). The significant impact of the Project proceeding without electricity beyond 2032 means that the EAO must assess the likelihood of this scenario in order to understand all the potential effects of the Project – with and without electricity – on all of BC and Canada's emissions targets.

### **2.2.2 Diverting electricity from other uses in BC.**

Under BC Hydro's "first come, first served" system of allocating electricity, if there is available electricity, the Project can connect to the BC grid when its turn comes in the connection queue. There is no BC Hydro process to determine whether it is appropriate to supply power to a particular customer, regardless of their position at the top of the connection queue.

This means that, when the Project reaches the top of the queue, the Project would obtain the power it requires, even if there are other uses for this electricity that have greater social and economic benefits

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<sup>11</sup> Government of BC (Aug 2024) *Engagement on Cryptocurrency Mining Policy*, [online](#).

for British Columbians than producing fossil fuels for sale overseas. BC Hydro would be obliged to continue to supply the Project's massive demand (4,700 GWh/yr) for the life of the Project, no matter what the opportunity cost this has on BC's economy. For example, diverting electricity that could be otherwise used to power homes and businesses, decarbonize the BC economy, and help achieve our emissions targets.

As such, the diversion of BC's finite electricity capacity to the Project (and away from other uses) for the 30 to 40-year lifespan of the Project would have effects on BC's other electricity users in BC's economy and society, current and future generations, as well as BC and Canada's ability to achieve their emissions targets. These effects would be compounded by the cumulative effects of diverting BC electricity to power other LNG projects and upstream natural gas production in BC.

The EAO cannot leave this assessment to BC Hydro for three reasons. First, because the Project electrification will have effects on matters that must be considered under EAA s.25(2) and IAA s.22(1). It is, therefore, the EAO's obligation to undertake this assessment. Second, because the EA Certificate will be granted before BC Hydro enters into an ESA with the Project, meaning that the Project will have the greenlight to proceed whether or not there is adequate electricity available. While the proponents have indicated a desire to electrify the Project, there is nothing forcing the proponents to electrify the Project. And third, because BC Hydro takes a "first come, first served" approach and does not have a process to assess whether it is in the best interests of British Columbians to divert such a large amount of BC's finite low-carbon electrical supply to a fossil fuel export project.

### 2.3 The Revised Application failed to consider the impacts of Project electrification

The Revised Application does not provide any information about the implications of powering the Project with electricity from the BC Hydro power grid, other existing and potential electricity users in BC, and on the achievement of BC's climate goals. It only states that:

"BC Hydro and the BC Utilities Commission review and plan for the electricity needs of BC residents and industrial customers. None of these plans were specifically used in the development of this assessment of infrastructure and services."<sup>12</sup>

This appears to be consistent with the position of the BC EAO at the virtual open house on November 14, 2023, which advised that the impact of the Project on the electricity supply was the responsibility of BC Hydro.

Nevertheless, and without providing any supporting evidence, the Revised Application also states that the "Project has received confirmation from BC Hydro that there is sufficient capacity to supply electricity to the Project."<sup>13</sup>

In their December 2023 submission, Wilderness Committee and Northwest Institute noted that the proponents had not met the requirements of the Application Information Requirements (AIRs) in drafting the Application. The submission:

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<sup>12</sup> *Ksi Lisims LNG Revised Application*, [7.12 - Infrastructure and Services](#), p.7.12-4.

<sup>13</sup> *Revised Application - 8B*, p.44.

- Noted that the Application had failed to provide information on the direct, indirect, and cumulative impacts of the Project's electricity demand and that of other approved LNG projects (Cedar LNG, LNG Canada) on BC's electricity supply, which is relevant given the intention for all of these projects to be partially or wholly electrified.
- Flagged that the BC Climate Solutions Council, BC Hydro's Integrated Resource Plan, and research by the Pembina Institute had all underscored the importance of the BC government assessing the cumulative impacts of the electrification of LNG facilities on BC's electricity supply in light of increased electricity demand from other parts of the CleanBC climate plan.
- Made three recommendations that the Application be revised to include information that would comply with the requirements of the AIRs and enable the EAO to fully assess direct, indirect and cumulative effects of the Project on the environment and the economy, current and future generations, sustainability, and GHG emissions and BC and Canada's climate targets.

Skeena Conservation raised a similar point in its December 2023 submission. The submission noted that the Application lacked clarity regarding where the power to supply Ksi Lisims LNG would come from, given that the terminal would need the equivalent of almost all power produced by the Site C dam and given the need for additional power forecasted by BC Hydro by 2030. The submission recommended that the EAO mandate the inclusion of a comprehensive assessment detailing the effects of withdrawing 4,700 GWh of electricity from the BC grid to provide to the Project and related operations.<sup>14</sup>

The Revised Application was not changed from the original version to reflect any of those recommendations.

#### 2.4 The Draft Assessment Report fails to consider the impacts of Project electrification

There is no assessment of the effects of electrifying the Project in the Draft Assessment Report. Although the BC Hydro grid is a utility, there is no discussion of Project effects on the grid in the "Infrastructure and Services" valued component, which discusses utilities. The EAO concludes that the Project "would not have significant adverse residual or significant cumulative effects on the infrastructure and services Valued Component".<sup>15</sup>

The Draft Assessment Report states that the "EAO understands from the Proponents' Revised Application that an electricity supply agreement [ESA] with BC Hydro will be one of the requirements for reaching a positive final investment decision and commencing construction of the Project."<sup>16</sup> This suggests that the proponents will only make an FID on the Project if they have entered into an ESA with BC Hydro.

However, the proponents have not made such a clear commitment. The Revised Application states that the "Proponents *anticipate* that an electricity supply agreement with BC Hydro will be one of the requirements for reaching a positive financial investment decision (FID) and commencing construction

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<sup>14</sup> Skeena Watershed Conservation Coalition (2023) *Ksi Lisims LNG Project Application Comments*, [online](#).

<sup>15</sup> BC Environmental Assessment Office (Nov 2024) *Assessment Report for Ksi Lisims LNG*, [online](#) ("Draft Assessment Report"), p.427.

<sup>16</sup> *Draft Assessment Report*, p.498.

on the Project.”<sup>17</sup> (Emphasis added.) It is possible that the proponents decide - post-EA Certificate approval - that an ESA is not a requirement for reaching an FID and proceeds with construction on the Project with an ESA.

The EAO acknowledges there is already uncertainty with Project electrification, arising from BC Hydro’s ability to provide electricity. The Draft Assessment Report states:

“There remains uncertainty with BC Hydro's ability to provide the required power to electrify Ksi Lisims LNG within the timelines required for the Project. Despite the Proponents taking steps within its control to minimize emissions and electrify the Project, should BC Hydro be unable to provide sufficient electricity to power the Project during Operations, the resulting emissions profile would make achieving BC's legislated 2030 emissions target difficult. The duration that the natural gas-fired electricity emissions would persist (via the temporary power barges) creates an additional unknown that could further jeopardize the achievement of subsequent emissions targets.”<sup>18</sup>

However, the EAO does not indicate whether or how this uncertainty is being considered in its conclusions or undertake any analysis to determine the Project’s effects should electrification not occur, and the Project uses the power barges for its entire lifespan. For example, there is no discussion in the Draft Assessment Report of the effects of the gas-fired power barges on the achievement of BC’s 2040 and 2050 targets and Canada’s 2050 net-zero emissions target.

The failure to assess the impacts of electrifying the Project demonstrates a gap in the EAO’s assessment of the following matters required by the EAA and IAA:

- EAA s.25(2)(a): The magnitude of the Project’s electrical demand means that electrifying the Project and diverting this electricity from other current and potential users will cause direct and indirect economic and social effects, including cumulative effects with other LNG projects that require electrification;
- EAA s.25(2)(b): The uncertainty associated with whether the Project will be electrified means that there are uncertainties associated with the effects of approving the Project;
- EAA s.25(2)(f): The 30 to 40-year lifespan of the Project means that electrification will have effects on both current and future generations of British Columbians who will continue to need sufficient electricity;
- EAA s.25(2)(h) and IAA s.22(1)(i): The magnitude of GHG emissions that will occur if the Project is not electrified means that approving this Project (when electrification is still uncertain) brings significant potential effects on BC and Canada’s ability to meet all their emissions targets and commitments from 2030 to 2050. Electrifying the Project may undermine BC’s ability to decarbonize other aspects of the economy, which will also have effects on BC and Canada’s ability to meet their emissions targets; and

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<sup>17</sup> Ksi Lisims LNG [Project Overview](#), p.1-27.

<sup>18</sup> Draft Assessment Report, pp.498-499.



- IAA s.22(1)(h): The magnitude of GHG emissions that will occur if the Project is not electrified means that approving this Project (when electrification is still uncertain) risks undermining the extent to which the Project contributes to sustainability. The Project's contribution to sustainability is also undermined if the Project diverts electricity away from other, more beneficial uses (e.g. economy-wide decarbonization) in order to produce fossil fuels for sale overseas.

The EAO has proposed the following condition related to electrification:

**Condition 19 (Project Electrification):** This condition requires the Holders to connect to the BC Hydro power grid to provide sufficient electrical capacity for Project Operations. While the Holders are permitted to use power barges to meet their electrical power needs, the Holders must discontinue the use of power barges within 30 days of receiving sufficient electrical capacity from BC Hydro.

This condition does not require the Project to use electricity or prevent the Project from proceeding indefinitely with power from the gas-fired power barges. It only requires the Project to connect to the BC Hydro grid when sufficient power is made available to them. If sufficient power is not made available, the Project can continue operations using the gas-fired power barges.

## 2.5 Conclusion

The Draft Assessment Report fails to consider the effects of Project electrification when considering the matters required by the EAA and IAA, including effects on BC's environment, economy, society, current and future generations, BC and Canada's abilities to achieve their emissions targets, as well as the Project's contribution to sustainability. This undermines the credibility of the EAO's conclusions with respect to these matters and the adequacy of any decision to approve the Project.

The EAO must revise the Draft Assessment Report to consider the effects of Project electrification, including diverting electricity from other users in BC and risks of approving the Project given the uncertainty associated with electrification.

## 2.6 Recommendations

In order to revise the Draft Assessment Report and update the Conditions accordingly, we recommend that the EAO:

- i) **Assess the likelihood of no electrification.** The EAO should assess the likelihood that the Project is not electrified by 2032 and uses power barges for up to the entire lifespan of the Project as well as the effects of this on the relevant matters in s.25 of the EAA and in s.22 of the IAA.
- ii) **Confirm whether non-electrification would have significant adverse effects.** The EAO should confirm whether the Project would have significant adverse effects if the Project was not electrified at all. At present, the EAO only states that the Project would potentially have significant, adverse effects in the Alternative Case, which assumes that electrification would occur in 2032.

- iii) **Assess the effects of Project electrification.** The EAO should assess the effects of Project electrification, alone and cumulatively with other approved LNG projects and upstream natural gas production, on BC's projected electricity supply (with reference to BC Hydro's most recent Integrated Resource Plan) and relevant matters in s.25 of the EAA and in s.22 of the IAA, including the ability of BC and Canada to meet their climate targets (which also requires electrification of transportation, buildings, and upstream gas production), effects on current and future generations, and contributions to sustainability. This includes the opportunity cost of diverting electricity that could be otherwise used to power homes and businesses, decarbonize the BC economy, and help achieve our emissions targets.
- iv) **Investigate the proponents' claims that BC Hydro will be able to supply electricity to the Project,** to understand the assumptions behind this claim, including whether this accounts for electricity supply to all other approved LNG projects and upstream gas production.
- v) **Amend Condition 19.** If the EAO concludes that Project electrification will not cause significant adverse effects, the EAO should amend Condition 19 to require that the Project connect to the BC Hydro grid by 2032 (or sooner).

### 3 Greenhouse Gas Emissions

The Project will have significant operational, upstream, and downstream GHG emissions, which will have significant adverse effects on BC and Canada's ability to achieve their emissions targets and climate commitments. However, the Draft Assessment Report underestimates the Project's upstream emissions, fails to adequately assess the Project's effects on all of BC and Canada's targets, fails to assess the effect of the Project's downstream emissions on global temperature rise, and fails to adequately assess the proponents' Net-Zero Plan. As a result, the EAO has failed to provide adequate information for decision-makers and the public to understand the Project's GHG emissions and effects on BC and Canada's ability to meet their emissions targets and climate commitments.

#### 3.1 Background

We are currently experiencing a climate crisis due to the volume of human-caused GHGs emissions that have been released into the atmosphere since the Industrial Revolution. The majority of these emissions are from fossil fuel combustion. In recent years, British Columbians have experienced devastating wildfires, heat domes, floods, and drought as a result of climate change.

The Paris Agreement has established a global commitment to tackle climate change, committing the international community to holding the increase in average global temperature to "well below 2°C" (and to 1.5°C if possible) above pre-industrial levels. To get on track to achieve these temperature goals, global emissions must fall immediately and drastically: 42% by 2030 for the 1.5°C goal and 28% by 2030 for the 2°C goal (below 2019 levels).<sup>19</sup>

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<sup>19</sup> UNEP (2024) *Emissions Gap Report 2024*, [online](#)

In 2021, the International Energy Agency (IEA) concluded that, to achieve the 1.5°C goal, no new oil and gas fields, coal mines, or coal mine extensions can be developed.<sup>20</sup> It also concluded that many of the LNG facilities currently under construction or at the planning stage are not needed.<sup>21</sup>

While the Project claims that its “LNG ... will have lower GHG emissions intensity than LNG from other exporting projects, which could help to mitigate global GHG emissions if displacing higher-emitting energy sources.”<sup>22</sup> The reality is that every stage of the lifecycle of LNG – from its extraction as natural gas and its transportation by pipeline or ship, to its liquefaction and its final combustion – has significant GHG emissions that will exacerbate climate change.

As discussed above, the Project considers its emissions in two scenarios based on when it connects to BC Hydro’s electricity grid. In the Base Case, the Project connects to the grid prior to the start of operations in 2028. In the Alternative Case, the Project is powered by temporary “power barges” that burn natural gas for a period of up to five years until the connection to the grid occurs. The proponents expect that grid connection would occur in 2032. These scenarios have different GHG implications.

The Project will release the following annual emissions:

Phase	Emissions (tonnes CO <sub>2</sub> e/year)
Upstream emissions from the production of natural gas to supply the Project.	<b>In both cases:</b> <ul style="list-style-type: none"> <li>▪ 4,141,000 in 2028,</li> <li>▪ 3,862,000 in 2030, and</li> <li>▪ 3,245,000 from 2035-2057.</li> </ul>
Construction emissions to build the Project.	<b>Base Case:</b> 58,878 <b>Alternative Case:</b> 212,110
Operating emissions from the liquefaction of natural gas to LNG (including shipping to 12 Nm).	<b>Base Case:</b> 252,635 <b>Alternative Case:</b> 1,867,992
Emissions from decommissioning the Project at the end of its lifespan.	<b>In both cases:</b> 45,381
Downstream emissions from the combustion of the Project’s 12 MTPA of LNG.	<b>In both cases:</b> 33,120,000 <sup>23</sup>

<sup>20</sup> IEA (2021) *Net-Zero by 2050: A Roadmap for the Global Energy Sector*, [online](#), (“IEA Net-Zero Roadmap”), p.21.

<sup>21</sup> *IEA Net-Zero Roadmap*, p.102

<sup>22</sup> *Ksi Lisims LNG Project Overview*, p.1-48.

<sup>23</sup> Assumes that natural gas has an emissions rate of 53.07 kg of CO<sub>2</sub>e/MMBtu and there are 52 MMBtu per tonne of LNG, therefore, one metric ton of LNG has direct emissions of 2.76 tonnes of CO<sub>2</sub>e. Ksi Lisims will produce 12 MTPA of LNG per year, which results in 33,120,000 tonnes CO<sub>2</sub>e per year when this LNG is combusted.

### 3.2 The EAA and IAA require an assessment of Project's GHG emissions and effects on emissions targets and climate commitments

There are several required assessment matters under the EAA and IAA that are relevant to the GHG emissions of the Project. Section 25(2) of the EAA requires that the assessment of the Project consider:

- (f) effects on current and future generations
- (h) greenhouse gas emissions and the potential effects on the province being able to meet its targets under the *Greenhouse Gas Reduction Targets Act*.

The *Greenhouse Gas Reduction Targets Act* is now named the *Climate Change Accountability Act*<sup>24</sup> (CCAA), which sets several targets for BC to reduce its provincial emissions below 2007 levels:

- 40% by 2030 (to 38.52 Mt),
- 60% by 2040 (to 25.68 Mt), and
- 80% by 2050 (to 12.84 Mt).<sup>25</sup>

Under the CCAA, BC has also set targets in 2030 for specific sectors of the economy, including a target for the Oil & Gas Sector to reduce its emissions 33-38% below 2007 levels (to 8.85-9.03 Mt).

Section 22(1) of the IAA requires that the assessment of the Project consider:

- (i) 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.

The *Canadian Net-Zero Emissions Accountability Act* sets a national 2030 target of a 40-45% reduction below 2005 levels (to 443 Mt - 457 Mt). Canada is also a signatory to the Paris Agreement, which commits Canada to:

"Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change."<sup>26</sup>

This commitment introduces a more global consideration into the assessment of Project emissions. Instead of only considering Project effects on domestic GHG targets, the assessment must also consider the Project's effect on climate change more broadly. This is applicable because, in this environmental assessment process, Canada is making a decision whether to approve a Project that is designed to export LNG overseas where it will be combusted and release tens of millions of tonnes of emissions. These "downstream" emissions will contribute to an increase in global average temperature; therefore, in approving this Project, Canada would be undermining its Paris Agreement commitment to hold the increase in global average temperature to well below 2°C.

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<sup>24</sup> SBC 2007, c 42 ("CCAA").

<sup>25</sup> CCAA at s 2(1).

<sup>26</sup> *Paris Agreement*, article 2(1)(a).

### 3.3 The Revised Application fails to adequately consider the Project's GHG emissions and effects on emissions targets and climate commitments

The Revised Application provided information about the Project's GHG emissions; however, this information was deficient in several respects. The Revised Application also estimated how many emissions the Project would contribute to BC and Canada's targets but did not adequately assess the Project's effect on BC and Canada's abilities to achieve their emissions target.

In their December 2023 submission, the Wilderness Committee and Northwest Institute noted that the Proponents had not met the requirements of the AIRs in drafting the Application. With respect to the assessment of GHG emissions, the submission recommended that the Application be revised to:

- i) Provide information to support the proponents' claim that the Project will displace higher emitting fuels and respond to existing evidence that LNG will displace renewables and will not displace higher emitting fuels.
- ii) When estimating emissions intensity, incorporate recent studies demonstrating that natural gas production has greater emissions than currently estimated by national inventories and included in upstream emissions intensities.
- iii) Provide evidence to substantiate the proponents' claims of carbon leakage if the Project is not approved.
- iv) Quantify the annual downstream emissions of the Project as part of the full lifecycle emissions of the Project's LNG to justify and inform any comparison of lifecycle emissions between coal and LNG. Lifecycle emissions must include emissions from production and extraction, transportation, liquefaction, shipping beyond the 12 Nm limit, regassification, and combustion – including estimates of fugitive emissions using best available information.
- v) Calculate upstream emissions using emissions intensities that more accurately reflect recent studies showing that upstream emissions are much higher than estimated by Environment and Climate Change Canada.
- vi) Calculate upstream emissions using emissions intensities that use the global warming potential (GWP) of methane over both 20- and 100- year timescales in order to more accurately represent the climate impact of upstream emissions associated with the Project.
- vii) Calculate upstream emissions using both 1.7 Bcf/day and 2.0 Bcf/day to convey the full range of the Project's upstream emissions.
- viii) Estimate upstream emissions within BC and Alberta and explain how these emissions will impact BC's and Alberta's ability to meet their targets. Further, quantify the contribution of these upstream emissions to BC's and Alberta's emissions totals and targets.
- ix) Conduct a new analysis of the Project's incremental effects on global emissions after updating its emissions intensity factors with data from recent studies, providing evidence of the likelihood and scale that the Project will displace higher emissions fuels in global markets, and (instead of assuming the Project's emissions will be non-incremental) reconciling the Project's emissions with the small, finite, and shrinking carbon budget that will keep global warming below 1.5°C.

- x) Provide evidence to support the claim that upstream emissions will continue to decline over time. This includes information about the costs, timelines, risks, uncertainties, effectiveness, and impacts associated with the implementation of proposed decarbonization opportunities.
- xi) State the cumulative emissions that the Project is directly and indirectly responsible for each year of its construction and operations and compare this data to relevant sectoral, provincial, and national totals and targets.
- xii) Quantify the Project's emissions in the Alternative Case as a percentage of all relevant sectoral, provincial, and national emissions totals and targets.
- xiii) Assess – in both high and low emissions scenarios - whether there is available space under provincial and national emissions targets to accommodate additional emissions from the Project. This should include the cumulative impacts of operational and upstream emissions of other LNG projects that have been approved by BC.

The Revised Application was only changed to address one of these recommendations: to calculate upstream emissions using both 1.7 Bcf/day and 2.0 Bcf/day of natural gas supply.

### 3.4 The Draft Assessment Report fails to adequately consider the Project's GHG emissions and effects on emissions targets and climate commitments

In the Draft Assessment Report, the EAO concludes that, should the Base Case scenario be achieved, the Project would not have significant adverse effects on GHG emissions but that, should the Alternative Case occur, this would result in potentially significant adverse effects on GHG emissions.<sup>27</sup>

While the EAO calculates the Project-induced increase in the level of emissions reductions required elsewhere in the economy to meet the 2030 target (1% in the Base Case and 7.9% Alternative Case), the EAO does not conduct this analysis for BC's other emissions targets or Canada's emissions targets.<sup>28</sup> There is no further statement in the Draft Assessment Report about the effect that the Project will have on BC's ability to meet its emissions targets. The EAO also fails to state a conclusion about the extent to which the Project will hinder or contribute to Canada's ability to meet its commitments in respect of climate change.

As set out in further detail in Dave Sawyer's expert opinion, attached as Appendix A to this submission, the Draft Assessment Report fails to adequately consider the Project's GHG emissions and effects on BC and Canada's emissions targets and climate commitments. In his expert opinion, Sawyer concluded that:

1. **The EAO has failed to properly account for incremental Project emissions that will be counted towards BC and Canada's climate targets** because it:
  - a. Excludes incremental upstream emission from the production of natural gas used to supply to Project when comparing the Project's emissions against BC and federal

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<sup>27</sup> Draft Assessment Report, p.500.

<sup>28</sup> Draft Assessment Report, p.496.

emissions targets. This omitted between 3.2 Mt - 4.1 Mt CO<sub>2</sub>e/yr from the EAO’s comparisons of the Project’s emissions with BC and Canada’s targets.

- b. Excludes the upstream emissions from the production and transportation of diesel that is used in the operations of the Project. This omitted 21,000 t CO<sub>2</sub>e from the EAO’s comparisons of the Project’s emissions with BC and Canada’s targets.
  - c. Uses an outdated GWP for methane when calculating upstream natural gas emissions (25 instead of 28). As such, the EAO underestimates the Project’s upstream emissions from natural gas production by 12%. Using the up-to-date GWP of 28 would add 320,000 t CO<sub>2</sub>e in the Base Case and 320,000 t CO<sub>2</sub>e in the Alternative Case to the Project’s emissions.
2. **If Project emissions are counted properly, the Project will contribute much greater shares of BC and Canada’s targets than assessed by the EAO.** Proper accounting would include upstream emissions from natural gas production and operational diesel use and would apply a GWP of 28 for upstream natural gas emissions.

The table below compares Dave Sawyer’s analysis of the Project’s share of BC and federal emissions targets with the EAO’s analysis.

Project’s share of BC and Federal emissions targets				
Target	Sawyer analysis		EAO analysis <sup>29</sup>	
	Base Case	Alternative Case	Base Case	Alternative Case
<b>BC - 2030 Oil &amp; Gas Sector</b>	37%	53%	2%*	16%*
<b>BC – 2030</b>	9%	12%	0.66%	4.88%
<b>BC – 2040</b>	11%	16%	0.99%	<i>Not given</i>
<b>BC - 2050</b>	22%	33%	1.98%	<i>Not given</i>
<b>CAN – 2030 Oil &amp; Gas Sector</b>	3.26%	4.52%	0.19%*	1.4%*
<b>CAN – 2030</b>	1.0%	1.3%	0.008%	0.4%

\*Also calculated by Dave Sawyer

Dave Sawyer’s analysis concludes that the incremental emissions from the Project would pose a major challenge to meeting BC and Canada’s emissions targets, far greater than the EAO has identified.

3. **The EAO has undertaken a flawed approach to assessing the Project’s effects on BC and Canada’s emissions targets.** This approach:
- a. Does not explain how the EAO derived the percentage of additional emissions reductions that BC will need to achieve elsewhere in the economy to offset the impact of the Project on the 2030 target. There is also no discussion of what climate plans and

<sup>29</sup> Draft Assessment Report, p.496.

policies that are included in this assessment, making it difficult to evaluate the feasibility of achieving these additional reductions.

- b. Has likely underestimated the impact of the Project on BC's targets given that CleanBC, the only publicly available forecast of BC's emissions, does not include emissions from the Project, nor from several other high-emitting LNG projects that have been approved in BC. (CleanBC also only forecasts emissions as far as 2030, meaning that – even if it did include the Project's emissions - it wouldn't provide any information to help BC understand the Project's impact on BC's 2040 and 2050 targets.)
- c. Fails to acknowledge that BC is not on track to meet its 2030 provincial or Oil & Gas sector targets and Canada is not on track to meet its 2030 and 2050 targets. Making up the shortfall in meeting these targets requires addressing harder-to-abate emissions and adding more emissions to this shortfall (i.e. from the Project) will increase this burden and place it on smaller entities like households and small businesses. The EAO does not address how this burden will be distributed or whether it is feasible when discussing the additional emissions reductions that would be required to meet BC's 2030 target.
- d. Has only assessed the additional emissions reductions that will be required in relation to BC's 2030 target, failing to conduct this analysis for BC's 2030 Oil & Gas sector target, BC's 2040 and 2050 targets, and Canada's 2030 and 2050 targets.
- e. Compares Project emissions (which start in 2028) with BC and Canada's emissions in 2022, which makes the Project's emissions contribution appear smaller because it ignores the fact that BC and Canada's emissions are projected to decline in order to achieve our future targets.

As such, the EAO has not adequately considered the effect of the Project on BC and Canada being able to meet their emissions targets as required by the EAA and IAA.

4. **The EAO has failed to adequately assess the proponents' Net-Zero Plan** because it:
  - a. Fails to address the uncertainty of Project electrification and the significantly higher emissions if the Project is not electrified by 2028, or at all. The Plan proposes to buy the same number of carbon offsets in both the Base and Alternative Cases, despite the much higher emissions in the Alternative Case.
  - b. Excludes indirect and upstream emissions associated with the Project, such as upstream emissions from natural gas production to supply the Project. This would require an additional 3.2 Mt to 4.1 Mt of carbon offsets per year.
  - c. Demonstrates an over-reliance on carbon offsets. The Plan lacks a clear roadmap to reduce reliance on carbon offsets over time, as required by the BC's mitigation hierarchy and maintains offset purchase.
  - d. Does not confirm that the Plan will use the latest GWP values, which risks underestimating Project emissions, particularly those from upstream natural gas production.
  - e. Does not commit to sufficient transparency or independent third-party verification of offsets, robust reporting and public accountability mechanisms, including annual



reporting on offset purchases that details the quality, additionality, and environmental integrity of the offsets.

The EAO has proposed the following Condition related to the Project's GHG emissions and Net-Zero Plan:

**Condition 12 (Greenhouse Gas Emissions and Net-Zero Plan):** This plan would require the Holders to implement its plan for achieving net-zero energy emissions by 2030 and update the plan in 2028 and again every five years in consultation with the Climate Action Secretariat, First Nations, and Nisga'a Nation.

This Condition will not adequately mitigate the potential effects of the Project's GHG emissions because the Draft Assessment Report has failed to adequately assess the proponent's Net Zero Plan. The EAO must address the significant deficiencies of the Draft Assessment Report with respect to GHG emissions and the Net Zero Plan and propose new Conditions prior to any decision to approve the Project.

#### *Downstream emissions*

There is also no consideration of downstream emissions in the Draft Assessment Report, with the EAO noting that emissions from end-use combustion are not a required scope of the assessment under the Act or the IAA.<sup>30</sup> We disagree with this scoping.

As discussed above, downstream emissions should be considered by the IAA with respect to the effect of the Project on Canada's ability to meet commitments in respect of climate change - namely under the Paris Agreement. In this assessment process, Canada is making a decision whether to approve a Project that is designed to export LNG overseas where it will be combusted and release over 33 Mt CO<sub>2</sub>e/year into the atmosphere. While these downstream emissions will not be counted in Canada's National Inventory Report or towards BC or Canada's emissions targets, they will certainly contribute to an increase in global average temperature, which Canada has committed to limiting.

Given the present state of the climate crisis, we cannot afford to continue to approve additional fossil fuel projects; instead, we must rapidly and drastically reduce emissions if we are going to meet our commitments to limit global average temperature rise. As such, in approving this Project with its massive downstream emissions, Canada would be undermining its Paris Agreement commitment to limit the increase in global average temperature to well below 2°C.

### 3.5 Conclusion

The EAO's failure to properly assess the Project's GHG emissions and effects on BC and Canada's emissions targets and climate commitments are fundamental flaws in the Draft Assessment Report. This failure undermines the EAO's conclusion that, should the Base Case scenario be achieved, the Project would not have significant adverse effects on GHG emissions. It also undermines the EAO's conclusion that, should the Alternative Case scenario be achieved, the Project would only have potentially significant adverse effects on GHG emissions. Instead, the analysis above illustrates that in both the

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<sup>30</sup> *Draft Assessment Report*, p.498.

Base and Alternative Cases, the Project would have a more certain and greater impact on BC and Canada's ability to meet climate targets than described in the Draft Assessment Report.

As a result of the EAO's approach, we know that the Project will increase the effort required elsewhere in the BC economy to achieve BC's 2030 target, but we don't know the full extent of this Project effect (i.e. whether BC can increase its effort as required to meet the target). This is because: the EAO did not share its methodology, the CleanBC 2030 emissions forecast ignores Ksi Lisims, and there is no discussion of the fact that BC is already projected to miss the 2030 target and whether BC can achieve the target while also dealing with the new incremental emissions from the Project.

Further, the EAO has not conducted this assessment for BC's 2030 Oil & Gas sector target, provincial targets in 2040 and 2050, or Canada's 2030 and 2050 targets, even though EAA s.25(2)(h) and IAA s.22(1)(i) do not limit the assessment to just BC's 2030 target but refer to all of BC and Canada's targets.

In severely underestimating upstream emissions, failing to adequately assess the Project's effects on all of BC and Canada's targets, failing to assess the effect of the Project's downstream emissions on global temperature rise, and failing to adequately assess the proponents' Net-Zero Plan, the Draft Assessment Report does not contain adequate information for decision-makers and the public to understand the Project's GHG emissions and effects on BC and Canada's ability to meet their emissions targets and climate commitments. Given the flaws identified above, Northwest Institute, Wilderness Committee, and Skeena Conservation submit that the Draft Assessment Report cannot be relied upon to make a fully informed decision with respect to Project approval.

### 3.6 Recommendations

The Northwest Institute, Wilderness Committee and Skeena Conservation adopt Dave Sawyer's recommendations that the EAO revise the Draft Assessment Report to:

- i) **Include all emission scopes:** When counting the Project's emissions, account for scope 1 (direct emissions), scope 2 (electricity emissions), and scope 3 (upstream and downstream emissions), including those associated with natural gas extraction, processing, transportation, and end-use combustion.
- ii) **Be consistent with current methodologies:** Apply the latest global warming potential (GWP) factors for methane and other greenhouse gases as outlined in the 2024 National Inventory Report to ensure alignment with current national and international emissions reporting standards.
- iii) **Incremental emissions analysis:** Highlighting the incremental nature of the Project's emissions, which are not accounted for in existing provincial and federal emissions reduction plans and emissions forecasts.
- iv) **Assess against all targets:** Evaluate the Project emissions on all of BC and Canada's emissions targets, including the oil and gas sector-specific targets set by BC and Canada for 2030.
- v) **Consideration of emissions projections and policies:** Evaluate the Project's future emissions against the emissions projections provided by both BC and Canada's climate plans to assess their long-term implications.

- vi) **Transparent disclosure:** Provide clear and accessible data on all emission sources, assumptions, and methodologies used, including sensitivity analyses to reflect uncertainty in projections.
- vii) **Scope 3 emissions consideration:** To be consistent with BC and Canada's climate commitments, include upstream scope 3 emissions in the net-zero plan, with offsets for upstream Scope 3 emissions where possible, to fully account for incremental emissions in Canada.

The Northwest Institute, Wilderness Committee and Skeena Conservation further adopt Dave Sawyer's recommendations that the EAO ensure that the proponents' Net-Zero Plan be revised to include:

- i) **High-quality, locally relevant offsets:** Offsets should be additional, verifiable, permanent, and sourced from local projects whenever possible. The plan should also outline how offset use will phase out over time in favor of direct emissions reductions.
- ii) **Interim reduction targets and milestones:** Set clear interim emissions reduction milestones (e.g., 2025, 2030) that demonstrate progress toward net-zero and limit the use of offsets as a bridging tool until full electrification or other emissions reduction measures are implemented.
- iii) **Third-party verification and transparency:** Engage independent third parties to verify emissions reductions and offsets annually, with transparent reporting to the public and stakeholders.
- iv) **Regular adaptive management:** Update the net-zero plan every three years to reflect emerging best practices, policy developments, or advancements in technology, ensuring that the plan remains ambitious and credible over time.

Condition 12 should also be modified to require the update of the Net-Zero Plan to occur before 2027 (instead of in 2028) in order to provide additional lead time to address the risks of higher emissions under the Alternative Case.

Additionally, Northwest Institute, Wilderness Committee and Skeena Conservation reiterate their recommendations from December 2023, modifying them to fit the context of the Draft Assessment Report :

- i) Rigorously assess the proponents' claim that the Project will displace higher emitting fuels, considering existing evidence that LNG will displace renewables and will not displace higher emitting fuels.
- ii) When considering the emissions intensity of the Project, incorporate recent studies demonstrating that natural gas production has greater emissions than currently estimated by national inventories and included in upstream emissions intensities.
- iii) Rigorously assess the proponents' claims of carbon leakage if the Project is not approved.
- iv) Rigorously assess the proponents' claim that upstream emissions will continue to decline over time, considering information about the costs, timelines, risks, uncertainties, effectiveness, and impacts associated with the implementation of proposed decarbonization opportunities.

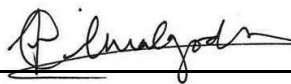
- v) Assess – in both high and low emissions scenarios - whether there is available space under provincial and national emissions targets to accommodate additional emissions from the Project. This should include the cumulative impacts of operational and upstream emissions of other LNG projects that have been approved by BC.

Sincerely,



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Matt Hulse  
Barrister and Solicitor



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Imalka Nilmalgoda  
Barrister and Solicitor

Encl.

Appendix A: Expert opinion of Dave Sawyer

cc: Pat Moss, Northwest Institute for Bioregional Research

Shannon McPhail and Jesse Stoepler, Skeena Watershed Conservation Coalition

Isabel Siu-Zmuidzinias, Wilderness Committee

## Appendix A: Expert opinion of Dave Sawyer

December 12, 2024

Dave Sawyer, MDE.  
Economist, EnviroEconomics Inc.  
51-811 Connaught Avenue,  
Ottawa, Ontario, K2B 8K3

Attention: Matt Hulse & Imalka Nilmalgoda, Ecojustice

### **Re: Expert opinion on EAO assessment of Ksi Lisims LNG climate impacts**

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You have requested that I provide an opinion on the BC Environmental Assessment Office's (EAO) evaluation of the impact of the proposed Ksi Lisims LNG project on British Columbia's (BC) and Canada's greenhouse gas (GHG) emissions targets and climate commitments. This expert opinion addresses that request by examining the adequacy of the EAO's assessment of the project's operational, upstream, and downstream emissions, its alignment with BC's 2030–2050 targets, and Canada's commitments under the *Paris Agreement* and targets under the *Canadian Net-Zero Emissions Accountability Act* ("NZEAA"). I also provide an opinion on the appropriate methods for assessing upstream emissions, evaluating net-zero plans, and ensuring credible climate accountability.

Specifically, the opinion examines:

- a) Has the EAO adequately evaluated the Project's impact on British Columbia's ability to achieve its GHG emissions targets and Canada's climate commitments?
  - For BC: Assess the implications of upstream and operational emissions on the 2030, 2040, and 2050 provincial targets and the 2030 oil & gas sector target.
  - For Canada: Evaluate the effects of operational, upstream, and downstream emissions on the NZEAA targets and Canada's obligations under the *Paris Agreement*.
- b) What type of assessment should the EAO conduct to accurately determine the Project's impact on BC's emissions targets and Canada's climate commitments?
- c) Has the EAO effectively evaluated the nature and impact of the Project's upstream emissions, including its treatment of fugitive emission rates and global warming potential (GWP) factors?
- d) What would an adequate assessment of upstream emissions entail?
- e) Has the EAO sufficiently assessed the proponent's net-zero plan and its reliance on carbon offsets?

- f) What constitutes a credible net-zero plan, and how should such a plan be assessed?

### **Expert Opinion**

The Ksi Lisims LNG project raises critical questions about its alignment with BC's and Canada's GHG emissions reduction targets and commitments, as well as the adequacy of its proposed net-zero plan. To fully evaluate the project's implications and ensure accountability, it is essential to address several key issues:

1. **Has the EAO sufficiently evaluated the project's impact on BC's and Canada's GHG targets and commitments?** This includes examining the incremental emissions from the project relative to BC's provincial and oil and gas sector targets, Canada's national oil and gas emissions cap, and Canada's obligations under the NZEAA and the Paris Agreement.
2. **What would an adequate assessment entail?** This involves identifying the necessary scope, methodology, and benchmarks required to comprehensively evaluate the project's emissions and their alignment with provincial and national climate goals.
3. **Has the EAO sufficiently assessed the proponent's net-zero plan and its reliance on carbon offsets?** This question addresses whether the EAO's evaluation of the project adequately considers the reliance on offsets, the robustness of the proposed reduction measures, and the alignment of the plan with recognized best practices.
4. **What constitutes a credible net-zero plan, and how should such a plan be assessed?** This requires establishing clear criteria for assessing the credibility of a net-zero plan, including its reliance on offsets, timelines for direct emissions reductions, and alignment with science-based targets.

Each question is addressed below.

## 1 Has the EAO adequately evaluated the project's impact on BC's and Canada's GHG targets and commitments?

To provide my opinion on whether the EAO has adequately evaluated the project's impact on BC's and Canada's GHG targets and commitments, we address the following key questions:

- Are the project's emissions accurately reported and aligned with the requirements for compliance with BC and federal climate targets?
- What is the likely impact of the project's emissions on BC's and Canada's ability to meet their GHG reduction commitments?
- Does the EAO's assessment adequately account for the project's emissions within the scope of the National Inventory Report (NIR) principles?

### 1.1 Are the project's emissions accurately reported and aligned with the requirements for compliance with BC and federal climate targets?

In my opinion, the EAO has failed to properly account for incremental project emissions that will ultimately be included in Canada's *National Inventory Report* (NIR). The NIR is the foundation for tracking and assessing Canada's and BC's progress toward their climate targets and commitments.<sup>1</sup> Here is why the EAO has not sufficiently evaluated the project's impact on targets and commitments:

1. **How the NIR works.** Canada's NIR is prepared following international guidelines established by the United Nations Framework Convention on Climate Change (UNFCCC), to which Canada is a signatory. These guidelines ensure consistency, prevent double counting, and provide a transparent framework for tracking emissions and assessing progress toward commitments. The NIR typically reports emissions from two years prior and is updated annually.
2. **The emissions covered by the NIR.** The NIR covers all emissions within Canada's territory under the UNFCCC principle of *Completeness*,<sup>2</sup> including:
  - Emissions from burning fossil fuels.
  - Process emissions from industrial activities.

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<sup>1</sup> ECCC, 2022. "Canada's current emissions profile and historical trends are helpful to provide a clearer picture of where Canada needs to be by 2030 and 2050. As a party to the United Nations Framework Convention on Climate Change (UNFCCC), Canada is required to regularly develop, update, and publish its national inventory of human-sourced emissions. This is done through the Government of Canada's National Inventory Report (NIR), which is updated and submitted to the UNFCCC annually before April 15." (p.10)

<sup>2</sup> IPCC, 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 1: General Guidance and Reporting. Accessed November 25, 2024. <https://www.ipcc-nggip.iges.or.jp/public/2006gl/>

- Fugitive emissions, such as methane leaks from natural gas extraction and transportation.
  - It also includes emissions from offshore oil and gas production within Canada’s Exclusive Economic Zone (up to 200 nautical miles).
3. **Why this matters for climate targets.** Emissions included in Canada’s NIR are counted towards Canada’s emissions targets in NZEAA. BC publishes its own provincial emissions inventory report each year; according to BC, the BC Provincial Inventory is “largely based on the National Inventory Report produced by the federal government.”<sup>3</sup> The emissions included in BC’s Provincial Inventory are calculated towards BC’s emissions targets in the *Climate Change Accountability Act*.
  4. **The project causes incremental<sup>4</sup> (indirect) upstream emissions in Canada.** The proponent<sup>5</sup> and the EAO<sup>6</sup> state upstream natural gas emissions are “potentially incremental” while ECCC is more certain stating upstream emissions from natural gas production to supply the project are incremental.<sup>7</sup> This means they are a direct result of the project and would not occur otherwise. These emissions, estimated at 3.86 Mt in 2030<sup>8</sup> will be included in the NIR as they occur within Canada’s jurisdiction. They are also indirect emissions from acquired diesel fuel that are not counted.
  5. **Irrelevance of global emissions displacement.** The project proponent asserts that Ksi Lisims LNG could reduce global emissions by displacing higher-emitting fuels in other countries. Even if this is true, this claim is irrelevant for NIR accounting purposes. Canada’s emissions inventory will account for GHG emissions that occur within its borders, regardless of their global context.<sup>9</sup>

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<sup>3</sup> BC Government (2023) The Provincial Inventory of Greenhouse Gas Emissions, accessed Nov 25, 2024: <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory>

<sup>4</sup> “Incremental means that the increase in upstream production and resulting emissions would only occur if the Project is built.” EAO Assessment Report. p. 497.

<sup>5</sup> “These upstream emissions are potentially incremental to existing natural gas production, processing, and transmission GHG emissions in Canada”. Revised Application p. 8-33.

<sup>6</sup> “The Proponents concluded that these upstream emissions are potentially incremental to existing natural gas production, processing, and transmission GHG emissions in Canada”. EAO Assessment Report. p. 497.

<sup>7</sup> “...indicating that the upstream emissions are completely incremental in this scenario.” p.8. ECCC, 2024. GHG analysis: Review of estimated greenhouse gas emissions associated with the Ksi Lisims LNG project. <https://www.projects.eao.gov.bc.ca/api/public/document/67368cf7abeba70022a029f0/download/Ksi%20Lisims%20LNG%20ECCC%20GHG%20Analysis.pdf>

<sup>8</sup> Revised Application, p. 7-99.

[https://www.projects.eao.gov.bc.ca/api/public/document/66d0fc5d36aa890022dee96d/download/33\\_KsiLisimsLNG\\_8\\_Climate\\_Change\\_Revised.pdf](https://www.projects.eao.gov.bc.ca/api/public/document/66d0fc5d36aa890022dee96d/download/33_KsiLisimsLNG_8_Climate_Change_Revised.pdf)

<sup>9</sup> From the federal ERP update on progress to 2030 target: “For the 2023 projections, the main drivers of change from the December 2022 projections were: Oil and gas: updated projections from the CER, which indicate lower oil sands but higher conventional oil, gas, and LNG production relative to the levels in the 2030 ERP projections; revisions to the



- 6. Misstep in the EAO's assessment.** The EAO's exclusion of incremental upstream emissions from the project's scope contradicts the NIR's guiding principles, particularly the principle of *Completeness*. According to the IPCC's 2006 Guidelines for National Greenhouse Gas Inventories, *Completeness* requires that all sources and sinks within a country's territory be included in the inventory. By failing to include these emissions in the assessment of targets and commitments, the EAO has ignored a direct and measurable consequence of the project.

In conclusion, the EAO's failure to include both incremental and indirect upstream emissions from natural gas production, as well as emissions embodied in acquired diesel, in its evaluation of the project's impact on BC and Canada's emissions targets represents a significant oversight. These emissions are directly attributable to the project, will be included in Canada's NIR, and must be accounted for to provide a complete and accurate assessment of the project's alignment with provincial and federal climate targets and commitments. Ignoring these emissions undermines the transparency, reliability, and credibility of the EAO's assessment.

## **1.2 Are the project's emissions accurately reported for assessing compliance with BC and federal climate targets?**

For a comprehensive assessment of the project's emissions and its alignment with BC's and Canada's climate targets and commitments, there are three groups of emissions that need to be included:

- 1. Direct Scope 1 emissions:** These are direct emissions from sources controlled or owned by the project, such as combustion of natural gas for power generation, emissions from industrial processes, and fugitive methane leaks. These emissions are the most straightforward to measure.
- 2. Indirect Scope 2 emissions:** These are indirect emissions from the consumption of purchased electricity, steam, heating, or cooling. For the project, Scope 2 emissions include the emissions associated with the electricity used to power operations.
- 3. Indirect Scope 3 emissions:** These include all other indirect emissions across the project's value chain, such as upstream emissions from natural gas extraction, processing, and transportation among other emissions.

In my view, there are three major examples of emissions underreporting not addressed by the EAO:

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hydrogen strategy modeling assumptions; less optimistic assumptions on the deployment of CCS led to higher emissions" (p.81) Government of Canada. 2023 Progress Report on the 2030 Emissions Reduction Plan.

- i) the exclusion of incremental upstream natural gas emissions (indirect),
- ii) the exclusion of indirect operating emissions associated with the project's operations (diesel), and
- iii) The choice to use an outdated global warming potential (GWP) to estimate natural gas emissions.

The underreporting undermines the credibility and completeness of the EAO's assessment, in particular, the accuracy of the project's emissions reporting and its evaluation against BC's and Canada's climate targets and commitments. These examples are discussed in turn, below.

To quantify the project's emissions impact in assessing targets and commitments, I use an emissions intensity approach, incorporating the proponent's estimates where applicable to calculate the project's emissions footprint. In some cases, the method adjusts the total emissions reported by the proponent by applying emission factors to account for upstream and indirect emissions. While not as comprehensive as an integrated assessment model (discussed in Section 2), this approach provides an accurate and realistic estimate of the project's emissions for evaluating its alignment with federal and BC emissions targets and commitments.

### **1.2.1 The exclusion of incremental upstream natural gas emissions.**

As discussed above, ECCC concludes that upstream emissions are incremental in all scenarios, while the proponent and EAO conclude they are potentially incremental.

The Revised Application estimates annual indirect upstream emissions associated with producing natural gas for the project from 2028 to 2057.<sup>10</sup> As the EAO Assessment report states, "the Proponents estimated the annual upstream emissions to be 4,141,000 t CO<sub>2</sub>e during the first year of operation in 2028, then decreasing gradually to 3,245,000 t CO<sub>2</sub>e in 2035 and for the remainder of the project lifetime."<sup>11</sup> The project's annual upstream emissions are:

- 4,141 kt CO<sub>2</sub>e in 2028,
- 3,862 kt CO<sub>2</sub>e in 2030<sup>12</sup>, and
- 3,245 kt CO<sub>2</sub>e from 2035 to 2057.

In section 24.2.3 of the Draft Assessment Report, the EAO assesses the impact of the project's emissions on provincial and federal emission reduction efforts. However, the EAO has only included total direct and indirect emissions from acquired electricity during

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<sup>10</sup> Revised Application-08B-Strategic Assessment of Climate Change Technical Data Report, pp.19-20.

<sup>11</sup> EAO Assessment Report. p. 497

<sup>12</sup> Calculated using the compound annual average growth rate between 2028 and 2035.

operations,<sup>13</sup> which amount to 252,635 tCO<sub>2</sub>e/yr in the Base Case and 1,867,992 tCO<sub>2</sub>e in the Alternative Case.<sup>14</sup> In assessing the project's emissions against BC and federal climate targets and commitments, the EAO has excluded the almost 4 Mt CO<sub>2</sub>e of indirect and upstream emissions from its calculations.

### **1.2.2 The exclusion of some indirect operating emissions.**

Indirect operating emissions from acquired electricity are included in the assessment but indirect emissions from acquired diesel energy are not included. Indirect emissions from acquired diesel would include emissions from producing and transporting the diesel to be used during project operations. For the purposes of the NIR, these emissions will also be counted in the NIR and towards provincial and federal targets, just like the upstream emissions from the natural gas to supply the project. As such, they should also be counted by the EAO in the assessment of the project; this would more accurately reflect the project's emissions impact within Canada.

The quantity of direct emissions from acquired diesel is listed in section 8.7.4 (Operation) of the Revised Application.<sup>15</sup> An emission factor can be applied to this total to give an estimate of the indirect diesel emissions. Environment Canada's *Clean Fuel Regulations* estimate that indirect emissions within Canada from diesel combustion are equal to 33% of diesel's direct emissions. That is, the emissions produced during the production and transportation of diesel are equal to 33% of the emissions when the diesel is combusted. This indicates that the direct emissions reported by the proponent likely understate total emissions by at least 33%.<sup>16</sup>

Table 1, below, reports the incremental upstream emissions associated with diesel combustion during the project's operations using the 33% emissions factor for diesel in both cases. This adds 0.021 Mt CO<sub>2</sub>e to the project's emissions.

### **1.2.3 Outdated global warming potential to estimate natural gas emissions**

Global warming potential (GWP) is a value that measures the impact of a greenhouse gas relative to carbon dioxide over a specific time frame, typically 100 years. It is a way to compare the impact of different GHGs on the atmosphere using the same unit.

As of May 2, 2024, the NIR adopted a GWP of 28 for methane (i.e. natural gas) instead of the previous value of 25 to align with the updated scientific findings from the

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<sup>13</sup> Technical Data Report— Climate Change. p. 8-21.

<sup>14</sup> EAO Assessment Report, p.495.

<sup>15</sup> See Table 8.7-7. (p. 8-22) for a listing of marine sources using diesel fuel.

<sup>16</sup> "Calculated on fuels used or produced in Canada", and therefore consistent with NIR accounting. See ECCC Fuel Life Cycle Assessment Model technical guidance. <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/fuel-life-cycle-assessment-model.html>

Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5).<sup>17</sup> The updated GWP of 28 reflects new evidence that methane has a greater warming effect than previously understood due to its higher radiative efficiency and shorter atmospheric lifetime compared to CO<sub>2</sub>.

However, the proponent still uses a GWP of 25<sup>18</sup> to estimate upstream natural gas emissions instead of the updated value of 28, resulting in a 12% underestimation of these emissions. This means that, for the purpose of assessing the project's effects on climate targets and commitments, the actual emissions from natural gas will be 12% higher than reported by the proponent. The EAO has accepted the proponent's figures and has not reevaluated upstream natural gas emissions using the updated GWP.

According to BC's emission's inventory, about 49% of natural gas emissions are from fugitive (non-combustion) sources which release methane. Applying this 12% factor to roughly half of the upstream natural gas operating in the Base Case results in 230,000 tonnes of additional CO<sub>2</sub>e each year than presented in the Draft Assessment Report. In the Alternative Case, with the power barges and upstream natural gas emissions, the adjusted annual methane emissions are 320,000 tonnes of CO<sub>2</sub>e higher. See Table 1 for the summary.

Given the Application was revised and submitted to the EAO after the higher GWP was adopted by the NIR on May 2, 2024, and given the Draft Assessment Report was also prepared after this date, the EAO should have used the most recent methane GWP emission factor for purposes of assessing targets and commitments. Otherwise, the EAO is underestimating the impact of the project on BC's and Canada's climate targets and commitments.

### **Summary of underreporting**

Table 1 provides a summary of the project's "NIR emissions" for the purpose of assessing climate targets and commitments. That is, those project emissions that will be accounted for in the NIR and towards BC and Canada's targets. The project's total emissions under NIR accounting are 17.3 times larger (Base Case) and 3.3 times larger (Alternative Case) than the emissions assessed by the EAO. This difference stems from the omission of key emissions categories that are required under NIR reporting, including upstream natural gas, indirect operating emissions (Scope 3), and methane GWP adjustments.

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<sup>17</sup> ECCC Global warming potentials. Accessed December 01, 2024. <https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/quantification-guidance/global-warming-potentials.html>

<sup>18</sup> Revised Technical Data Report— Greenhouse Gases. (p. 4).

**Table 1: The project’s incremental emissions for National Inventory Report accounting**

Emissions source	2030 Emissions (Mt CO <sub>2</sub> e)	
	Base Case	Alternative Case
<b>EAO assessed:</b> Direct operating and indirect electricity	0.25	1.87
<b>Not assessed but NIR compliant:</b>		
Indirect upstream natural gas	3.86	3.86
Indirect operating diesel	0.02	0.02
Methane NIR GWP adjustment for natural gas	<u>0.23</u>	<u>0.32</u>
<b>NIR Emissions</b>	<b>4.36</b>	<b>6.07</b>
NIR emissions/EAO assessed	17.3 times larger	3.3 times larger

### 1.3 What is the likely impact of Project emissions on meeting provincial and national targets and commitments?

The EAO assessment is insufficient for determining whether the Ksi Lisims LNG project will help or hinder BC and the federal government in achieving their climate targets and commitments. Here are my primary concerns with the EAO’s methodology and conclusions:

1. **Unclear basis for additional emissions reductions estimates.** The EAO states the amount of additional emissions reductions that BC will need to achieve elsewhere in the economy to offset the impact of the project on the 2030 target: an additional 1% reduction (Base Case) and 7.9% reduction (Alternative Case). However, the EAO provides no explanation about how these figures were derived.<sup>19</sup> It is unclear whether these estimates account for other proposed and approved sources of emissions, such as other LNG projects. This omission raises questions about the completeness of the analysis. The EAO also fails to specify which emissions reduction policies or plans are included in this assessment, making it difficult to evaluate the feasibility of achieving these additional reductions.
2. **Limited focus on BC’s 2030 target.** The EAO has only assessed the additional reductions required by the project in relation to BC’s 2030 target. It does not provide this analysis for BC’s 2030 Oil & Gas Sector target, provincial targets in 2040 and 2050 or the federal 2030 and 2050 targets.
3. **Misleading comparison of future project emissions to current emissions levels instead of projected emissions and targets.** The EAO assessment compares

<sup>19</sup> EAO Assessment Report, p.496.

future project emissions (once the project starts operations in 2028) against current provincial and national emissions totals (in 2022) instead of comparing them against future emissions levels forecast by BC and the federal government.<sup>20</sup> This approach is misleading because emissions must decline substantially to meet climate targets, and comparing the project's future emissions to current levels—which are higher than the required future levels—makes the project's contribution appear relatively smaller.

4. **Failure to discuss BC and federal target shortfalls.** Both federal<sup>21</sup> and BC<sup>22</sup> emissions projections indicate that with current policy they are not on track to achieving their respective 2030 targets, while the federal government is also not on track to its target of net-zero by 2050.<sup>23</sup> By presenting the additional reductions that are required to meet BC's 2030 target without addressing this broader context, the EAO downplays the significant challenges in meeting these targets. Without acknowledging this gap, the assessment risks overstating government capacity to counter the project's emissions with reductions from other sectors.
5. **Exclusion of key projects and associated upstream emissions.** CleanBC, BC's climate plan, includes the only publicly available emissions forecast for BC's emissions in 2030. However, this forecast does not include emissions from the Ksi Lisims LNG project nor several other LNG projects that have been approved in BC. The lack of integration of these projects into the forecast undermines the credibility of the EAO's claim that additional emissions reductions elsewhere can compensate for the project's impact. This omission suggests that the EAO has not adequately considered the contribution of the project on BC's 2030 target.
6. **Underestimating broader implications for sectoral and economy-wide targets.** National, provincial, and oil and gas sector targets are already difficult to achieve. Making up the shortfall in meeting these targets requires addressing harder to abate emissions. Adding more emissions to this shortfall (i.e. from the Project) will increase this burden and place it on smaller entities like households and small businesses. The EAO does not address how this burden will be distributed or whether it is feasible.

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<sup>20</sup> EAO Assessment Report, Table 65, p. 495.

<sup>21</sup> Anna Kanduth and Dave Sawyer. 2023. Is Canada on track to its 2030 target? <https://440megatonnes.ca/insight/is-canada-on-track-to-its-2030-target/>

<sup>22</sup> Provincial [Forecast of greenhouse gas emissions](https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-forecast), 2024. Accessed November 24, 2024.

<sup>23</sup> See 440megatonnes.ca. [https://dashboard.440megatonnes.ca/?\\_gl=1\\*1mo2wmf\\*\\_gcl\\_au\\*MTU50TIwNDI3NC4xNzMwMjlyNjEy\\*\\_ga\\*ODExMTAwNjg0LjE2OTUyMTQ0NDM.\\*\\_ga\\_DVTX0HL4Z5\\*MTczMzc2OTIxNC43NS4xLjE3Mz3MzNzA1NzkuMC4wLjA](https://dashboard.440megatonnes.ca/?_gl=1*1mo2wmf*_gcl_au*MTU50TIwNDI3NC4xNzMwMjlyNjEy*_ga*ODExMTAwNjg0LjE2OTUyMTQ0NDM.*_ga_DVTX0HL4Z5*MTczMzc2OTIxNC43NS4xLjE3Mz3MzNzA1NzkuMC4wLjA).

The EAO's limited analysis fails to adequately address whether the project aligns with BC's and Canada's climate targets. Without clear and transparent methodologies, acknowledgment of BC and Canada's existing emissions shortfalls, consideration of all relevant targets, and integration of upstream and associated project emissions into forecasts, the assessment is incomplete. A more robust analysis is necessary to evaluate the project's full impact on BC's ability to meet its emissions targets and commitments.

In my opinion, emissions associated with the Ksi Lisims LNG Project could pose a major challenge to meeting provincial and national climate targets and commitments. The Project's incremental emissions – which will be emitted in Canada and counted within the NIR - are between 37% and 53% of BC's 2030 oil and gas emissions target and 3.3 to 4.5% of the 2030 federal oil and gas emissions cap,<sup>24</sup> highlighting big risks for the achievement of these targets. These emissions would make it more challenging for both BC and Canada to meet their climate targets and commitments under the *Climate Change Accountability Act*, the NZEAA, and the Paris Agreement, particularly within the oil and gas sector, where stringent caps and reduction goals are critical to achieving broader decarbonization objectives.

In the section below, I assess the project's impacts against 2030 targets through two questions:

- **For British Columbia:** What are the implications of the Ksi Lisims LNG Project's upstream and operational emissions for meeting the 2030, 2040, and 2050 provincial targets and the 2030 Oil & Gas sector target?
- **For Canada:** How do the project's operational, upstream, and downstream emissions affect the country's commitments under the NZEAA and obligations under the Paris Agreement?

### 1.3.1 Impact on BC's emissions targets

To highlight the likely impact on BC targets, I assess the project using the NIR compliant emissions reported in Table 1 above. Offset purchases are not included.

British Columbia's oil and gas sector has a 2030 emissions reduction target of 33–38% below 2007 levels, translating to a range of 8.85 to 9.03 Mt CO<sub>2</sub>e.<sup>25</sup> This target includes emissions from combustion and fugitive sources related to oil and gas extraction, petroleum refining, LNG production, and pipeline transportation.<sup>26</sup> Emissions from the

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<sup>24</sup> The level of the proposed oil and gas cap is the oil and gas target.

<sup>25</sup> <https://cleanbc.gov.bc.ca/about-climate-change/drivers/industry/#:~:text=and%20heat%20production-.Our%20path%20to%20cleaner%20industry,38%2D43%25%20below%202007%20levels>

<sup>26</sup> [BC Oil and Gas Emissions Cap Policy Paper](#), July 2023

sector in 2021 were 12.4 Mt CO<sub>2</sub>e, and, with reductions proposed in the CleanBC climate plan, they are projected to decrease to 9.33 Mt CO<sub>2</sub>e by 2030.<sup>27</sup> Within these projections, upstream natural gas processing is projected to emit 6.56 Mt CO<sub>2</sub>e and LNG emissions are projected at 1.17 Mt CO<sub>2</sub>e in 2030.

Against the oil and gas sector target, the project’s incremental emissions for purposes of assessing climate commitments are large, accounting for 37% of the oil and gas sectoral target in the Base Case and 53% in the Alternative Case (Table 2). These emissions pose a considerable challenge to achieving the province’s oil and gas reduction goals and highlight the project’s substantial impact within the sector. Current emissions from BC’s oil and gas sector are already 33% above the 2030 target at over 12 Mt CO<sub>2</sub>e, highlighting just how far reductions must go even before the project’s incremental emissions are counted.

**Table 2: The project’s incremental impact on BC’s 2030 oil and gas sector target**

Emissions source	Project emissions (Mt CO <sub>2</sub> e)		BC O&G Target (Mt)	Project’s share of BC O&G target	
	Base case	Alt case		Base case	Alt case
<b>EAO assessed:</b> Direct operating and indirect electricity	0.19	1.45		2%	16%
<b>Not assessed but NIR compliant:</b>					
Indirect upstream natural gas	0.02	0.02		0.18%	0.18%
Indirect operating diesel	2.94	2.94		33%	33%
Methane NIR GWP adjustment for natural gas	<u>0.17</u>	<u>0.25</u>		<u>2%</u>	<u>3%</u>
<b>NIR Emissions</b>	<b>3.32</b>	<b>4.73</b>	<b>8.94</b>	<b>37%</b>	<b>53%</b>

\* Some Project emissions occur outside of BC but within Canada. Emissions are therefore apportioned to BC based on the project’s direct spending in BC: 76% in Base Case and 77% in Alternative Case. The remainder occur outside of the province and are captured when assessing against federal targets and commitments.

Looking further ahead, I assess the project’s emissions relative to BC’s economy-wide 2040 and 2050 targets. Using the lower estimate of incremental upstream emissions of 3.25 Mt CO<sub>2</sub>e after 2035, the project’s emissions are calculated for 2040 and 2050. As shown in Table 3, while the project’s emissions remain stable over time, BC’s targets decline rapidly. This results in the project’s emissions accounting for an increasingly larger share of the targets. This comparison highlights the growing challenge of achieving BC’s climate goals as the project’s contribution becomes more significant over time. As noted

<sup>27</sup> BC Provincial forecast of greenhouse gas emissions, 2024.



above, there is no analysis of the project’s effect on BC’s 2040 and 2050 targets in the Draft Assessment Report.

**Table 3: The project’s impact on BC’s economy-wide targets**

Year	Project emissions (Mt CO <sub>2</sub> e)		BC economy-wide target (Mt)	Project’s share of BC target	
	Base case	Alternative case		Base case	Alternative case
2030	3.32	4.73	38.52	9%	12%
2040	2.83	4.22	25.68	11%	16%
2050	2.83	4.22	12.84	22%	33%

### 1.3.2 Impact on federal emissions targets & commitments

Under the federal government's 2023 emissions projections, national oil and gas emissions in 2030 under current federal and provincial policy are 128 Mt, down from 217 Mt in 2022.<sup>28</sup> Projected LNG emissions are 4 Mt in 2030. These 2030 emission projections align with the Emissions Reduction Plan Progress Report, which is the report tracking progress to the governments legislated targets under NZEAA.<sup>29</sup>

The recently announced federal “oil and gas emissions cap”, which is designed to “ensure that emissions from the oil and gas sector ... decline over time in a manner that is consistent with a path towards net-zero emissions by 2050”, sets a target for upstream oil and gas emissions of a 35% reduction below 2019 levels, or 134 Mt, in 2030.<sup>30</sup>

When NIR-compliant emissions are included—such as upstream emissions (Scope 1), Scope 3 operating emissions, and methane GWP adjustments—the project’s total annual emissions rise to 4.36 Mt (Base Case) and 6.07 Mt (Alternative Case), representing 3.26% and 4.52% of the federal oil and gas emissions target. This broader accounting highlights the significant challenge the project poses to achieving national climate goals.

<sup>28</sup> Canada’s Greenhouse Gas and Air Pollutant Emissions Projections, 2023. Accessed November 30, 2024. [https://publications.gc.ca/collections/collection\\_2023/eccc/En1-78-2023-eng.pdf](https://publications.gc.ca/collections/collection_2023/eccc/En1-78-2023-eng.pdf)

<sup>29</sup> Government of Canada. 2023. Progress Report on the 2030 Emissions Reduction Plan. Accessed November 24, 2024. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/2023-progress-report/table-contents.html>

<sup>30</sup> Canada Gazette, Part I, Volume 158, Number 45: Oil and Gas Sector Greenhouse Gas Emissions Cap Regulations. Accessed December 01, 2024. <https://canadagazette.gc.ca/rp-pr/p1/2024/2024-11-09/html/reg1-eng.html>

Relative to the federal economy-wide target of a 40% reduction below 2005 levels in 2030 or 457 Mt CO<sub>2</sub>e,<sup>31</sup> the project's impact ranges between 1% in the Base Case and 1.3% of the Alternative case.

**Table 3: The project's incremental impact on 2030 federal targets**

Emissions source	Project emissions (Mt CO <sub>2</sub> e)		Federal target (Mt)	Project's share of federal O&G target	
	Base case	Alternative case		Base case	Alternative case
EAO assessed: Direct operating and indirect electricity	0.25	1.87		0.19%	1.40%
<b>Not assessed but NIR compliant:</b>					
Indirect upstream natural gas	3.86	3.86		0.14%	0.14%
Indirect operating diesel	0.02	0.02		2.88%	2.88%
Methane NIR GWP adjustment for natural gas	<u>0.23</u>	<u>0.32</u>		<u>0.38%</u>	<u>0.51%</u>
<b>NIR Emissions</b>	<b>4.36</b>	<b>6.07</b>	<b>Oil and gas target: 134</b>	<b>3.26%</b>	<b>4.52%</b>
			<b>Economy-wide target: 457</b>	<b>1.0%</b>	<b>1.3%</b>

\* Emissions are fully apportioned to Canada given the scope of national emissions under the NIR.

## 2 What an adequate assessment would entail

An adequate assessment of the Ksi Lisims LNG project's emissions should ensure comprehensive, transparent, and consistent evaluation in alignment with provincial and federal climate targets and commitments and emissions reporting practices. An improved analysis would include:

- i. **Inclusion of all emission scopes:** Accounting for scope 1 (direct emissions), scope 2 (electricity emissions), and scope 3 (upstream and downstream emissions), including those associated with natural gas extraction, processing, transportation, and end-use combustion.

Ideally, an integrated assessment model would be used, like the one employed by BC to project 2030 emissions.<sup>32</sup> In this approach, the project would be incorporated into the model's base case, and incremental emissions from operations under both

<sup>31</sup> Government of Canada. 2023. Progress Report on the 2030 Emissions Reduction Plan. Accessed November 24, 2024. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/2023-progress-report/table-contents.html>

<sup>32</sup> See Navius Research write-up on the gTech model used (<https://www.naviusresearch.com/gtech/>) to develop the BC's emissions projections.

alternatives would be calculated. The model would account for the full direct and indirect emissions, reflecting the project's impact on economic activity and hence emissions throughout the value chain.

- ii. **Consistency with current methodologies:** Applying the latest global warming potential (GWP) factors for methane and other greenhouse gases as outlined in the 2024 National Inventory Report to ensure alignment with current national and international emissions reporting standards.
- iii. **Incremental emissions analysis:** Highlighting the incremental nature of the Project's emissions, which are not accounted for in existing provincial and federal emissions reduction plans and emissions forecasts.
- iv. **Sector-specific benchmarking:** Evaluate the project against all of BC and Canada's emissions targets, including the oil and gas sector-specific targets set by BC and Canada for 2030.
- v. **Consideration of emissions projections and policies:** Evaluating the project's future emissions against the 2030 emissions projections provided in both BC's and Canada's climate plans to assess their long-term implications. Demonstrating how the project's emissions fit within the pathways outlined in the CleanBC Plan, Canada's Emissions Reduction Plan, and obligations under the Paris Agreement, including their impact on achieving net-zero by 2050. For example, the EAO could have examined how potential delays in electrification, reliance on offsets, or methane regulations could influence the project's long-term alignment with emissions reduction pathways.
- vi. **Transparent disclosure:** Providing clear and accessible data on all emission sources, assumptions, and methodologies used, including sensitivity analyses to reflect uncertainty in projections.

### **3 Has the EAO sufficiently assessed the proponent's net-zero plan and its reliance on carbon offsets?**

The EAO has not sufficiently assessed the proponent's net-zero plan, particularly given significant gaps that undermine its alignment with Strategic Assessment of Climate Change (SACC) requirements and broader climate goals. While the plan includes baseline compliance measures, such as offset commitments and a five-year review cycle, it falls short in several critical areas that challenge its credibility and effectiveness.

Key deficiencies in the EAO's assessment of the Net-zero plan include:

i. **Uncertainty of electrification and high emissions risk in the Alternative Case**

The plan relies heavily on electrification via the BC Hydro grid to achieve net-zero by 2030. However, uncertainties about the timing of grid connection are not adequately addressed. If electrification is delayed, the Alternative Case would rely on temporary power barges, resulting in annual emissions of up to 1.87 Mt CO<sub>2</sub>e. With operations set to begin in 2028, advancing the mid-term update of the net-zero plan before 2027 (Condition 12.4) could provide additional lead time to address the risks of higher emissions under the Alternative Case.

- ii. **Overreliance on carbon offsets.** While offsets are proposed to bridge emissions gaps, the plan lacks a clear roadmap for reducing reliance on offsets over time and prioritizing direct emissions reductions, as outlined in BC's mitigation hierarchy, which designates offsets as the least preferred option.<sup>33</sup> The absence of interim reduction targets further limits the ability to transition away from offsets to direct mitigation measures. Additionally, maintaining offset purchases at the Base Case level under the Alternative Case, despite increased emissions, fails to address incremental emissions effectively. The EAO should explicitly require this transition, including in Condition 12.

The plan requires up to 249,213 Mt of offsets annually in the Base Case, raising concerns about the feasibility of securing such volumes amid competing demands. Overreliance on offsets also exposes the project to risks of escalating costs and constrained supply, especially with rising carbon prices and high competition for high-quality offsets. To mitigate these risks, the plan should incorporate alternative mitigation approaches, particularly for the Alternative Case, which would require even more offsets.

- iii. **Inadequate transparency and verification of offsets.** The EAO has not ensured sufficient transparency or independent third-party verification of offsets. Robust reporting and public accountability mechanisms are essential. Annual reporting on offset purchases should detail the quality, additionality, and environmental integrity of offsets used to enhance transparency and build public trust. These additions would strengthen the plan's credibility and ensure it contributes meaningfully to climate commitments.

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<sup>33</sup> Government of BC. 2014. Procedures for mitigating impacts on environmental values. [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/environmental-mitigation-policy/em\\_procedures\\_may27\\_2014.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/environmental-mitigation-policy/em_procedures_may27_2014.pdf)

- iv. **Omission of scope 3 emissions.** The plan excludes incorrect and upstream emissions, such as upstream natural gas emissions, which significantly underrepresents the project’s impact on BC and federal targets and commitments.
- v. **Inconsistent use of updated GWP values.** The plan does not confirm the use of the latest IPCC Global Warming Potential (GWP) values, particularly for methane. Methane’s high climate impact necessitates the use of updated GWP factors to ensure accurate emissions reporting. Using outdated values risks underestimating emissions and further undermines the project’s compliance with net-zero requirements, where offset needs will be higher than forecast.

#### **4. What constitutes a credible net-zero plan, and how should such a plan be assessed?**

A credible net-zero plan should include:

- i. **High-quality, locally relevant offsets:** Offsets should be additional, verifiable, permanent, and sourced from local projects whenever possible. The plan should also outline how offset use will phase out over time in favor of direct emissions reductions.
- ii. **Interim reduction targets and milestones:** Set clear interim emissions reduction milestones (e.g., 2025, 2030) that demonstrate progress toward net-zero and limit the use of offsets as a bridging tool until full electrification or other emissions reduction measures are implemented.
- iii. **Third-party verification and transparency:** Engage independent third parties to verify emissions reductions and offsets annually, with transparent reporting to the public and stakeholders.
- iv. **Regular adaptive management:** Update the net-zero plan every three years to reflect emerging best practices, policy developments, or advancements in technology, ensuring that the plan remains ambitious and credible over time.
- v. **Scope 3 emissions consideration:** To be consistent with BC and Canada’s climate commitments, include upstream scope 3 emissions in the net-zero plan, with offsets for upstream Scope 3 emissions where possible, to fully account for incremental emissions in Canada.

## **Annex 1: Curriculum Vitae**

[Dave Sawyer](#) is a seasoned climate policy leader and environmental economist with over 30 years of experience in advancing climate and environmental solutions. As a strategic advisor, [author](#), and communicator, Dave has collaborated extensively with governments, civil society, and industry both in Canada and globally. He specializes in using quantitative models and qualitative tools to assess policy options, focusing on the economic trade-offs and impacts of climate policies that drive sustainable investments.

Currently, Dave serves as Principal Economist with the Canadian Climate Institute, Commissioner with the Commission on Carbon Competitiveness, and Fellow at Carleton University's School of Public Policy. He recently taught graduate courses in environmental economics at the University of Ottawa and was previously an Executive in Residence with Smart Prosperity. Dave continues to lead EnviroEconomics Inc., an environmental economics consultancy.

### **PROFESSIONAL HISTORY**

#### **Canadian Climate Institute, 2019 - present**

- [Principal Economist](#) and senior leader
- Leadership Team 2019 - 2023
  - Played a key role in establishing and growing the Canadian Climate Institute as Canada's leading climate policy think tank.
  - For the federal government, led two independent expert assessments of Canada's carbon pricing systems under the pan-Canadian Framework. Provided strategic guidance that strengthened Canada's carbon pricing framework.
  - Led two independent assessments of the federal Government's Emissions Reduction Plan.
  - Developed new data-driven visualizations and policy performance tracking tools to enhance climate policy effectiveness.
  - Develop multiple early estimates of national emissions, following national emission inventory guidelines.

#### **EnviroEconomics Inc. 1994 - present**

- Principal Economist and founder
  - Founded and led EnviroEconomics, a consultancy specializing in environmental economics, climate policy, and carbon pricing.
  - Provided strategic advice and economic analysis to governments, businesses, and international organizations.
  - Successfully secured and managed high-profile projects, including advising on Canada's carbon pricing policies, conducting economic impact assessments, and developing climate finance strategies.
  - Led the transition of Alberta's industrial carbon pricing framework and led economic and competitiveness impact analysis of Ontario's cap and trade program.

#### **University of Ottawa, 2022 and 2023**

- Sessional lecturer/professor
  - Foundations of environmental economics, Master of Environmental Sustainability program.

### **International Institute for Sustainable Development, 2006 - 2013**

- Vice-president of Climate, Energy, and Partnerships (2011-2013)
- Senior associate (2006-2011)
  - Managed a multi-million-dollar climate program focused on delivering tangible results through effective fundraising, strategic oversight, and operational management.
  - Developed and implemented low-carbon, climate resilient projects in over 30 countries. Oversight of 20 staff plus numerous partners and consultants.
  - Senior associate and economic specialist working on various projects globally.

### **Marbek Resource Consultants, 2003 - 2007**

- Principal Economist and Managing Partner
  - Led teams to secure financing and ensure the successful delivery of climate finance projects across diverse sectors.
  - Provided strategic oversight, ensuring the successful implementation of key projects.

### **Gardner Pinfold Consulting Economists, 2001 - 2003**

- Senior Economist
  - Conducted economic analysis and advised on various environmental and regulatory policies.
  - Worked closely with government clients to assess the economic implications of environmental policies.

### **Environment Canada, Regulatory and Economic Affairs, 1999 - 2001**

- Environmental Economist
  - Provided economic analysis for regulatory and economic affairs related to environmental policy.
  - Contributed to the development of national environmental regulations.

### **Auditor General of Canada, Commissioner of Environment and Sustainable Development, 1997 - 1998**

- Audit Professional
  - Conducted performance audits focused on environmental and sustainable development issues, providing key insights on policy outcomes.

### **Environmental Management Development in Indonesia Project, 1992 - 1993**

- Project Officer and Junior Project Officer
  - Supported the implementation of environmental management projects in Indonesia, focusing on sustainable development initiatives embedded in the Ministry of Environment (KLH and BAPEDAL).

## EDUCATION

- 1989 BA (Economics), McMaster University, Canada
- 1992 MDE (Master of Development Economics), Dalhousie University, Canada  
*Award:* Environmental Management and Development in Indonesia Fellowship.

## COUNTRIES OF WORK EXPERIENCE

Bahamas, Barbados, Belize, Canada, China, Europe, Guyana, India, Indonesia, Jamaica, Kenya, Philippines, South Korea, St. Lucia, Trinidad and Tobago, United States, Vietnam, and Zambia.

## SELECT PROJECT EXPERIENCE

Specific project experience in **climate change economics** includes:

- Modeling and policy analysis for Canada's [Net-Zero Advisory Body](#): closing the 2030 emissions gap and setting Canada's 2035 Nationally Determined Contribution.
- Lead author: 2021 and 2023 Independent Assessments of federal Emissions Reduction Plans ([here](#), [here](#), and [here](#)).
- Lead author: 2020 and 2024 Independent Exprt Assessments of Canadian carbon pricing systems. For the Canadian, provincial and territorial governments, conducted two detailed reviews of industrial and consumer facing carbon pricing systems ([here](#)).
- Principal economist for a series of national studies on the cost of climate change in Canada ([here](#) and [here](#)).
- Lead author. Damage control: Reducing the costs of climate impacts in Canada ([here](#)).
- Conceived and developed [440megatonnes.ca](#), a data-driven insights portal [tracking](#) Canada's progress to its 2030 NDC:
  - [Award-winning Pathways Tracker](#): Uses historical and modelled projections to visual Canada's performance on the road to 2030 and net-zero beyond.
  - The on-going Early Estimate of National Emissions, providing a first view of national emissions for Canada in advance of the official National Inventory Report.
- Marking the way: How legislating climate milestones clarifies pathways to long-term goals ([here](#)).
- Advisor to expert panel setting Manitoba's carbon budget.
- Advisory services to Nova Scotia on the design of its cap-and-trade program.
- Co-author. Canada's submission to UN SDSN/IDDRI Deep Decarbonization Pathways Project ([here](#)).
- Regulatory economic analysis of Ontario's cap and trade program, including cap setting, revenue use, firm level competitiveness assessments, and macroeconomic outcomes ([here](#)).



- Regulatory analysis and competitiveness assessment of transitioning Alberta’s industrial carbon pricing from the Specified Gas Emitter Regulation to the Climate Competitiveness Incentive Regulation.
- Independent audit advisor on numerous federal Commissioner of Environment and Sustainable Development audits related to carbon technology deployment and long-term carbon policy (on-going).
- Environment and Climate Change Canada on its Low Carbon Economy Fund (external advisor).
- Ontario Energy Board on long-term carbon price trajectories and MACCs for the natural gas sector.
- NAMA Development in Zambia: Advisor and trainer for UNDP Low-Emissions Capacity Building Programme
- National Climate Change Response Strategy Action Plan, [Kenya](#):
  - Subcomponent 1: Long-term: national low carbon climate resilient development pathway.
  - Subcomponent 4: Mitigation - Nationally Appropriate Mitigation Actions (NAMAs) and REDD+
  - Economy-wide macroeconomic modelling of international and domestic climate finance.
- [Developing financeable NAMAs: A practitioner’s guide \(here\)](#) and eLearning course.
- China’s carbon competitiveness and national technical and economic zones (multiple reports).
- Policy Instruments for Low Emissions Development: from design to implementation. Lead instructor, World Bank e-learning course
- Forecast of clean growth infrastructure investment to achieve Canada’s 2030 NDC (HSBC).
- Analysis and modelling for the European Commission on the development of a Market Stability Reserve for its Emission Trading System.
- Economy-wide modelling of a carbon tax in the United States and facility level analysis (U.S. Citizens Climate Lobby).
- Taking stock of Canadian carbon policy to 2030 and beyond: Emission projections to track performance (Ivey Foundation).
- Fossil Fuels – At What Cost? Government support for upstream oil activities in three Canadian provinces: Alberta, Saskatchewan, and Newfoundland and Labrador ([here](#)).
- Federal carbon price impacts on households in Alberta, Saskatchewan and Ontario (Canadians for Clean Prosperity [here](#)).
- The decarbonized electrification pathway: output-based pricing in Canada’s electricity sector ([here](#)).

- The decarbonized electrification pathway: taking stock of Canada's electricity mix and greenhouse gas emissions to 2030 ([here](#)).
- A better trade-off analysis of Ontario carbon pricing choices.
- Capacity building for emission trading design in the Republic of South Korea.
- Competitiveness review for the competitiveness working group under the pan-Canadian framework on clean growth.
- Analytical support to Manitoba on options to address the federal carbon price floor.
- Clean growth implications of a federal Low Carbon Fuel Standard (Clean Energy Canada).
- Analysis and modelling on the implications of the pan-Canadian Framework on Clean Growth and Change ([here](#)).
- Competitive analysis and firm level impacts of increasing the BC carbon tax.
- Analysis and modeling on carbon policy options to close the gap to Canada's 2030 Nationally Determined Contribution.
- Assessment of carbon exposure in northern and remote communities in Canada's North.
- Canada and COP21: Setting post-2020 intended Nationally Determined Contributions (Alberta Environment).
- Regulating Carbon Emissions in Canada (IISD initiative).
- Carbon exposed or carbon advantaged? thinking about competitiveness in carbon-constrained markets ([here](#)).
- Encouraging mitigation and economic development in a post-2012 climate regime.
- Synthesis of Canadian investment flows in international low carbon goods and services.
- Evaluation of GEEM CGE model and carbon mitigation impact projections in British Columbia.
- Better together? The implications of Canada-US GHG emissions trading.
- *Getting to 2050*. Canada's Transition to a Low Carbon Future. Lead author. (NRTEE).
- Pricing Carbon: saving green – A carbon price to lower emissions, taxes and barriers to green technology (CGE analysis).
- Carbon pricing and technology deployment roadmap in Ontario. Lead economist assessing technology options for Ontario's Go Green GHG targets to 2050.
- Achieving 2050: A Carbon Pricing Policy for Canada. Lead economist and author. (NRTEE).
- CGE modelling of the impact of shale gas on carbon policy and economic growth in North America ([here](#)).
- Emission cost curves for industry for use in energy and environment models for use in Environment Canada's Energy 2020 model.

Numerous cost-benefit and regulatory analysis of toxics, conservation, and water issues. Project summaries available on request.