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DRAFT

STRATEGIC ASSESSMENT OF CLIMATE CHANGE



EXECUTIVE SUMMARY

A strategic assessment is intended to address public policy discussions beyond the scope of a single project assessment by providing guidance on how policies, plans, and programs will be considered in impact assessments. This strategic assessment of climate change provides guidance on how federal impact assessments will consider a project's greenhouse gas (GHG) emissions and its resilience to climate change impacts.

The strategic assessment of climate change will apply to projects that undergo a federal impact assessment under the *Impact Assessment Act*. It will also be applicable to environmental reviews by the Canadian Energy Regulator in accordance with their guidance or filing requirements, and may also apply to environmental reviews by other federal lifecycle regulators.

The strategic assessment of climate change provides an approach to quantifying the GHG emissions of projects. This includes:

- outlining the approach to be used to estimate net and upstream GHG emissions;
- clarifying that downstream emissions will not be assessed; and
- explaining how avoided emissions and GHG offsets are to be factored into estimates of GHG emissions.

The strategic assessment of climate change provides guidance on how the information related to GHG emissions and climate change and available at the Planning Phase will be used to inform the Tailored Impact Statement Guidelines. It also outlines the scope and information related to climate change that will be asked for in the Impact Statement if a project requires an Impact Assessment. This guidance includes:

- the requirement for all project proponents to provide basic information related to GHG emissions, GHG mitigation measures and climate change resilience;
- the circumstances in which proponents will be asked to prepare an upstream GHG assessment;
- when proponents will be asked to provide additional information, including how the project may contribute to Canada's efforts to reduce GHG emissions and how it could impact global GHG emissions; and
- when and how proponents should conduct a Best Available Technologies / Best Environmental Practices (BAT/BEP) Determination for reducing the GHG emissions of their project.

The strategic assessment of climate change further clarifies how the Impact Assessment Agency of Canada (the Agency) or lifecycle regulators, with support from expert federal authorities, will review the information related to climate change submitted by the project proponent and complement it with analysis. This will enable consistent, predictable, efficient and transparent consideration of climate change in the impact assessment process.

The strategic assessment of climate change will be an evergreen document with updates being made as needed to incorporate any major changes in policy or process related to climate change or impact assessment. Technical Guides to be published in the future will provide further details on specific elements of this document.

With the publication of this draft, Environment and Climate Change Canada (ECCC) is providing the opportunity for the public to comment on the strategic assessment of climate change until August 30, 2019. It is anticipated that the final strategic assessment of climate change will be published by early 2020.

GLOSSARY

Agency – the Impact Assessment Agency of Canada for projects conducted under the *Impact Assessment Act* (IAA).

Best Available Technologies / Best Environmental Practices – the most effective technology, technique, or practice economically feasible for reducing GHG emissions.

Carbon leakage – the situation that may occur if economic activity moves to other countries with less stringent emissions constraints, which could lead to an increase in global emissions.

Carbon sink – the ability of a forest, ocean or other natural environment to absorb carbon dioxide from the atmosphere.

Climate Change Resilience – the ability of a system (built, natural, social or economic) to anticipate, withstand, recover, adapt to and transform in response to a climate-related hazard.

Downstream GHG Emissions – the emissions that may occur after the project, including emissions resulting from the end use of products made at a project.

Lifecycle Regulators – agencies that regulate a project from planning through to project abandonment. These agencies include the Canadian Energy Regulator, the Canadian Nuclear Safety Commission and the Offshore Petroleum Boards.

Mitigation measures – measures to eliminate, reduce, control or offset the adverse effects of a project or designated project, including actions taken at the project design stage, and throughout all phases of the project.

Net GHG emissions – see Section 3.

Projects undergoing a federal impact assessment – designated projects under the IAA, as well as projects under review by lifecycle regulators.

Upstream emissions – emissions from all stages of production, from the point of resource extraction or utilization to the project under review.

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1. INTRODUCTION

1.1. The strategic assessment of climate change

On July 19, 2018, Environment and Climate Change Canada (ECCC) published a discussion paper seeking views on the objectives and scope of the strategic assessment of climate change. Comments received in response to that discussion paper, as well as direct engagement with interested parties, have informed the development of this document.

On March 11, 2019, ECCC published the Terms of Reference that stated how ECCC will conduct the strategic assessment of climate change, its content and scope and how ECCC will engage throughout the development of the strategic assessment of climate change.

ECCC is providing the opportunity for the public to comment on this draft strategic assessment of climate change. Interested parties are invited to provide written comments to ECCC at www.strategicasessmentclimatechange.ca or via email at ec.escc-sacc.ec@canada.ca on or before August 30, 2019.

It is expected that the final strategic assessment of climate change will be published by early 2020. Technical guides will provide further details on specific elements of this document and will be published following the publication of the final strategic assessment of climate change.

1.2. Objective

The strategic assessment of climate change will provide guidance on how federal impact assessments will consider a project's GHG emissions. More specifically, the strategic assessment of climate change provides guidance to proponents and others on information requirements related to climate change throughout the impact assessment process for projects undergoing a federal impact assessment for the purpose of addressing public policy discussions beyond the scope of a single project assessment. It also clarifies how the Agency or lifecycle regulators, with support from expert federal authorities, will review and analyze this information. This will enable consistent, predictable, efficient and transparent consideration of climate change in an impact assessment.

1.3. Application

The strategic assessment of climate change applies to projects assessed under the *Impact Assessment Act*.

The strategic assessment of climate change will also be applicable to environmental reviews by the Canadian Energy Regulator in accordance with its guidance or filing requirements, and may also apply to environmental reviews by other federal lifecycle regulators.

1.4. Using this document

The strategic assessment of climate change complements other policy and guidance documents that support the impact assessment process. It is assumed that readers of this document have a good understanding of the impact assessment process.

The document is organized as follows:*Section 2: Context*

Provides an overview of Canada's climate change commitments and of Canada's new impact assessment system. This section also provides an overview of the process for conducting the strategic assessment of climate change.

Section 3: Quantification of GHG Emissions from a Project

Provides guidance on how to quantify a project's GHG emissions, and identifies the conditions when an upstream GHG assessment is required.

Section 4: Climate Change in the Planning Phase

Outlines how the information related to GHG emissions and climate change provided in the Planning Phase will be used to determine the type and level of information related to GHG emissions and climate change that will be asked in the Tailored Impact Statement Guidelines, should an Impact Assessment be required.

Section 5: Climate Change in the Impact Statement and Impact Assessment Phases

Outlines the information related to GHG emissions, GHG mitigation measures and climate change resilience that a proponent is to provide in the Impact Statement.

Section 6: Climate Change in Decision-Making and Conditions

Explains how the information related to GHG emissions and climate change will inform the decision on the project and conditions related to approval.

Section 7: Climate Change in the Post Decision Phase

Explains how a follow-up program, if required, could be used to ensure the proponent is meeting any conditions related to GHG emissions and climate change.

Section 8: Next Steps

Explains how the public can provide input on the draft strategic assessment of climate change and describes next steps.

2. CONTEXT

2.1. Canada's climate change commitments

The Paris Agreement is an international agreement to strengthen the global response to the threat of climate change, building on the United Nations Framework Convention on Climate Change. The Paris Agreement, which entered into force in November 2016, established a collective long-term goal to hold the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit that increase to below 1.5 degrees.¹ The Paris Agreement also establishes a global goal of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal.²

Canada has committed, under the Paris Agreement, to reduce GHG emissions by 30 percent below 2005 levels by 2030, with all First Ministers agreeing to the target in the Vancouver Declaration in March 2016.³ In June 2017, the House of Commons reconfirmed Canada's commitment to the Paris Agreement.⁴

The Pan-Canadian Framework on Clean Growth and Climate Change, adopted on December 9, 2016, is a comprehensive plan to reduce emissions across all sectors of the economy, accelerate clean economic growth and build resilience to the impacts of climate change.⁵

In 2016, Canada also announced its Mid-Century Long-Term Low-GHG Development Strategy. The Strategy looks beyond 2030 and describes various pathways for innovative and creative solutions for meeting long-term climate change objectives and enabling economic growth. The Strategy is meant to inform the conversation about how Canada can achieve a low-carbon economy and to enable a better understanding of how Canada can reduce significant emissions by 2050.⁶

¹ For more on Canada's international action on climate change, visit: www.canada.ca/en/services/environment/weather/climatechange/canada-international-action.html

² For more information on the Paris Agreement, visit: www.canada.ca/en/environment-climate-change/services/climate-change/paris-agreement.html

³ Available at: www.scics.ca/en/product-produit/vancouver-declaration-on-clean-growth-and-climate-change

⁴ Available at: www.ourcommons.ca/Parliamentarians/en/votes/42/1/308

⁵ The Pan-Canadian Framework is available at: www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/climate-change-plan.html

⁶ The Mid-Century Long-Term Low-Greenhouse Gas Development Strategy is available at: <http://publications.gc.ca/site/eng/9.825953/publication.html>

2.2. The Government of Canada's new system of impact assessment

The Government of Canada has developed new legislation for projects that will undergo a federal impact assessment, which includes the *Impact Assessment Act*⁷. This Act establishes a new process for considering the environmental, health, social and economic effects of certain projects for determining whether a project that has adverse environmental effects within federal jurisdiction is in the public interest. This decision would account for the extent to which the effects of the designated project hinder or contribute to the Government of Canada's ability to meet its commitments in respect of climate change. Other features of the new system include:

- A planning phase to allow for early engagement, increase efficiency, improve project design, and give project proponents certainty about the next steps, requirements and timelines in the process;
- Indigenous engagement and partnership throughout the process;
- Increased public participation opportunities within legislated, prescribed timelines;
- Legislated timelines, tailored impact assessment guidelines and rigorous timeline management to provide clarity and regulatory certainty;
- Strong follow-up, monitoring and enforcement; and
- Transparent decisions based on science and Indigenous knowledge.

Impact assessments for designated projects under this new regime are led by the Impact Assessment Agency of Canada (Agency). Where projects link to lifecycle regulators, the Agency will work collaboratively with them to draw on their expert knowledge and ensure that safety, licensing requirements, international obligations and other key regulatory factors are considered as part of a single, integrated assessment.

Non-designated projects subject to the *Canadian Energy Regulator Act* or the *Canada Oil and Gas Operations Act* will be assessed by the Canadian Energy Regulator only. These assessments will also need to consider the extent to which the effects of the project hinder or contribute to Canada's ability to meet its commitments in respect of climate change.

Non-designated projects subject to the *Nuclear Safety and Control Act* would be assessed by the Canadian Nuclear Safety Commission only. Non-designated offshore petroleum projects will continue to be assessed in accordance with the relevant offshore Accord Act.

⁷ For more information, visit:
<https://www.canada.ca/en/services/environment/conservation/assessments/environmental-reviews.html>

2.3. Strategic assessment of climate change

The strategic assessment of climate change provides guidance on how federal impact assessments will consider a project's GHG emissions. More specifically, it provides guidance to proponents and others on the information requirements related to climate change that apply at key steps in the impact assessment process for the purpose of addressing public policy discussions beyond the scope of a single project assessment. It will also clarify how the Agency or lifecycle regulators, with support from expert federal authorities, will review and analyze this information. This will enable consistent, predictable, efficient and transparent consideration of climate change in the impact assessment process.

The scope and level of information required in the Impact Statement will depend on the expected impacts of the project, as described in Section 4 and presented in Figure 1.

- All project proponents will be asked to provide basic information related to GHG emissions, GHG mitigation measures and climate change resilience.
- If the project is likely to have high upstream GHG emissions, project proponents will also be asked to conduct an upstream GHG assessment.
- Proponents of projects that have the potential for high GHG emissions or potential impacts on carbon sinks will be asked to provide additional information, including how the project contributes to Canada's efforts to reduce GHG emissions and how it could impact global GHG emissions.
- Proponents of projects with high GHG emissions will also be asked to conduct a Best Available Technologies / Best Environmental Practices Determination for reducing GHG emissions of the project.

The strategic assessment of climate change will be an evergreen document with updates being made as needed to incorporate any major changes in policy or process related to climate change or impact assessment.

2.4. Technical guides

Technical guides will be published following the publication of the final strategic assessment of climate change to provide more detailed information on specific elements, such as:

- Quantification of GHG emissions;
- Best Available Technologies / Best Environmental Practices (BAT/BEP); and
- Climate Change Resilience.

3. QUANTIFICATION OF GHG EMISSIONS FROM A PROJECT

Proponents of projects undergoing a federal impact assessment will need to provide an estimate of the project's GHG emissions. Proponents will be required to quantify net GHG emissions and, in certain cases, upstream emissions. Estimates of downstream emissions will not be required.

A consistent and coherent approach to assessing a project's GHG emissions will ensure fairness during the impact assessment process and accurate emission intensity comparisons with comparable projects.

The Government of Canada will publish a technical guide providing detailed guidance on how to quantify a project's net and upstream GHG emissions.

The GHG emissions for new projects and replacement or expansion projects are assessed differently. For new projects, the GHG emissions should reflect the full design capacity of the project. For replacement⁸ or expansion projects, GHG emissions are assessed based on the additional capacity the project creates in comparison to the original design capacity.

3.1. Quantification of a project's net GHG emissions

3.1.1. Net GHG emissions calculation

The proposed *Information Requirements and Time Management Regulations*⁹ under the *Impact Assessment Act* would set out the information proponents are required to provide in their initial and detailed Project Description, which includes an estimate of the project's GHG emissions. This should be calculated as the net GHG emissions associated with the project and estimated based on the information available to proponents at each stage. An initial estimate would be provided in the initial Project Description, and then updated in the detailed Project Description, and further updated in the Impact Statement. Equation 1 defines net GHG emissions.

Equation 1: Net GHG emissions

$$\begin{aligned} \text{Net GHG Emissions} &= \text{Direct GHG Emissions} + \text{Acquired energy GHG emissions} \\ &\quad - \text{Transferred surplus energy GHG emissions} \\ &\quad - \text{CO}_2 \text{ captured and stored} \\ &\quad - \text{Avoided domestic GHG emissions} \end{aligned}$$

The approach for the quantification of a project's net GHG emissions is in line with ISO-14064 and The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard.

⁸ Replacement projects must use similar fuel and technology.

⁹ The Discussion Paper on Information Requirements and Time Management Regulatory Proposal is available at: www.impactassessmentregulations.ca/Consultation-on-the-proposed-Information-Requirements-and-Time-Management-Regulations

Direct GHG emissions: GHG emissions generated by activities that are within the defined scope of the project (Note: If transportation of products beyond the project, such as marine or rail, is included in the scope of the project, then emissions generated by those transportation modes will be included as direct GHG emissions). Examples of direct emissions include:

- Emissions from land clearing (e.g. land use change (including deforestation), biomass decay, etc.);
- Emissions from mobile combustion (e.g. vehicle, machinery, etc.);
- Emissions from stationary combustion (e.g. boilers, burners, reciprocating engines etc.);
- Emissions from industrial process (e.g. chemical, mineral and metal production, incineration, etc.); and
- Flaring, venting and fugitive emissions.

Acquired energy GHG emissions: GHG emissions associated with the generation of electricity, heat, steam or cooling, purchased or acquired from a third party for the project. Examples of acquired energy GHG emissions include: emissions associated with the generation of purchased or acquired electricity from the grid, and of purchased or acquired steam, heat or cooling from an adjacent facility. Upstream GHG emissions, as defined in Section 3.2, are assessed separately and are not included in this definition.

Transferred surplus energy GHG emissions: GHG emissions associated with surplus heat, steam or electricity sold or transferred outside the project boundary, but within Canada. In the case of electricity generation projects, GHG emissions associated with electricity generated cannot be transferred surplus energy GHG emissions. However, GHG emissions associated with useful co-products, such as steam, can be included. Examples of transferred surplus energy GHG emissions include: emissions associated with the generation and transfer or sale of surplus electricity, generated by an industrial facility, to the grid; and to the transfer or sale of steam, heat or cooling to an adjacent facility.

CO₂ captured and stored: CO₂ emissions that are generated by the project and permanently stored in a storage project that meets the following criteria:

- the geological site into which the CO₂ is injected is a deep saline aquifer for the sole purpose of storage of CO₂, or a depleted oil reservoir for the purpose of enhanced oil recovery; and
- the quantity of CO₂ stored for the purposes of the project is captured, transported and stored in accordance with the laws applicable to Canada or a province or applicable to the United States or one of its states.

Avoided domestic GHG emissions: GHG emissions that are reduced or eliminated elsewhere in Canada as a result of the project. Avoided emissions must occur within Canada and be:

- under the control of the proponent; or
- committed by the owner of the avoided emissions, via an agreement with the proponent. The commitment must state that the emissions will be reduced or eliminated as a result of the project.

The two examples below illustrate situations where GHG reductions will be considered avoided GHG emissions:

- In the case of an expansion project, the emissions reduction resulting from the replacement of existing equipment with more energy efficient equipment on the project site.
- In the case of a new project, the emissions reduction resulting from the replacement of an existing coal electricity generation facility with a facility using renewable energy or natural gas. In this example both facilities must be located in Canada and the avoided emissions must be under the control of the proponent or be committed by the owner of the avoided emissions.

Avoided foreign emissions should not be quantified in the avoided emissions. Proponents will have the opportunity to discuss potential impacts of their project on global GHG emissions. Section 5.1.2 describes this consideration.

Offset credits: GHG emission reductions or removals generated from activities that are additional to what would have occurred in the absence of the project (i.e. generated from activities that go beyond legal requirements and a business-as-usual standard), issued by a Canadian (provincial, territorial or federal) regulatory offset regime, and that are verified to a reasonable level of assurance by an accredited third-party verification body. Any offset credits issued by Environment and Climate Change Canada under the *Greenhouse Gas Pollution Pricing Act*¹⁰ or any provincial or territorial regime, are not to be included in the quantification of net GHG emissions. However, the use of offset credits acquired and used for purposes other than regulatory compliance can be discussed as mitigation measures. Section 5 provides an overview of mitigation measures that could be discussed in the Impact Statement.

3.1.2. Information to be provided by the proponent

Proponents will provide an estimate of the project's net GHG emissions in the initial and detailed Project Description based on the information available at each stage. Emissions estimates will be presented on an annual basis (tonnes of CO₂e/year) for each year of the project's lifetime and for all phases of the project (construction, operation, and decommissioning). The emissions estimates will be based on a project's maximum throughput (new project) or additional throughput (replacement or expansion project).

Proponents will present each of the elements in Equation 1 separately and will calculate the yearly net GHG emissions.

As the project is further developed and more information becomes available through the impact assessment process, emissions estimates should be reviewed and further refined in the Impact Statement.

3.1.3. Emission intensity calculation

In addition to providing the project's net GHG emissions, the proponent will provide the estimated GHG emission intensity. Proponents will calculate the emission intensity using Equation 2.

Equation 2: Emission intensity calculation

$$\text{Emission Intensity} = \frac{(\text{Direct GHG Emissions} + \text{Acquired energy GHG emissions} - \text{Transferred surplus energy GHG emissions} - \text{CO}_2 \text{ captured and stored})}{\text{Units Produced}}$$

The emission intensity estimate will be calculated for each year of the operation phase of the project. The emission intensity will be used to compare the project to high-performing, energy-efficient projects of a similar type in Canada and internationally in the Impact Statement. The emission intensity unit will be specified in the Tailored Impact Statement Guidelines; the emission intensity estimate may not be possible nor relevant for some project types.

¹⁰ Available at: <https://laws-lois.justice.gc.ca/PDF/G-11.55.pdf>

3.2. Assessing a project's upstream GHG emissions

3.2.1. Overview

Upstream emissions are the emissions from all stages of production, from the point of resource extraction or utilization, to the project under review. In 2016, the Government of Canada published a draft methodology for estimating upstream GHG emissions in *Canada Gazette*, Part I.¹¹ The upstream GHG assessment has two parts:

Part A is a quantitative estimate of upstream GHG emissions associated with the project based on the project's maximum throughput (new project) or additional throughput (replacement or expansion project). This requires information on the methodology, data, assumptions, and approach to estimating those upstream GHG emissions.

Part B is a qualitative discussion about the incrementality of the upstream GHG emissions estimated in Part A. It provides the conditions under which the upstream emissions estimated in Part A could be expected to occur regardless of whether the project proceeds.

3.2.2. When an upstream GHG emissions assessment will be required

Proponents of projects likely to exceed 500 kt CO₂e of upstream GHG emissions per year will be asked to complete an upstream GHG assessment. The Tailored Impact Statement Guidelines will confirm if an upstream GHG assessment is required in the Impact Statement based on preliminary calculations conducted by the Agency with the support of expert federal authorities.

No upstream GHG assessment is required if upstream emissions are likely to be below 500 kt CO₂e per year.

3.3. Discussion on the development of emissions estimates and uncertainty

Project proponents should describe the uncertainty associated with their project's net and upstream GHG emissions estimates. This description can be qualitative, although quantitative estimations of uncertainty should also be included where available.

Two types of uncertainty should be considered: uncertainty related to data and uncertainty related to methods/models.

The discussion of uncertainty related to data should identify any assumptions made in selecting the data, its applicability to the project, its representativeness, and its completeness. The discussion should explain how the data may be improved with more certainty on the project design and variables (type and volume of fuel used for example). A comparison of the data to comparable data sets may inform the uncertainty discussion. The discussion of uncertainty should also acknowledge that the uncertainty of GHG emissions estimates generally increases for years further out into the future.

The discussion on uncertainty of the methods/models, if applicable, should list the assumptions related to the method or model used and their rationale. The uncertainty could be represented using different methods/models, or by developing scenarios with varying data inputs to generate a range of reasonable emissions. There could be scenarios related to changes in project design and scenarios related to external considerations that may affect a project's GHG emissions over time. Examples include a qualitative discussion on how the economics surrounding the project could influence the project's emissions, such as the price of commodities, and how the emissions could change depending on the type of equipment used.

Finally, the discussion on uncertainty should describe how the uncertainty of the emissions estimates was reduced.

Further guidance on the development of the emissions estimates will be provided in the Technical Guide on quantifying GHG emissions for projects.

¹¹ Available at www.gazette.gc.ca/rp-pr/p1/2016/2016-03-19/html/notice-avis-eng.html

4. CLIMATE CHANGE IN THE PLANNING PHASE

Projects subject to the Impact Assessment Act will go through a planning phase in which potential impacts are discussed with the public and with Indigenous peoples at the outset of the impact assessment process. The information collected in the Planning Phase will inform the Tailored Impact Statement Guidelines, which will outline the scope and information related to climate change required in the Impact Statement.

The scope of information related to climate change in the Impact Statement will be tailored to the project, ensuring all projects undergoing a federal impact assessment provide basic information with respect to GHG emissions, mitigation measures and climate change resilience. Those that have the potential for high GHG emissions or potential impacts on carbon sinks will be asked to provide additional information linked to climate change.

Information related to the project's GHG emissions and climate change considerations will be provided through three avenues during the Planning Phase:

1. **The initial and detailed Project Description**, which includes: the project type, its purpose and an estimate of its GHG emissions, which should be calculated as net GHG emissions.
2. **Engagement with Indigenous peoples, local communities, other jurisdictions, the public**, and federal authorities. Following engagement on the initial Project Description, the Agency (or relevant body) will prepare a Summary of Issues. This will outline the issues it considers relevant to the assessment, informed by the issues raised by Indigenous peoples, stakeholders, other jurisdictions and the public during early engagement on the project and the expertise of federal authorities.
3. **Additional information provided by the proponent** during the Planning Phase, such as the proponent's response to the Summary of Issues, and any other information provided by the proponent at its discretion.

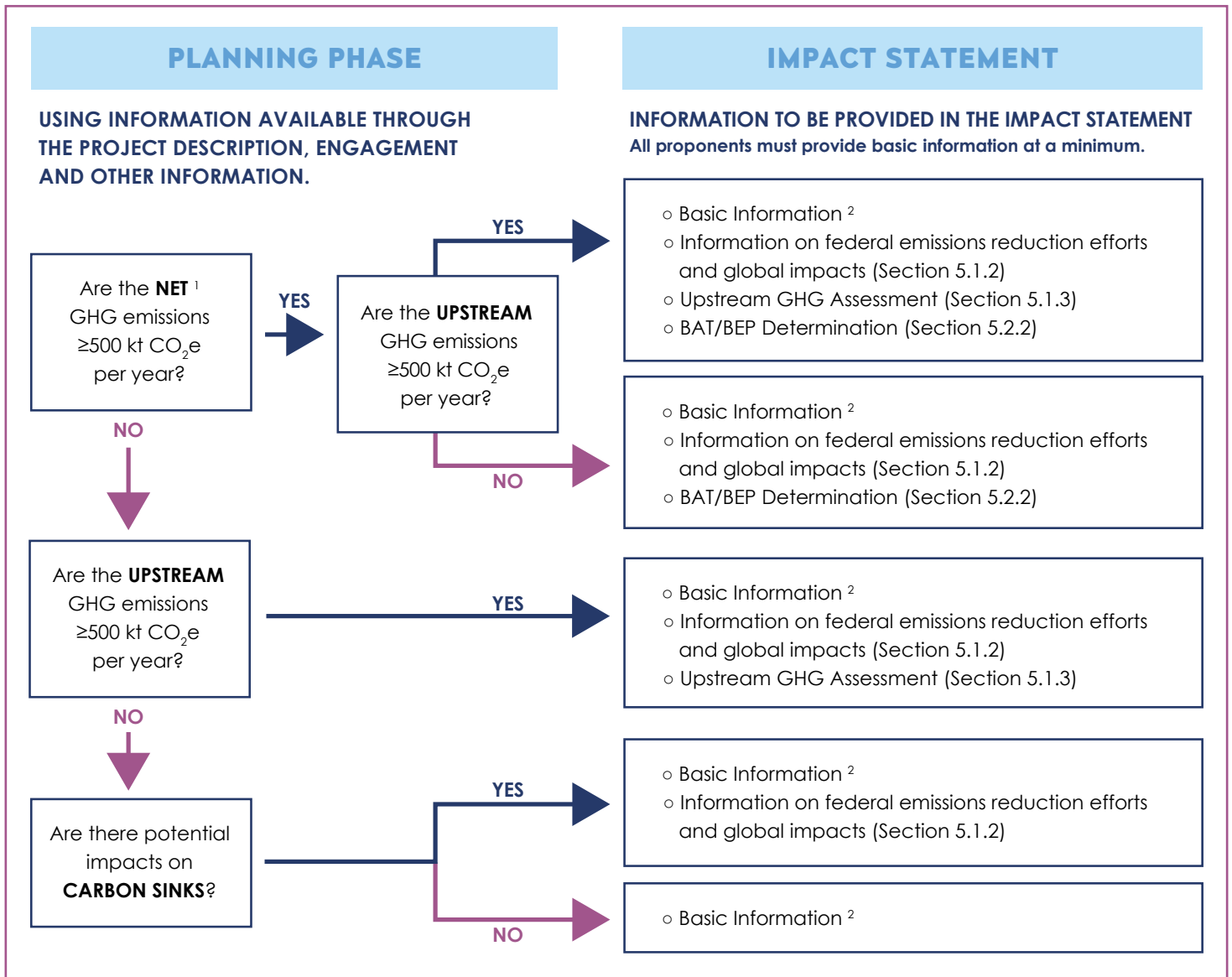
The type and level of detail to be included in the Impact Statement will be determined on a case-by-case basis accounting for the following considerations:

- A threshold of **500 kt CO₂e of net GHG emissions per year**: If a project's estimated net GHG emissions are not projected to exceed this amount in any single year during its construction, operation or decommissioning phases, then only basic information on its GHG emissions (refer to Section 5.1.1), mitigation measures (refer to Section 5.2.1) and the project's climate change resilience (refer to Section 5.3.1) will be asked for in the Impact Statement, to support related analysis and decisions required under the *Impact Assessment Act*. If the estimate of net GHG emissions exceeds the threshold, proponents will be asked to provide additional information (refer to section 5.1.2 and 5.2.2). If, during the impact assessment process, project design changes result in increases to emissions estimates that exceed the threshold for any given year of the duration of the project, then additional information will be requested.
- A threshold of **500 kt CO₂e of upstream GHG emissions per year**: The potential upstream GHG emissions will be evaluated in the Planning Phase by the Agency (or relevant body) with the support of expert federal authorities using the information in the Project Description, such as the project's location and throughput type and quantity, and through engagement. Proponents of projects with upstream GHG emissions likely equal or greater than 500 kt CO₂e per year will be asked to provide additional information in the Impact Statement (refer to section 5.1.2), and an upstream GHG assessment (refer to section 5.1.3).
- **Impacts on carbon sinks**: An impact on carbon sinks translates into an impact on the environment's capacity to absorb carbon from the atmosphere. The potential impact on carbon sinks will be evaluated in the Planning Phase using the information in the Project Description, such as the project's location, physical and biological setting and potential impacts within federal jurisdiction, and through engagement. If a project could have impacts on carbon sinks, additional information will be asked for in the Impact Statement (refer to section 5.1.2).

- **Other information** that may arise in the Planning Phase, either provided by the proponent in the initial or detailed Project Description, or as a result of engagement regarding the Summary of Issues prepared by the Agency or relevant body, may be considered in determining the scope and type of information that will be asked for in the Impact Statement. For example, a description of any potential benefits of the project with respect to GHG emissions and climate change provided by the proponent in the Project Description could be considered in tailoring the scope and type of information that will be asked for in the Impact Statement.

Figure 1 illustrates how these considerations will determine the information to be provided in the Impact Statement. Further detail is provided in Section 5.

Figure 1: Determining The Information To Be Provided In The Impact Statement



¹ Net GHG Emissions = Direct GHG Emissions + Acquired energy GHG emissions – Transferred surplus energy GHG emissions – CO₂ captured and stored – Avoided domestic GHG emissions (See section 3.1.1)

² Basic Information includes the following: Refined GHG Estimate (Section 5.1.1) + Mitigation (Section 5.2.1) + Climate Change Resilience (Section 5.3)

5. CLIMATE CHANGE IN THE IMPACT STATEMENT AND IMPACT ASSESSMENT PHASES

Following the publication of the Tailored Impact Statement Guidelines for the project, the proponent will prepare an Impact Statement that adheres to the Tailored Impact Statement Guidelines. While the extent of information will vary depending on the project's projected emissions, all Impact Statements will include:

- Information on the project's GHG emissions;
- An explanation of GHG mitigation measures that the project uses; and
- A description of a project's climate change resilience.

Information provided in the Impact Statement will be reviewed and supplemented by the Agency, or relevant lifecycle regulators, with the support of expert federal authorities in the Impact Assessment Phase, as outlined in Section 5.4.

5.1. GHG emissions

All project proponents will be asked to provide a description of GHG emissions sources, an estimate of net GHG emissions and a description of impacts on carbon sinks, as outlined in Section 5.1.1. Proponents of projects that have the potential for high GHG emissions (≥ 500 kt CO₂e per year of net or upstream GHG emissions) or impacts on carbon sinks will also be asked to provide additional information, as outlined in Sections 5.1.2 and 5.1.3.

5.1.1. Basic information

All project proponents proceeding to the Impact Assessment Phase will be asked to provide the following information in the Impact Statement:

- A description of each of the project's main **sources of GHG emissions**.
- The estimated annual GHG emissions from each source.
- A refined estimate of the project's yearly **net GHG emissions** and emissions intensity, including an uncertainty assessment, as described in Sections 3.1 and 3.4.
- A description of large sources of emissions that may be the consequence of accidents or malfunctions.
- A qualitative description of the project's positive or negative impacts on **carbon sinks**.

5.1.2. Information on federal emissions reduction efforts and global impacts

In addition to the information provided in Section 5.1.1, proponents of projects with the potential for high GHG emissions (≥ 500 kt CO₂e per year of net or upstream GHG emissions) or impact on carbon sinks will be asked to provide additional information, including:

- An explanation of how the project may contribute to **Canada's efforts to reduce GHG emissions**, if applicable. For example, the Impact Statement could explain how the project would result in emission reductions in Canada by avoiding emissions from another source.
- A discussion on how a project could **impact global GHG emissions**, including:
 - * If there is a risk of carbon leakage if the project is not built in Canada, the Impact Statement could include an explanation of the likelihood and possible magnitude of carbon leakage if the project is not approved.
 - * If a project may displace emissions internationally, the Impact Statement could describe how the project is likely to result in global emission reductions. For example, a project that enables the displacement of high-emitting energy abroad with lower emitting energy produced in Canada could be considered as having a positive impact.

5.1.3. Upstream GHG Assessment

Proponents of projects with upstream GHG emissions likely equal or greater than 500 kt CO₂e per year will be asked to conduct an **assessment of upstream GHG emissions** (refer to Section 3.2).

5.2. Mitigation measures

In the context of a federal impact assessment, "mitigation measures" include all measures that are expected to eliminate, reduce, control or offset the adverse effects of a project or designated project. Actions to address GHG emissions taken at the project design stage, and throughout all phases of the project, are part of mitigation measures.

In the Impact Statement, all proponents will need to provide information on the steps they will take to minimize GHG emissions. Proponents of projects that have the potential for high GHG emissions (see Figure 1) will be asked to conduct a BAT/BEP Determination.

This analysis will play an important role in the Impact Assessment Phase as it may inform the enforceable conditions imposed on the project if it is approved.

5.2.1. Basic information

For all projects proceeding to the Impact Assessment Phase, the proponent will be asked to provide the following information in the Impact Statement:

- A description of the measures included in the design of the project to mitigate its GHG emissions. These could include design decisions such as the use of low-emitting technologies, the use of low-carbon or renewable fuel, electrification or carbon capture and storage.
- A description of practices that will be taken to mitigate the project's GHG emissions, such as anti-idling practices for mobile equipment, leak detection and repair systems, continuous monitoring systems, or fleet optimization.
- The federal, provincial or territorial GHG legislation, policies or regulations that will apply to the project.
- Information on any offset credits that have been or will be obtained, including the offset regime that issued the credits, project type, project start date and vintage year. Proponents may also provide information on their intent to acquire or generate international offset credits.
- To inform potential mitigation measures, a comparison of the project's projected GHG emissions intensity to the emissions intensity of similar projects in Canada and internationally that are good examples of energy efficient or low emissions intensity projects. The comparison should explain why the emissions intensity may be different.

5.2.2. Best Available Technologies / Best Environmental Practices (BAT/BEP) Determination

Proponents of projects that have the potential for high GHG emissions (see Figure 1) will also be asked to conduct a BAT/BEP Determination for reducing GHG emissions. BAT/BEP is defined as the most effective technology, technique, or practice economically feasible for reducing GHG emissions.

This assessment is to be conducted at the project level, in line with the boundaries of the project undergoing the federal impact assessment. Setting the scope of the analysis at the project level, instead of the equipment level, can provide the proponent greater flexibility to optimize their overall design while demonstrating the use of BAT/BEP.

The BAT/BEP Determination involves a structured analysis to identify and select the most effective technologies, techniques and practices for reducing GHG emissions. The BAT/BEP Determination process is outlined in Table 1.

Table 1: BAT/BEP Determination

PROCESS STEP	INFORMATION REQUIREMENT
Listing	Proponent establishes a list of all available technologies/practices based on the identified sources of emissions for the specific project. (NOTE: a technology or practice may be exempted from the listing if there is little likelihood of technical or economic feasibility.)
Technical Feasibility Assessment	Proponent eliminates options determined to not be technically feasible, providing rationale.
GHG Reduction Potential Assessment	Proponent ranks remaining options based on GHG reduction potential.
Economic Feasibility Assessment	Proponent eliminates options determined to not be economically feasible, providing rationale.
Additional environmental and social considerations	Proponent outlines additional considerations (e.g., increase in air pollutant emissions that could result from application of a GHG mitigation technology) to be factored into the assessment, if applicable.
Selection of BAT/BEP	Proponent selects the BAT/BEP and provides detailed justification for selecting a lower-performing BAT/BEP, if applicable.
Review	The Agency or the relevant lifecycle regulator, with support from expert federal authorities, reviews the BAT/BEP Determination and requests additional information if required.

In order to provide further guidance to proponents, the Government will publish a BAT/BEP Framework. In addition, sector-specific technical guides may be published and periodically updated to provide relevant qualitative and quantitative information related to best available technologies and best environmental practices for reducing GHG emissions. These documents will help project proponents conduct a BAT/BEP Determination and will describe the technical, economic, social and environmental considerations that would factor into the determination of a BAT/BEP.

5.3. Climate change resilience

A commitment in the Paris Agreement, climate change resilience aims to strengthen the global response to the threat of climate change. Adaptation and resilience is also a pillar of the Pan-Canadian Framework on Clean Growth and Climate Change, which recognizes that the impacts of climate change are already being felt across Canada. Climate change impacts can be significant and can affect all phases of a project. Climate change impacts may include sudden weather events such as extreme precipitation that can cause flooding, as well as slow onset events such as sea level rise, permafrost thaw and changes to migration patterns. Both types of changes are happening now and are projected to continue and even increase in the future. These impacts can cause equipment failures that can threaten health and safety, interrupt essential services, disrupt economic activity, and require high costs for recovery and replacement.

5.3.1. Guidance for proponents

All proponents will be asked, via the Tailored Impact Statement Guidelines, to provide in the Impact Statement information on how the project is resilient to both the current and future impacts and risks of a changing climate. This information will include:

- Description of the scope and timescale of the climate change resilience assessment, ensuring climate change impacts are considered at all phases of the project including construction, operation, and decommissioning. For long-term projects, both short-term and long-term climate change impacts should be examined.
- Description of the risk management framework and risk assessment process used to identify, evaluate, and manage the climate risks that could affect the project. This could include the impacts of extreme weather events on project infrastructure, impacts to water quality and availability, etc. The information provided should characterize how resilient a project may be to climate change.

Given the uncertainty and ongoing research in projecting future impacts, proponents may have to look to projections, models or expert advice to inform how their project is resilient to climate change. The resilience assessment should consider multiple scenarios and discuss the confidence or uncertainty in the results. Where in-house models or forecasts are developed to support a specific assessment, the modeling methodology, assumptions, statistical certainty and data sources should be provided.

Proponents are encouraged to consult Infrastructure Canada's Climate Lens General Guidance for information on conducting climate change resilience assessments.¹² This includes guidance for assessing climate risks of a project through the application of a risk management framework, consistent with ISO 31000: Risk Management Standard. This document also includes a wide range of resources to assist proponents in undertaking such assessments, including sources of quantitative climate data, such as the Canadian Centre for Climate Services.¹³

Proponents are also encouraged to draw from reports such as the current national assessment, *Canada in a Changing Climate: Advancing our Knowledge for Action*, which was launched in 2017.¹⁴ This report outlines the state of knowledge pertaining to changes to Canada's climate, the impacts of these changes, and how we are adapting to reduce risk. A series of reports are being published, including *Canada's Changing Climate Report*,¹⁵ which proponents can use to inform their analysis.

In order to provide further guidance to proponents on considering climate change resilience, the Government of Canada will publish a Technical Guide to outline key principles and general instructions, and provide further details on the level of information for the climate change resilience assessment.

¹² The Climate Lens General Guidance is available at: www.infrastructure.gc.ca/pub/other-autre/cl-occ-eng.html

¹³ The Canadian Centre for Climate Services is available at: www.canada.ca/en/environment-climate-change/services/climate-change/canadian-centre-climate-services.html

¹⁴ Canada in a Changing Climate is available at: www.nrcan.gc.ca/environment/impacts-adaptation/19918

¹⁵ Canada's changing climate (2019) www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/Climate-change/pdf/CCCR_FULLREPORT-EN-FINAL.pdf

5.4. Review and analysis of information provided in the Impact Statement

The Agency or lifecycle regulators, with the support of expert federal authorities, will review, comment and complement, as needed, the information provided by project proponents in their impact statements on GHG estimates (net and upstream, if applicable) and proposed mitigation measures, including BAT/BEP analysis if required and offsets if proposed.

In reviewing mitigation measures, the Agency or lifecycle regulators, with the support of expert federal authorities, will comment on and complement with analysis, as needed:

- The federal, provincial or territorial climate policies and measures that will apply to the project. This will not involve an assessment or commentary on the adequacy of these policies and measures, but will ensure that the Agency or lifecycle regulator has complete information about all applicable policies and measures and their implication for the project.
- The mitigation measures applied to the project to reduce GHG emissions, including through the use of GHG offsets and BAT/BEP (if applicable). The Agency or lifecycle regulators, with the support of expert federal authorities will consider mitigation measures that are in use in similar high-performing, low-emitting projects, and will compare the project's emission intensity with similar projects in Canada and internationally, taking into account the specificity of the project.

The Agency or lifecycle regulators, with the support of expert federal authorities, will also provide supplemental analysis, such as describing the project's GHG emissions in the context of Canada's 2030 emissions targets and forecasts, including Canada's 2030 emissions targets and Canada's Mid-Century Long-Term Low-Greenhouse Gas Development Strategy. This may include considering, for example, whether the project's emissions are built into the sector projections in ECCC's national forecast in Canada's National Communications and Biennial Reports submitted to the United Nations Framework Convention on Climate Change.

The Agency or lifecycle regulators, with the support of expert federal authorities, also will review, comment and complement, as needed, on the climate change resilience assessment.

The review and analysis of the Impact Statement by the Agency or lifecycle regulators, with the support of expert federal authorities, will be made available to the public and decision-makers.

6. CLIMATE CHANGE IN DECISION-MAKING AND CONDITIONS

Under the *Impact Assessment Act*, the Minister or Governor in Council¹⁶ must decide whether the project is in the public interest, accounting for any adverse effects that are within federal jurisdiction or that are directly linked or incidental to other federal decisions about the project.

The *Impact Assessment Act* also requires that the Minister or Governor in Council consider, among other factors, the extent to which the effects of the 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 information provided by project proponents pursuant to the guidance in this strategic assessment of climate change, together with the analysis of that information by the Agency or lifecycle regulators, will ensure that assessment decisions account for a project's likely climate change-related effects. Decision-makers will be provided with analysis, including but not limited to, the project's GHG emissions in the context of Canada's emissions targets and forecasts, such as Canada's 2030 emissions targets and Canada's Mid-Century Long-Term Low-Greenhouse Gas Development Strategy.

If a project is approved, the Minister issues a decision statement. The decision statement contains **enforceable conditions** with which the proponent must comply, as well as the rationale for the decision, providing transparency and accountability. The GHG emissions-related conditions would only be applicable to a project's net GHG emissions, not to upstream activities even if an upstream GHG assessment was conducted. The GHG emissions-related **enforceable conditions** may refer to **mitigation measures and other requirements**, some of which could be used to reduce and control a project's GHG emissions.

7. CLIMATE CHANGE IN THE POST DECISION PHASE

If a decision is made that the project can proceed, the proponent must comply with any conditions included in the Minister's Decision Statement. **These may include conditions** related to GHG **mitigation measures and follow-up** program requirements.

Proponents will submit information to the Agency to demonstrate they are in compliance with the conditions listed in the Decision Statement. The Agency will review the information and may conduct on-site visits.

¹⁶ For impact assessments conducted by the Agency, the Minister is responsible for making the public interest determination or may refer the decision to the Governor in Council. For impact assessments conducted by a review panel, or an integrated review panel with a lifecycle regulator, the Governor in Council is responsible for making the public interest determination.

8. NEXT STEPS

A strategic assessment is intended to address public policy discussions beyond the scope of a single project assessment by providing guidance on how policies, plans, and programs will be considered in impact assessments. The strategic assessment of climate change will provide guidance on how federal impact assessments will consider a project's GHG emissions. It will also clarify how the Agency or lifecycle regulators, with support from expert federal authorities, will review and analyze this information. This will enable consistent, predictable, efficient and transparent consideration of climate change impacts in the impact assessment process.

Stakeholders and Indigenous peoples are encouraged to submit comments until August 30, 2019 via the strategic assessment of climate change website at www.strategicasessmentclimatechange.ca or by mail or email at:

Strategic Assessment of Climate Change

Environment and Climate Change Canada
351 St. Joseph Boulevard, 12th Floor
Gatineau, QC K1A 0H3
Email: ec.escc-sacc.ec@canada.ca

Following the publication of the final strategic assessment of climate change, ECCC plans to publish draft technical guides to provide additional technical details on specific elements of the strategic assessment of climate change. These guides may include: Quantification of GHG emissions (net and upstream), Best Available Technologies / Best Environmental Practices (BAT/BEP) and Climate Change Resilience.

ANNEX I – USEFUL RESOURCES

- 2019 National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in Canada: <https://unfccc.int/documents/194925>
- Canada's Changing Climate Report: www.nrcan.gc.ca/environment/impacts-adaptation/19918
- Canadian Center for Climate Services: www.canada.ca/en/environment-climate-change/services/climate-change/canadian-centre-climate-services.html
- Climate Lens – General Guidance: www.infrastructure.gc.ca/pub/other-autre/cl-occ-eng.html
- Discussion Paper Developing a Strategic Assessment of Climate Change: www.strategicassessmentclimatechange.ca/5637/documents/11224
- GHG Protocol: <https://ghgprotocol.org>
- Greenhouse gas and air pollutant emissions projections: 2018: www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/projections-2018.html
- Greenhouse gas reporting program: www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/facility-reporting.html
- Impact Assessment Regulations: www.impactassessmentregulations.ca
- Incorporating Climate Change Considerations in Environmental Assessment: General Guide for Practitioners (CEAA guidance from 2003): www.ceaa.gc.ca/Content/A/4/1/A41F45C5-1A79-44FA-9091-D251EEE18322/Incorporating_Climate_Change_Considerations_in_Environmental_Assessment.pdf
- ISO 14064 : Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals: www.iso.org/standard/66453.html
- Mid-Century Long-Term Low-Greenhouse Gas Development Strategy: <http://publications.gc.ca/site/eng/9.825953/publication.html>
- Pan-Canadian Framework on Clean Growth and Climate Change: www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/climate-change-plan.html
- Terms of Reference for conducting the Strategic Assessment of Climate Change: www.strategicassessmentclimatechange.ca/strategic-assessment-of-climate-change-terms-of-reference

ANNEX II – DEVELOPING THE STRATEGIC ASSESSMENT OF CLIMATE CHANGE

On July 19, 2018, ECCC published a discussion paper to seek views on the objectives and scope of the strategic assessment of climate change.¹⁷ Comments received informed the development of the Terms of Reference and the draft strategic assessment of climate change.

On March 11, 2019, ECCC published Terms of Reference that outlined the scope, process and timelines for conducting the strategic assessment of climate change.¹⁸

The strategic assessment of climate change is being developed under the authority of the *Department of the Environment Act*, and adheres as closely as possible to the provisions in the *Impact Assessment Act*, including the obligations to:

- Take into account any scientific information and Indigenous knowledge provided;
- Make the information used available to the public; and
- Ensure the public is provided with an opportunity to participate meaningfully.

The Terms of Reference outlined the scope of the strategic assessment of climate change, and stated that it would provide guidance for:

- Quantifying a project's GHG emissions, including the approach to estimating direct and upstream GHG emissions, and how avoided emissions, GHG offsets and carbon sinks could be factored into estimates of GHG emissions;
- Considering climate change in the Planning Phase of a project review; and
- Considering climate change in the Impact Assessment Phase of a project review.

ECCC engaged provinces, territories, industry stakeholders, environmental non-government organizations, and Indigenous groups in developing the draft strategic assessment of climate change. ECCC has:

- convened three Provincial/Territorial working group meetings to provide information and seek feedback on the approach to the strategic assessment of climate change;
- held a multi-stakeholder meeting and compiled the results of this engagement to inform the approach; and
- invited Indigenous groups that provided comment on the discussion paper to individual meetings.

¹⁷ The discussion paper Developing a Strategic Assessment of Climate Change is available at www.strategicassessmentclimatechange.ca/5637/documents/11224.

¹⁸ The Terms of Reference is available at www.strategicassessmentclimatechange.ca/strategic-assessment-of-climate-change-terms-of-reference.