

## **Consideration of Climate Change in Environmental Assessments under the *Canadian Environmental Assessment Act, 2012***

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Climate change is an important consideration when conducting environmental assessments of projects. In Canada, climate change impacts are assessed in two distinct ways: 1) by measuring a project's greenhouse gas (GHG) emissions; and 2) by assessing the effect of climate change on the project.

### **GHG EMISSIONS**

Canada is a federated state. In the *Constitution Act, 1867*<sup>1</sup>, legislative powers are divided between provinces and the federal government. For instance, the provinces have exclusive jurisdiction over resource development within their provinces, while the federal government has exclusive jurisdiction over navigation and fisheries.

The Canadian Constitution does not assign jurisdiction over the matter of "environment" to either level of government. As stated by the Supreme Court of Canada in *Friends of the Oldman River Society v. Canada*, the matter of environment "does not comfortably fit within the existing division of powers without considerable overlap and uncertainty"<sup>2</sup>. Dealing with climate change and the assessment of a project's GHG emissions occurs within this broader context. As impacts resulting from GHG emissions are transboundary in nature, they fall within the jurisdiction of the federal government.

#### *Direct GHG Emissions*

Under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012)<sup>3</sup>, the Minister of Environment and Climate Change (the Minister) makes a decision on the likelihood of significant adverse environmental effects. Environmental effects considered in this decision are those within federal jurisdiction and which are specified in the act. The definition of environmental effects in CEAA 2012 includes "a change that may be caused to the environment that would occur... in a province other than the one where the... project is being carried out, or outside Canada"<sup>4</sup>. It is under this provision that direct GHG emissions from the project being evaluated are assessed and considered in the environmental assessment decision for the project.

In 2003, a Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment released *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners*<sup>5</sup> (the Guidance) to support the integration of climate change consideration in environmental assessments in Canada. The Guidance provides support to practitioners on the consideration of GHG emissions in project-level environmental assessments and on assessing the effects of the environment on the project.

The Guidance outlines when and how GHG emissions could be assessed through four of the five steps in the environmental assessment process (scoping, data collection and analysis, mitigation and follow-up). The Guidance does not discuss how a determination could be made under CEAA 2012 on the significance of likely adverse environmental effects. As new and existing heavy emitting sectors emerge or expand in Canada, such as liquefied natural gas (LNG), the consideration of GHG emissions in the early planning stage becomes increasingly important.

### *LNG Canada Export Terminal Project*

A recent project for which the environmental assessment concluded that environmental effects from GHG emissions would be significant is the LNG Canada Export Terminal project. The approach taken in reaching this conclusion will inform GHG analysis in Canada moving forward.

In the environmental assessment for the LNG Canada Export Terminal Project<sup>6</sup>, located in the District of Kitimat on the west coast of British Columbia, GHGs were assessed for direct effects resulting from the project. LNG Canada proposed to liquefy and export up to 26 million tonnes of natural gas per year, for at least 25 years.<sup>7</sup>

The assessment of direct GHGs for LNG Canada followed the methods proposed in the Guidance and applied global best practice for estimating the quantity of emissions that might be released from the project. The British Columbia Environmental Assessment Office concluded that after mitigation, the LNG Canada project would increase British Columbia's provincial GHG emissions by 6.6% and Canada's GHG emissions by 0.57% over 2011 levels.<sup>8</sup> The mitigation measures included an increased reliance on hydroelectric power for the operation over the life-cycle of the project.

After mitigation, the project would still emit 4 million tonnes of CO<sub>2</sub>-equivalent per year, placing it among the largest single point-source of emissions in Canada.<sup>9</sup> The provincial environmental assessment concluded that the project would have a significant residual adverse environmental effect due to the volume of GHG emissions, particularly considering the existing context of global GHGs and the magnitude of emissions in relation to British Columbia's target of reducing GHGs by 33% below 2007 levels by 2020.<sup>10</sup>

Based on the environmental assessment report prepared by the government of British Columbia<sup>11</sup>, the Minister concluded that the project was likely to cause significant adverse environmental effects due to the volume of GHG emissions and the potential consequential climate change effects. The Governor in Council subsequently determined that these effects were justified in the circumstances and the project was approved to proceed, subject to meeting all applicable regulatory requirements<sup>12</sup>.

The approach taken by Canada for determining significance of effects was to compare the volume of emissions from the project with industry standards and existing emission reduction targets in Canada and in the province. The level of estimated emissions served as a proxy for consequential changes to other ecosystem components that could be scientifically anticipated to result from a changing climate. There was, however, no separate assessment of specific climate change effects resulting from the project.

As environmental effects of GHG emissions are global in nature, the contribution of a single project to climate change and its effects cannot be measured. However, the general effects are well-known; in particular, the 2014 Report of the Intergovernmental Panel on Climate Change identifies negative impacts on water, fisheries, agriculture, forestry, human health, coastlines, glaciers and Arctic region. Estimating GHG emissions from proposed projects can help to ensure decisions align with Canada's action on climate change<sup>13</sup> and the commitments made in the Paris Agreement.

## **EFFECTS OF THE ENVIRONMENT ON THE PROJECT**

The effects of the environment on the project has been a factor that must be considered for all projects undergoing federal environmental assessments in Canada since the coming into force of the former Act, *the Canadian Environmental Assessment Act*, in 1995. The consideration of climate change impacts on a project form a part of that analysis. Taking into consideration regional variation, the environmental sensitivity to climate change and the risk to the public or the environment from an accident or malfunction resulting from a changing climate are all considered in the analysis of this factor. For example, the assessment examines whether increased frequency in flood activity affects the risk of a dam breach. Proponents whose projects are undergoing an environmental assessment under CEAA 2012 are required to provide details of planning, design and construction strategies that will be implemented to reduce the predicted effects of the environment on the project.

### *Côté Gold Mine Project*

In the environmental assessment for the Côté Gold Mine Project in Ontario, changes in water supply (insufficient and excess water conditions), natural fires, and the risk of ice jams were assessed as environmental factors that could affect the integrity of the project<sup>14</sup>. To manage insufficient water supply, the proponent has committed to ensure that sufficient water is stored in the mine water pond to supply the ore processing plant<sup>15</sup>. For excessive water, the Canadian Environmental Assessment Agency is proposing a condition requiring the proponent to “design, construct and operate the retention dams and the tailing management facility dam to accommodate a 12-in-100 year 24-hour rainfall event”<sup>16</sup>. Mitigation measures proposed take into account best available technology and trends for likely future severe weather occurrences.

## **CRITIQUES OF CURRENT APPROACH**

The Ontario Centre for Climate Impacts and Adaptation Resources released a report critiquing the integration of climate change considerations in environmental assessment<sup>17</sup>. The Centre found that : 1) environmental baseline in climate change assessments rely on historical climate data, which does not represent future environmental conditions and therefore does not accurately predict impacts; 2) climate change analysis is done in isolation and needs to be integrated into the analysis of climate sensitive valued ecosystem components; 3) requirements for climate change consideration are applied inconsistently across Canada; and 4) specific management options and triggers for adaptation measures are not clearly defined<sup>18</sup>. The report also states that existing guidance for environmental assessment practitioners is dated.

The Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment has been reinstated to update the 2003 Guidance and ensure it reflects modern methodology and best practices in the integration of climate change into environmental assessments.

A common critique heard from the environmental non-profit sector and Indigenous groups has been around the extent to which GHGs have been scoped into and assessed as a part of environmental assessments. The environmental sector has recommended that the federal and provincial environmental assessment processes consider the upstream and downstream emissions that are likely to result from the project under assessment. The federal government has taken a step to implement

this recommendation and has introduced an interim approach that requires the consideration of upstream GHG emissions in all projects undergoing a federal environmental assessment<sup>19</sup>.

### **INTERIM APPROACH AND PRINCIPLES: Considering Upstream GHG Emissions**

In January 2015, an interim approach and principles was introduced in Canada to guide decision making for ongoing and future environmental assessments under CEAA 2012. The principles include the assessment of upstream GHG emissions for all projects undergoing an environmental assessment, in addition to direct emissions already considered.<sup>20</sup>

Environment and Climate Change Canada is developing a methodology to support a meaningful analysis of emissions associated with the activities upstream of the project.<sup>21</sup> “Upstream” includes all industrial activities from the point of resource extraction to the project under review and generally include extraction, processing, handling and transportation.

This analysis is separate from the analysis of a project’s direct emissions and will support the cumulative effects analysis which is a requirement of federal environmental assessments<sup>22</sup>. Cumulative effects are a factor which must be considered in the Minister’s decision on the likelihood of significant adverse environmental effects. Therefore the upstream GHG emissions will be a consideration in that decision. However, where upstream GHG emissions are not under the care and control of the proponent whose project is subject to CEAA 2012, no enforceable conditions mitigating impacts from upstream sources can be included in the enforceable decision statement issued by the Minister. Information on the emissions from upstream sources of GHG emissions will inform ongoing efforts to address climate change in Canada.

#### *Pacific Northwest LNG Project*

The upstream analysis conducted for the Pacific Northwest LNG project assessed the GHG emissions associated with the transmission pipeline and the production and processing stages.<sup>23</sup> The analysis concluded that the upstream GHG emissions from these sources will range from 6.5 to 8.7 megatonnes per year of CO<sub>2</sub>-equivalent, based on the assumption that 75% to 100% of natural gas supply will be from British Columbia production and processing, with any remainder from Alberta<sup>24</sup>. The assumptions are based on a business-as-usual prediction scenario with an increasing rate of natural gas production and processing over time. The draft environmental assessment report, currently out for public comment, suggests that the adverse environmental effects from the estimated level of GHG emissions are likely to be significant.<sup>25</sup> The Minister’s decision has not yet been made on this project. As this is one of the first projects for which upstream GHG emissions have been assessed, lessons learned on the approach and analysis used for this project will inform future implementation of the interim approach.

### **CONCLUSIONS**

Environmental assessment is well suited to assess climate change considerations early in a project’s planning phase to improve project design and to provide information for decision makers on potential effects resulting from the estimated level of emissions. The consideration of direct and upstream GHG emissions in environmental assessments is evolving in Canada and will continue to play a strong role in informing decision making for federal environmental assessments, as well as informing ongoing efforts by the Government of Canada to address climate change.

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- <sup>1</sup> *The Constitution Act, 1867* (UK), 30 & 31 Victoria, c 3, ss 91 & 92. Retrieved from the Can LII website: <https://www.canlii.org/en/ca/laws/stat/30---31-vict-c-3/latest/30---31-vict-c-3.html>
- <sup>2</sup> *Friends of the Oldman River Society v. Canada* (1992) 1. S.C.R. 3
- <sup>3</sup> *The Canadian Environmental Assessment Act, 2012* (2012, c C-19, s. 52). Retrieved from the Department of Justice Canada website: <http://laws-lois.justice.gc.ca/eng/acts/C-15.21/FullText.html>
- <sup>4</sup> CEEA 2012, s. 5(1)(b)(ii) & 5(1)(b)(iii).
- <sup>5</sup> Canadian Environmental Assessment Agency, (2003). Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners. Retrieved from <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=A41F45C5-1&offset=&toc=hide>
- <sup>6</sup> LNG Canada Project Overview. Retrieved at <http://lngcanada.ca/the-project/overview>
- <sup>7</sup> The environmental assessment in this case was substituted to the British Columbia Environmental Assessment Office in accordance with provisions of CEEA 2012 that allow a provincial environmental assessment to substitute for an assessment under CEEA 2012. Both the Government of Canada and the British Columbia government had to made decisions about the significance of environmental effects.
- <sup>8</sup> British Columbia Environmental Assessment Office (2015). LNG Canada Export Terminal Project Assessment Report. Retrieved from <http://www.ceaa-acee.gc.ca/050/documents/p80038/101852E.pdf>
- <sup>9</sup> Ibid.
- <sup>10</sup> Ibid.
- <sup>11</sup> Ibid.
- <sup>12</sup> Canadian Environmental Assessment Agency, (2015). Decision Statement Issued under Section 54 of the Canadian Environmental Assessment Act, 2012. Retrieved from <http://www.ceaa-acee.gc.ca/050/document-eng.cfm?document=101851>
- <sup>13</sup> <http://www.climatechange.gc.ca/default.asp?lang=en&n=E18C8F2D-1>
- <sup>14</sup> Canadian Environmental Assessment Agency, (2016). Côté Gold Mine Project Draft Environmental Assessment Report. Retrieved from <http://www.ceaa-acee.gc.ca/050/documents/p80036/104652E.pdf>
- <sup>15</sup> Ibid.
- <sup>16</sup> Canadian Environmental Assessment Agency, (2016). Potential Conditions. Retrieved from <http://www.ceaa-acee.gc.ca/050/documents/p80036/104653E.pdf>
- <sup>17</sup> Ontario Centre for Climate Impacts and Adaptation Resources, (2014). Assessing the Treatment of Climate Change Impacts and Adaptation in Project-Level EAs in the Canadian Mining Sector. Retrieved from [http://www.climateontario.ca/doc/p\\_ECCC/A\\_Review\\_of\\_Mining\\_Sector\\_Environmental\\_Assessments\\_OCCIAR\\_R\\_S1.pdf](http://www.climateontario.ca/doc/p_ECCC/A_Review_of_Mining_Sector_Environmental_Assessments_OCCIAR_R_S1.pdf)
- <sup>18</sup> Ibid.
- <sup>19</sup> <http://news.gc.ca/web/article-en.do?mthd=index&ctr.page=1&nid=1029999>
- <sup>20</sup> Ibid.
- <sup>21</sup> <http://www.gazette.gc.ca/rp-pr/p1/2016/2016-03-19/html/notice-avis-eng.php>
- <sup>22</sup> *The Canadian Environmental Assessment Act, 2012* (2012, c C-19, s. 52). Retrieved from the Department of Justice Canada website: <http://laws-lois.justice.gc.ca/eng/acts/C-15.21/FullText.html>
- <sup>23</sup> Environment and Climate Change Canada, (2016). Pacific Northwest Liquefied Natural Gas (LNG) Project: Review of Related Upstream Greenhouse Gas (GHG) Emissions Estimates (Revised). Retrieved from <http://www.ceaa-acee.gc.ca/050/documents/p80032/104795E.pdf>
- <sup>24</sup> Ibid.
- <sup>25</sup> Canadian Environmental Assessment Agency, (2016). Pacific NorthWest LNG Draft Environmental Assessment Report. Retrieved from <http://www.ceaa-acee.gc.ca/050/document-eng.cfm?document=104785>