

GHG Emissions and Climate Change	
Filing Requirements	Guidance
<p>1. Direct-Net GHG emissions – for project construction, and for project operations and decommissioning (including maintenance):</p> <ul style="list-style-type: none"> describe the sources of GHG emissions, including acquired energy sources such as electrical or other energy requirements; For acquired energy, describe those requirements and the expected sources of that energy; provide a quantitative estimate of net GHG emissions by year for each phase of the project total GHG emissions and net GHG emissions ^{Table Note a}; provide a project emission intensity for each year of the operation phase of the project; identify and explain which climate change laws, regulations and policies apply to the project and associated GHG emissions and to what extent; provide a comparison of the project's predicted GHG emissions to total national sector-based GHG emissions, total provincial GHG emissions, and to Canada's GHG reduction targets; and describe the mitigation measures to be implemented for GHG emissions reduction and for continuous improvement of GHG emissions management. <p>2. Construction and operational emissions from acquired energy sources – if there are electrical or other energy requirements for project construction and operations that are not considered in the direct emissions assessment:</p> <ul style="list-style-type: none"> describe those requirements and the expected sources of that energy; provide a quantitative estimate of GHG emissions associated with the generation of those energy requirements; identify and explain which climate change laws, regulations and policies apply to those GHG emissions and to what extent; and provide the GHG emissions as a percentage of total national sector-based emissions and as a percentage of total provincial GHG emissions. <p>2. Impact of the Project on Carbon Sinks –</p> <ul style="list-style-type: none"> Proponents are required to evaluate the project's impacts on carbon sinks, separate from the GHG emissions associated with land-use change. Proponents must provide a quantitative and qualitative description of the project's positive or negative impact on carbon sinks, since some projects may improve or reduce the ability of an ecosystem, land area or ocean to absorb carbon dioxide from the atmosphere. <p>3. Mitigation Measures</p> <ul style="list-style-type: none"> Proponents are required to describe the mitigation measures they will take to minimize GHG emissions throughout all phases of the project. The analysis of mitigation measures should follow the principles of the SACC, and include a Best Available Technologies / Best Environmental Practices (BAT/BEP) Determination. <p>3. Credible plan to achieve net zero – for projects with a lifetime beyond 2050, applications must include a credible</p>	<p>The guidance around GHG Emissions and Climate Change considers the principles and objectives of Environment and Climate Change Canada's (ECCC) Strategic Assessment of Climate Change (SACC). As noted in section A.2.4, the level of detail and analysis should be commensurate with the nature of the project and the potential for effects. A scalable approach, as provided in Figures A.2-2 to A.2-5, should inform the level of information an applicant may file. Refer to section A.2.9 for further guidance around whether a project's effects could hinder or contribute to the Government of Canada's ability to meet climate change commitments.</p> <p>Quantification of direct and acquired net GHG emissions</p> <p>The proponent is expected to follow the GHG quantification guidance in the SACC, and provide the information outlined in the SACC section 5.1.1. Section 2 of the draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment (the 1st Technical Guide), provides further details on the net GHG emissions calculation and quantification methodologies.</p> <p>The GHG emissions assessment should include, as appropriate:</p> <ul style="list-style-type: none"> A description of each of the project's main sources of GHG emissions and their estimated annual GHG emissions over the lifetime of the project. This can include combustion (including flaring and incineration), venting (including planned depressurizations) and fugitive sources, emissions from changes in land use and burning of vegetation during land clearing, and energy acquired by third parties; net GHG emissions by year for each phase of the project based on the project's maximum throughput or capacity (new project) or additional throughput or capacity (replacement or expansion project); each term of the net GHG emissions calculation (direct GHG emissions, acquired energy GHG emissions, CO2 captured and stored, avoided domestic GHG emissions and offset credits, if applicable), per year for each phase of the project; emission intensity for each year of the operation phase of the project. It may be useful to provide a comparison of the project's magnitude of predicted project emissions with comparable projects, federal, provincial, and sector totals, as well as to Canada's GHG reduction targets (discussed below); the quantity and a description of the "units produced" for each year of the operation phase of the project; methodology, data, emission factors and assumptions used to quantify each element of the net GHG emissions; a discussion on the development of emissions estimates and uncertainty assessment; and a description of large sources of GHG emissions that may be the consequence of accidents or malfunctions include point and area sources, such as combustion (e.g. flaring and incineration), venting (e.g. planned depressurizations) and anticipated fugitive sources; include other sources, including emissions from changes in land use and burning of vegetation during land clearing;

Commented [A1]: ECCC edits follow the project phases outlined in the SACC (construction, operation and decommissioning).

Commented [A6]: ECCC notes that we do not use a scalable approach for the SACC in terms of requirements.

Commented [A2]: This does not align with SACC guidance. The proponent's comparison usually states that a single project is insignificant compared to emissions of the sector, province, and country (or sometimes global emissions), which is an obvious conclusion. It's not clear how this information would be used in decision-making.

Commented [A3]: Acquired energy should be included in the project's net GHG emissions, not as it's own separate category

Commented [A4]: ECCC suggests breaking each number (2-5) out into its own section (similar to how upstream emissions are a separate section). It is quite long and hard to follow between the two columns when there are multiple topics within one section

Commented [A7]: This comparison requirement is not relevant to the SACC, and ECCC has advised against this comparison for several projects. Furthermore, it is unclear why a comparison to emissions reductions targets is needed (it compares new emissions to targets based on 2005 baseline levels – what is CER looking for here?).

Commented [A5]: The project's impact on carbon sinks should be evaluated. Particularly for pipeline projects, where very large amounts of hectares are being impacted.

plan to achieve net-zero emissions by 2050 (hereafter referred to as “net-zero plan”).

4. Climate change resilience – provide an assessment of the resilience of the project to climate change impacts.

5. Impact of the project on Canada’s efforts to reduce GHG emissions and impact on global emissions – discuss how the project may hinder or contribute to Canada’s efforts to reduce GHG emissions, as well as how the project could impact global GHG emissions.

• ~~include a description and justification of the methods (including emission factors used) and assumptions used in the estimation; and~~

- clarify the approach to determine avoided domestic emissions, including what project-specific mitigation and offset measures have been accounted for in the quantitative estimate of GHG emissions, and describe the criteria used for this.

In addition, quantitative estimates should, as appropriate:

- be provided as quantities of individual gases and in terms of carbon dioxide equivalent for ~~both project GHG emissions~~ and net GHG emissions;
- for project operations, be provided on an absolute annual basis and in emissions intensity terms; and
- describe engineering design assumptions to reduce or avoid uncontrolled methane releases during operations and maintenance activities.

Applicants may consider using appropriate industry-wide estimates for their assessment of GHG emissions, insofar as these are currently up to date.

If project operations depend on electrical or other energy requirements (e.g., to supply power for facility stations) that must be acquired from a third party or other corporate entity, these must be included in the project’s GHG emissions assessment.

For guidance on avoided emissions and offset measures, see ECC’s [Draft technical guide related to the strategic assessment of climate change](#) : Guidance on quantification of net greenhouse gas (GHG) emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment.

Mitigation measures (including offset measures) and net-zero plan

Information requirements for mitigation measures are outlined in Section 5.1.4. of the SACC. Section 3 of the 1st draft Technical Guide provides further details on principles and the BAT/BEP Determination Process.

~~Discussion of mitigation measures, including the use of best available technologies/best environmental practices, should include the alternative means considered to reduce GHG emissions and The proponent should provide~~ justification for why the preferred option was chosen, such as technical and economic feasibility.

Offset measures (such as carbon dioxide captured and stored, corporate-level initiatives, and use of offset credits) should generally be considered a last resort when reasonable efforts at avoiding and mitigating the GHG emissions have been exhausted. The appropriateness and potential of offsets for residual emissions, including timing and implementation of these offsets, should be explained.

Further mitigation can also be included in the net-zero plan.

Net-zero Plan

All projects will be assumed to have lifetimes beyond 2050, unless otherwise demonstrated. A net-zero plan should be based on the principles outlined in the SACC and related Technical Guides. The plan should include:

- actions that will be taken to achieve net-zero emissions by 2050, including an implementation schedule for the actions (such as a timeline for technology upgrades or replacements);
- a description of the approach to determining avoided emissions and using offset credits;
- any additional project-specific mitigation and offset measures that will be implemented for the project to achieve net-zero emissions by 2050;

Commented [A8]: Unclear what CER’s expectation is here. The first [Draft Technical Guide](#) under the SACC includes an approach/methodology that can be used.

Commented [A9]: Recommend breaking this into two sections - one on mitigation measures and the other on net-zero plan.

Commented [A10]: Under the SACC, alternative means are only discussed in the planning phase.

Commented [A11]: How does this differ from the description requested under the original direct emissions component?

- a description of the process that will be followed in order to make the decisions and investments needed;
- supporting information and/or assumptions for each action or measure, including a discussion of factors such as associated costs, potential impacts on tolls, technical challenges, risks, infrastructure requirements, and any other relevant considerations; and
- periodic project milestones that demonstrate GHG reductions towards net-zero. The periodic milestones should incorporate assumptions and emissions intensities and account for evolving regulatory measures and policies.

Consistent with the requirements contained in [section 3.4](#) of this manual around engagement, applicants should engage with potentially affected Indigenous Peoples on the GHG mitigation and net-zero plans.

Climate resilience

The GHG emissions assessment should undertake an assessment of the resilience of the project to climate change impacts. [The proponent is expected to provide the information outlined in the SACC section 5.1.5.](#) This assessment should, as appropriate, include:

- [The scope and timescale of the climate change resilience assessment and](#) methods used to identify, evaluate and manage the climate risks that could affect the project itself and the surrounding environment; and
- the project's vulnerabilities to climate change, [both in mean conditions and extremes over the full project lifetime](#), for example impacts of extreme weather events on project infrastructure, on water quality and availability, etc.

See [Table A-2](#) Physical and Meteorological Environment for further requirements and guidance.

Impact of the project on Canada's efforts to reduce GHG emissions and impact on global emissions

[The proponent is expected to provide the information outlined in the SACC section 5.1.3. including:](#)

- [An explanation of how the project may impact Canada's efforts to reduce GHG emissions, if applicable.](#)
- [A discussion on how the project could impact global GHG emissions, if applicable. This could include, for example:](#)
 - [If there is a risk of carbon leakage if the project is not built in Canada, they could include an explanation of the likelihood and possible magnitude of carbon leakage if the project is not approved](#)
 - [If the project may displace emissions internationally, they could describe how the project is likely to result in global emission reductions.](#)

The discussion of laws, regulations, and policies should cover those at relevant regional, provincial, federal, and international levels. Examples might include targets, carbon pricing, mandatory reductions or offsets, reporting programs, and evolving guidance on best-in-class GHG emissions performance by oil and gas projects.

In assessing the extent of emissions, [consider relevant national sector-based totals as well as provincial emissions for comparison.](#) Regional airshed-based studies may also be applicable. Discuss how the project's predicted GHG emissions impact Canada's GHG reduction targets.

Reference documents

The GHG emissions assessment should consider relevant estimating, reporting, and other applicable technical guidance, such as:

Commented [A12]: This does not align with SACC guidance. The proponent's comparison usually states that a single project is insignificant compared to emissions of the sector, province, and country (or sometimes global emissions), which is an obvious conclusion. It's not clear how this information would be used in decision-making.

	<ul style="list-style-type: none"> • ECCC's Strategic Assessment of Climate Change and related Technical Guides (as released and updated) • ECCC's Reporting greenhouse gas emissions • Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector) (SOR/2018-66) • ECCC's sector-specific tools to calculate emissions • The Natural Gas Combustion Emissions Calculator produced by Canadian Energy Partnership for Environmental Innovation (CEPEI) • Impact Assessment Agency of Canada's Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act • The GHG Protocol Corporate Accounting and Reporting Standard (World Resources Institute and World Business Council for Sustainable Development) • International Standards Organization standards: <ul style="list-style-type: none"> ◦ ISO-14064:1 ◦ ISO-14064:2 <p>Provincial estimating and reporting guidance could also be followed, such as:</p> <ul style="list-style-type: none"> • Alberta Energy Regulator Manual 015: Estimating Methane Emissions (2020) • Update of Equipment Component and Fugitive Emission Factors for Alberta Upstream Oil and Gas (prepared by Clearstone) • Greenpath 2016 Alberta Fugitive and Vented Emissions Inventory Study
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GHG Emissions and Climate Change – Assessment of Upstream GHG Emissions

Filing Requirements	Guidance
<p>1. Upstream GHG emissions</p> <ul style="list-style-type: none"> • Applicants should indicate if the upstream emissions associated with the project are likely to be above or below the applicable threshold presented in section 3.2 of ECCC's Strategic Assessment of Climate Change. • If above the identified threshold, provide an assessment of upstream GHG emissions based on currently available ECCC guidance. 	<p>In accordance with the SACC guidance, the assessment of upstream GHG emissions should consist of two parts:</p> <ul style="list-style-type: none"> • Part A should provide a quantitative estimate based on the project's maximum throughput (or additional throughput for expansion or replacement projects). • Part B should provide a qualitative discussion of the extent to which those upstream emissions may (or may not) be incremental as a result of the project. <p>This assessment should describe the methodology, data, and assumptions used and explain how the assessment is consistent with the supply forecast and analysis of the need for the project.</p> <p>The net-zero plan does not apply to upstream GHG emissions, even if an upstream GHG emissions assessment is conducted.</p> <p>Further guidance and practice for upstream GHG emissions estimation can be found in ECCC's Strategic Assessment of Climate Change and related Technical Guides (as released and updated).</p>

Commented [A13]: How is the applicant expected to determine this? How will CER ensure that the proponent's determination of whether and upstream GHG assessment is required or not is accurate? There could be a potential risk that upstream emissions are not assessed because the Applicant does not correctly characterize the likelihood of exceeding the threshold (for example, if the methodology used is not sound, or they claim to be under the threshold in order to avoid having to complete a full assessment).

Acoustic Environment

Filing Requirements	Guidance
<p>1. Where there is a public concern associated with an increase in noise levels during construction, provide a noise impact assessment, including an overview of the concerns.</p>	<p>The effects assessment must consider:</p> <ul style="list-style-type: none"> • any effects from inaudible noise (e.g., low frequency noise); and

<p>2. For projects that result or may result in an increase in noise emissions during operations or maintenance (e.g., pump stations, compressor stations, gas plants):</p> <ul style="list-style-type: none"> describe existing ambient noise levels in the area, including the methods and data sources used to determine the ambient levels; identify the potentially affected receptors and permissible sound levels for each receptor; quantify noise levels at appropriate distances from the facility (e.g., at edges of the RoW/facility and at the affected receptor) and describe the frequency, duration and character of noise; provide the predicted sound levels from the project alone and predicted cumulative sound levels in combination with other existing and future physical facilities and activities in the area, including an assessment of low frequency noise; describe engagement with regulators, stakeholders, community groups, landowners and Indigenous Nations about potential effects of the project on the acoustic environment; identify and justify the applicable guidelines used to determine the significance of the effects of the predicted emissions associated with the project; provide a noise management plan, including identification of noise sources, an assessment of current noise mitigation measures, performance effectiveness of noise control devices, best practices programs and continuous improvement programs; and identify the need for a follow-up monitoring for the purposes of validation of the model or as a result of any concerns raised by the public. <p>3. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.</p>	<ul style="list-style-type: none"> the effects of noise on wildlife. <p>Noise management plans must consider:</p> <ul style="list-style-type: none"> notification and scheduling of maintenance activities, such as blowdowns and equipment venting during daylight hours; and notification of nearby residences and local authorities of plans and procedures for preventing and managing noise. <p>Where there is a potential for human health effects see Table A-3.</p> <p>Additional guidance:</p> <ul style="list-style-type: none"> AER's Directive 038: Noise Control Alberta Utilities Commission's Rule 012 – Noise Control (AUC Rule 012) BC Energy Regulator's British Columbia Noise Control Best Practices Guideline <p>For projects in provinces with no guidelines, please refer to AER Directive 038 or AUC Rule 012, whichever is the most appropriate.</p>
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Environmental Obligations	
Filing Requirements	Guidance
<ol style="list-style-type: none"> Provide a listing of Government of Canada environmental obligations that may potentially be relevant to the project. Provide an appropriate summary or concordance table summarizing where in the application each of the Government of Canada environmental obligations identified and listed have been considered. Where the environmental obligations are addressed in the application, this must be part of an appropriate assessment of potential effects and applicable mitigation. The assessment should include discussion of how the project may hinder or contribute to Canada's efforts to meet any relevant environmental obligations. 	<p>As noted in section A.2.4 Level of Detail, the depth of analysis should be commensurate with the nature of the project and the potential for effects.</p> <p>As noted in both the existing Filing Manual guidance on Engagement (section 3.4.2) and in the CER Early Engagement Guide, applicants should also consult with appropriate federal government agencies for assistance in identifying federal environmental obligations relevant to the project.</p> <ul style="list-style-type: none"> Canada's environmental obligations may cover a range of environmental issues and refer to the obligations of Canada in domestic and international law in relation to the protection of the natural environment. Environmental obligations are set out in domestic instruments such as federal legislation and regulations, with which compliance is a requirement. In addition to obligations implemented in Canadian law and regulation, other domestic instruments developed to implement federal environmental obligations may include policy documents, plans, frameworks, and targets or quantitative goals. Legal requirements, policy direction, plans, frameworks, and targets or quantitative goals will often be specific to a particular environmental issue and should inherently be

	<p>covered in an applicant’s environmental and socio-economic assessment. In the applicant’s assessment of potential effects on any particular valued component, applicants should relate this to any relevant requirements or standards being met. From this, applicants should also identify any related Canadian environmental obligations.</p> <ul style="list-style-type: none"> • The listing of environmental obligations may be organized by biophysical element or valued environmental component, or be organized by any other alternative method of categorization that is systematic in approach. Consider also including the associated domestic instruments. • Project routing, design features and proposed mitigation measures may limit or reduce the extent to which a project hinders Canada’s ability to meet its environmental obligations. In some instances, they may also result in contributing to meeting those obligations. <p>Example – the Federal Wetland Policy would typically be referenced and inform an applicant’s environmental assessment of wetlands. In addition to the policy being considered in the assessment of project impacts on wetlands, it should also be cited in the listing of Government of Canada environmental obligations and the assessment should be referenced.</p>
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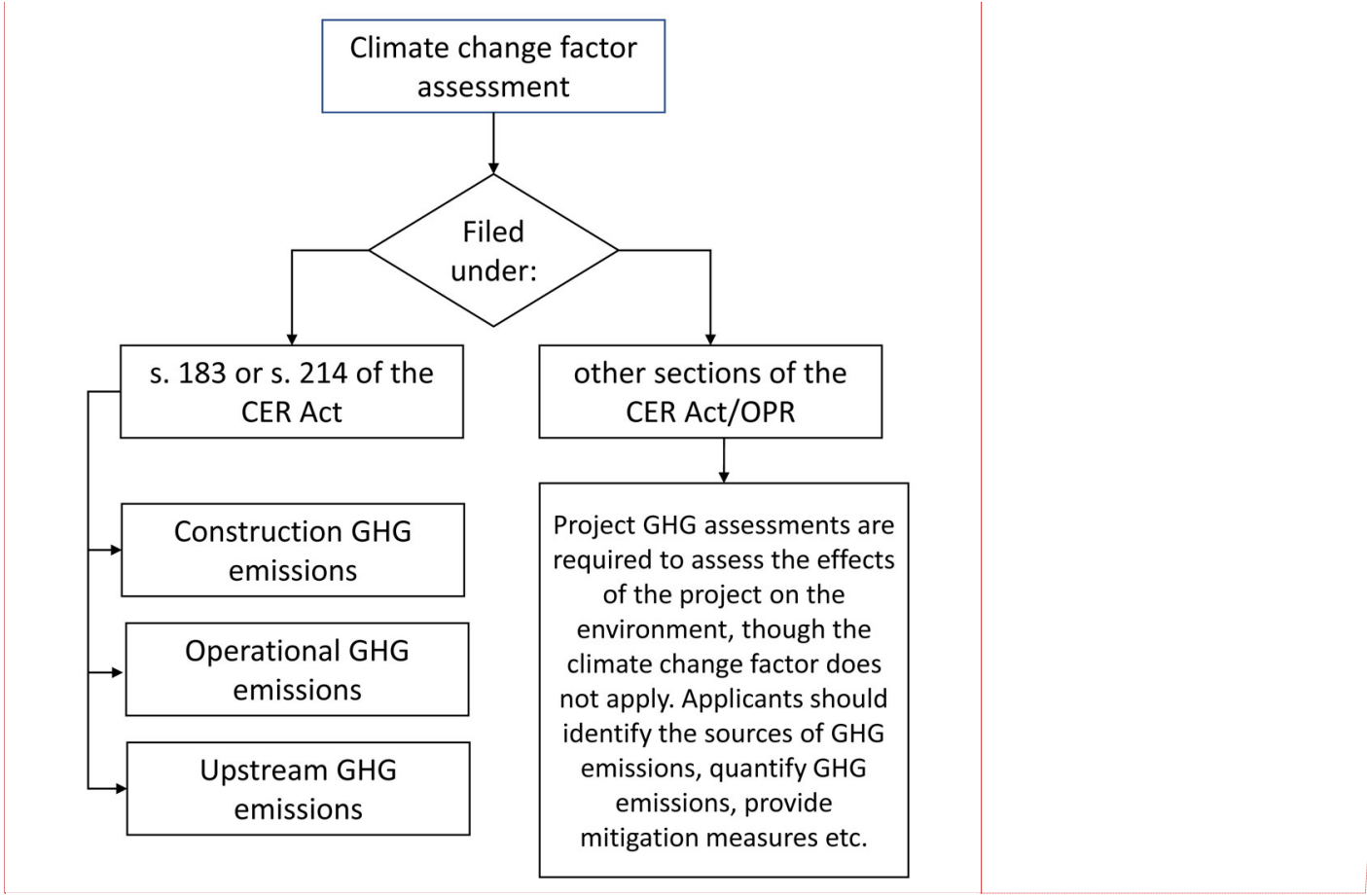
Table Note

Table Note a

Net GHG emissions = Direct GHG emissions + Acquired energy GHG emissions – Avoided domestic GHG emissions – Offset measures (See section 3 of SACC).

[Return to table note a referrer](#)

Figure A.2-2: Scalable approach to climate change factor assessment

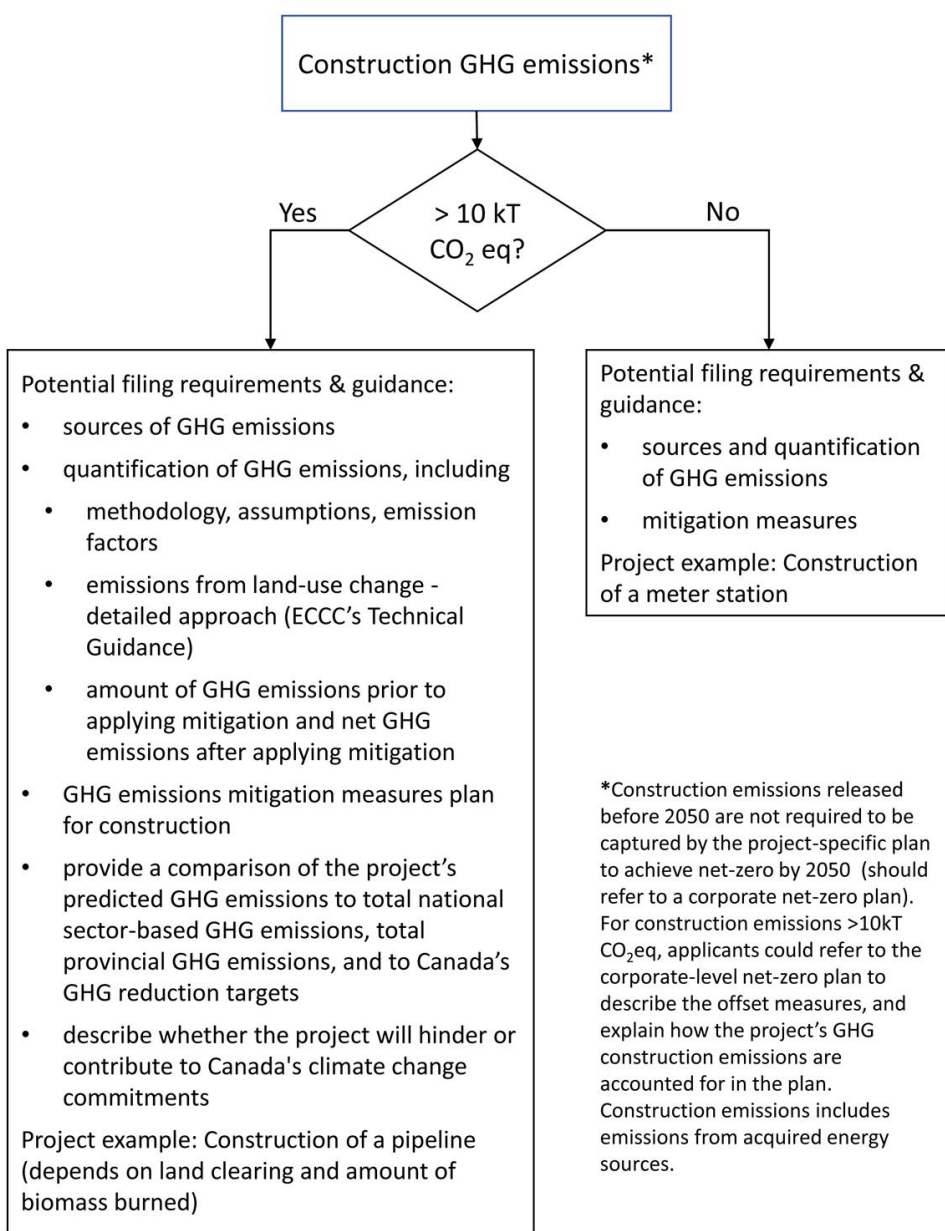


Commented [A14]: Include decommissioning as a phase in the bottom left

Description

Figure A.2-3: Scalable approach – construction GHG emissions

Commented [A15]: ECCC suggests that the diagram here should reflect figure 4 of the 1st technical guide. Under the SACC, land-use change related emissions should be calculated for ALL projects, but the methodology that should be used depends on the tiered approach based on project area.



Description

Figure A.2-4: Scalable approach – operational GHG emissions

Operational GHG emissions, including:

- fugitive emissions, leaks, and unplanned releases
- combustion, venting, and planned emissions
- acquired energy emissions

Yes No

> 10 kT CO₂ eq per year?

Potential filing requirements & guidance:

- sources of GHG emissions
- quantification of GHG emissions, including
 - methodology, assumptions, emission factors
 - emissions from land-use change - detailed approach (ECCC's Technical Guidance)
 - amount of GHG emissions prior to applying mitigation and net GHG emissions after applying mitigation
- GHG emissions mitigation measures plan for operations
- provide a comparison of the project's predicted GHG emissions to total national sector-based GHG emissions, total provincial GHG emissions, and to Canada's GHG reduction targets
- identify and explain which climate change laws, regulations, and policies apply to those GHG emissions and to what extent
- describe whether the project will hinder or contribute to Canada's climate change commitments

Project-specific net-zero plan required (for projects that have a lifetime beyond 2050)

Project example: Addition of compressor unit(s) - operation of vehicles and equipment during operations

Potential filing requirements & guidance:

- sources and quantification of GHG emissions
- mitigation measures
- identify and explain which climate change laws, regulations, and policies apply to those GHG emissions and to what extent
- describe whether the project will hinder or contribute to Canada's climate change commitments

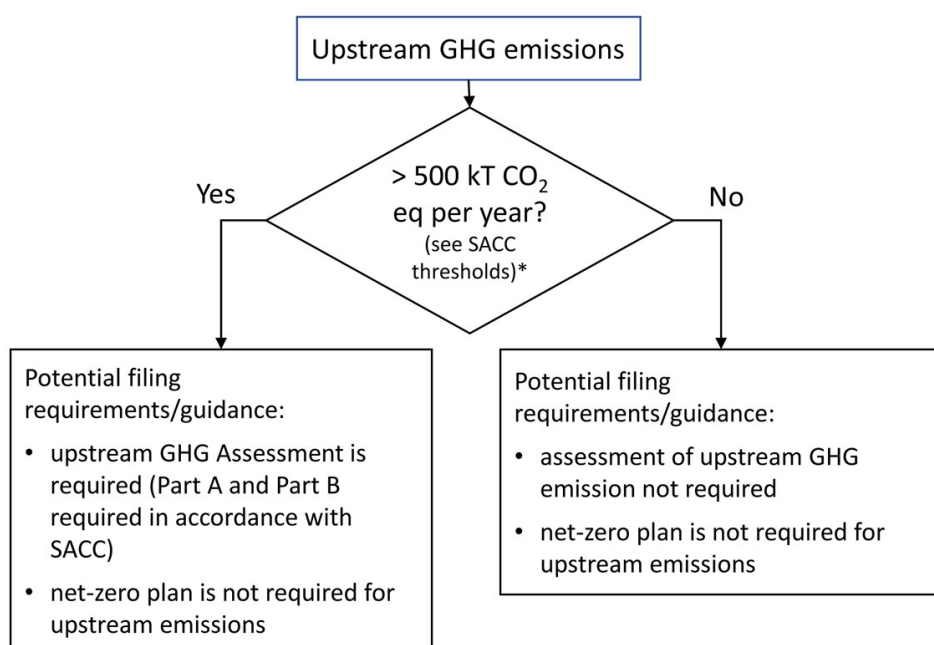
Refer to a corporate net-zero plan. Describe how the project GHG emissions are accounted for in the plan.

Project example: Pipeline - operation of vehicles and equipment during operations

Commented [A16]: Include another chart for the decommissioning phase. Could be based on GHG emitted per year, or just if the project answered 'yes' to the construction or operations emissions threshold question.

Description

Figure A.2-5: Scalable approach – upstream GHG emissions



*thresholds decline over time, as set out in the SACC

Description

A.2.9 Supplemental Guidance on Greenhouse Gas Emissions and Climate Change

The GHG emissions and Climate Change factor is one of several factors that the Commission considers when making certain public interest decisions or recommendations for proposed projects. The information provided in an application and related submissions addressing the GHG emissions and climate change factor will support the Commission in determining the extent to which the effects of the project may hinder or contribute to Canada's climate change commitments.

The following sections provide additional context for applicants on GHG emissions and climate change assessments in relation to CER-regulated projects.

Considerations for assessing the effects of a project on the Government of Canada's climate change commitments

This guidance is intended to be considered along with other filing requirements and guidance in [Guide A](#) of this manual.

Key elements that the Commission may consider on a project's potential hindrance or contribution to Canada's climate change commitments include:

1. ~~Magnitude of Net~~ GHG emissions;
- ~~2.~~ ~~Impact of the project on carbon sinks~~
- ~~3.~~ Mitigation measures for GHG emissions;
- ~~4.~~ Applicability of relevant laws, regulations and policies;
- ~~5.~~ Net-zero plan;
- ~~6.~~ Impact of the project on Canada ~~and global's efforts to reduce~~ GHG emissions;
- ~~7.~~ Climate change resilience; and
- ~~8.~~ Upstream emissions.

The following sections expand on each element above. Guiding questions for each element are also provided.

1. ~~Magnitude of Net~~ GHG emissions

In assessing the magnitude of emissions, the Commission considers the sources of direct and acquired energy (purchased from a third-party) that would be expected throughout the entire lifecycle of a project. The potential GHG emission sources for a proposed project or activity will vary, depending on the type of facility and planned activities.

GHG emissions associated with **project construction** generally stem from sources such as operation of construction equipment, land-use change (e.g., clearing), and biomass burning. These sources illustrate some examples and could include other sources as well. Emissions from construction equipment are dependent on variables such as terrain complexity and season.

GHG emissions associated with **project operation** vary based on product carried, throughput capacity, individual design, and component counts. Line compression is typically the largest direct GHG emission source for natural gas pipeline projects, and operational emissions associated with natural gas pipeline projects are generally larger than those associated with operating oil pipeline projects (depending on the electrical grid drawn from). Other sources of operational emissions may include: maintenance and inspection activities (including aerial patrols); additional process equipment (such as glycol heating boilers or onsite generators); and fugitive emissions from valves, connectors, pumps, and tanks. For facilities with electrically driven equipment (such as pumps on oil pipelines), GHG emissions could stem from onsite power generation (direct emissions) or energy purchased from a third-party source (~~indirect acquired~~ emissions). ^{Footnote 7}

As explained in [Table A-2](#) of this manual, applicants are expected to provide the methods and assumptions used to quantify project-related GHG emissions. Applicants are expected to use recent scientifically recognized emissions estimate equations and emission factors. Applicants are also encouraged to use the most current annually released ECCC's [National Inventory Report's](#) emission factors when calculating estimated vehicle and equipment emissions.

Applicants should provide a comparison of the project's predicted GHG emission intensity to the emissions intensity of projects similar in nature, scope, and scale. ~~Applicants should also provide a comparison of the project's magnitude of predicted project emissions to national sector-based GHG emissions, total provincial GHG emissions, as well as to Canada's GHG reduction targets (discussed below).~~

~~GHG emissions associated with project decommissioning generally stem from similar sources to those used during construction, and generally includes decommissioning infrastructure that is no longer needed, re-contouring the landscape in line with reclamation plans, revegetating, and monitoring activities.~~

Magnitude of GHG emissions: Guiding Questions that the Commission may consider in its assessment

- ~~What are the projects expected net GHG emissions for each phase~~
- ~~Is the project likely to generate high, medium, or low volumes of GHG emissions during any phase of the project when compared to similar projects in nature, scope, and scale?~~
- How does the GHG emissions intensity for the proposed facility compare to projects similar in nature, scope, and scale?
- Are the methods, data sources, rationale for the chosen method, and assumptions to estimate the project emissions appropriate?
- ~~How does the project's predicted emissions compare to national sector-based GHG emissions, total provincial GHG emissions, and to Canada's GHG reduction targets?~~

2. ~~Impact of the Project on Carbon Sinks~~

~~Proponents are required to evaluate the project's impacts on carbon sinks, separate from the GHG emissions associated with land-use change. Proponents must provide a quantitative and qualitative description of the project's positive or negative impact on carbon sinks, since some projects may improve or reduce the ability of an ecosystem, land area or ocean to absorb carbon dioxide from the atmosphere. An impact on a carbon sink implies the interruption or alteration of a natural continual process that removes carbon from the atmosphere.~~

Commented [A17]: This does not align with SACC guidance. The proponent's comparison usually states that a single project is insignificant compared to emissions of the sector, province, and country (or sometimes global emissions), which is an obvious conclusion. It's not clear how this information would be used in decision-making.

Commented [A18]: The decommissioning phase should be included in this document. Note that the SACC uses construction, operation and decommissioning project phases.

Commented [A19]: How does CER intend to define "high, medium or low volumes of GHG emissions"?

Commented [A20]: This does not align with SACC guidance. The proponent's comparison usually states that a single project is insignificant compared to emissions of the sector, province, and country (or sometimes global emissions), which is an obvious conclusion. It's not clear how this information would be used in decision-making.

Commented [A21]: The evaluation of the impact on carbon sinks should be included in the evaluation

Section 5.1.2 of the SACC and section 4 of the 1st draft Technical Guide provides methodologies and guidance on performing a qualitative and quantitative assessment on the impact to carbon sinks.

Impact on Carbon Sinks: Possible Guiding Questions that the Commission may consider in its assessment

- How was the impact on carbon sinks considered in the project design?
- How does the quantitative assessment of the land area's natural carbon sink capacity compare to the carbon sink capacity after the proposed project is underway?
- Has the proponent identified measures to mitigate the any negative project's impact on carbon sinks?

2. Mitigation measures for GHG emissions

Applicants are expected to undertake a comprehensive assessment of the various mitigation measures, including through the use of and best available technologies and best environmental practices (BAT/BEP) to minimize GHG emissions in each phase of the lifecycle project, from clearing through to abandonment. Considering potential mitigation measures early in the design and planning phase process offers opportunities to identify and plan GHG reduction ways to minimize absolute emissions as early as possible. For example, in a project application, an applicant may propose situating a project in a location that requires less biomass removal, or they may propose capturing or flaring natural gas instead of venting.

BAT/BEP are defined as the most effective technologies, techniques, or practices, including emerging technologies, that can be technically and economically feasible for reducing GHG emissions during the lifetime of the project. An assessment of BAT/BEP, using the SACC's BAT/BEP Determination Process, should be conducted to confirm that the project's design will minimize GHG emissions. This should align with the boundaries of the project. Setting the scope of the analysis at the project level, instead of the equipment level, gives project proponents flexibility to optimize the project's overall design while demonstrating the use of BAT/BEP.

Efforts to mitigate GHG emissions continue to evolve and improve. As such, applicants are encouraged to include a discussion of alternative measures or means that were considered and the rationale for selecting or eliminating certain measures.

Where GHG emissions cannot be avoided or reduced, the additional measures above and beyond standard mitigation (i.e., offset measures) to further reduce GHG emissions, including carbon dioxide captured and stored, corporate-level initiatives, and use of offset credits, may be considered.

Section 5.1.4 of the SACC outlines information requirements for mitigation measures. Section 3 of the Draft technical guide related to the strategic assessment of climate change: Guidance on quantification of net greenhouse gas (GHG) emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment provides further details on principles and on how applicants can follow the best available technologies/best environmental practices determination process to mitigate the project's GHG emissions.

Mitigation Measures: Guiding Questions that the Commission may consider in its assessment

- How were GHG emissions considered in the project design?
- Are the proposed mitigation measures reasonable and likely to be implemented?
- Are the technical and economic feasibility criteria reasonable? Did the proponent provide appropriate rationale for eliminating a technology or practice from further consideration?
- What mitigation measures are proposed to avoid, reduce or capture GHG emissions from the project and how do these compare to current best practices?
- Were innovative approaches proposed for managing emissions over the life of the project?
- Are there any additional measures (e.g., offset measures) being implemented for the project?
- Should the proponent have considered other GHG mitigation measures?

3. Applicability of relevant climate change laws, regulations, and policies

The Filing Manual sets out that applicants are expected to provide a list of the federal, provincial, or territorial GHG legislation, regulations, and policies that will apply to the project, and explain any implications for the project.

Given the rapidly evolving space of climate change policy within Canada and internationally, applicants are encouraged to plan for how further changes to laws, regulations, and policies may potentially impact the economic feasibility of a project. Potential risks of changes to the regulatory environment that could require adaptive management by the applicant could include a project's available supply, market demand, utilization, costs, and financing.

Relevant Climate Change Laws, Regulations, and Policies: Guiding Questions that the Commission may consider in its assessment

- How are the applicable provincial or federal carbon pricing requirements (including reporting) being managed for the project?
- How have the potential risks associated with future changes to climate change laws, regulations, and policies been quantified and planned for? Are there adaptive management plans in place for these risks?

4. Net-zero Plan

Unless clearly articulated in a project application, the Commission assumes that all new project applications will have a lifetime beyond 2050. As such, applicants are expected to provide a net-zero plan for projects beyond 2050. Both the SACC and the Filing Manual specify that applicants may submit either a project-specific or a corporate net-zero plan, depending on the nature, scope, and scale of the project.

The level of detail that the Commission expects in a net-zero plan will depend on the nature of the project. For example, a compressor station that has significant point source GHG emissions released continually over the operating life are likely to require a net-zero plan to explain how the applicant will avoid, reduce, mitigate, or offset these emissions in either a stepwise or gradual manner by the year 2050. For projects where the primary GHG emission sources are driven by the system of which it is a part (such as maintenance inspections, aerial patrols) or are managed at a corporate level (such as compliance with a company-wide fugitive emission management program), adherence to a corporate plan for achieving net-zero emissions by 2050 may be more appropriate.

Commented [A22]: Suggest removing the term phase here as it may cause confusion with the project lifetime phases mentioned just above.

Commented [A23]: Suggested edits since this concept is not introduced elsewhere

Commented [A24]: Suggest removing this paragraph as wording around "alternative means" in the SACC only applies to the planning phase. This information is covered by the proposed reference to the SACC technical guide.

Commented [A25]: Guiding questions:
1) Unclear what the first guiding question is trying to accomplish. This question would not only apply to the mitigation measures component as it has broader implications.
2) Suggest removing the word "avoid" and "capture" for consistency with the SACC, as these terms could be considered as avoided domestic GHG emissions or offset measures under the SACC.
3) How does CER define the term innovative, and what would be included in that distinction?

Commented [A26]: This statement is not accurate. The SACC does not discuss corporate net-zero plans. The 1st technical does, but says that "The project's net-zero plan can refer to the proponent's corporate net-zero plan, if any. Proponents should describe how the corporate net-zero plan will assist in reducing the project's net GHG emissions, if applicable.

Commented [A27]: ECCC reiterates that under the SACC, a project-level net-zero plan is required, but that this could refer to a corporate net-zero plan.

Section 5.3 of the [SACC](#) and section 3.5 of the ECCC's [Draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net greenhouse gas \(GHG\) emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment](#) provide further details on the principles, development, and contents of a net-zero plan. The plan will complement and be informed by the GHG mitigation measures planned by the applicant.

Plans to Achieve Net-zero plan by 2050: Guiding Questions that the Commission may consider in its assessment

- What specific actions or measures will be undertaken to achieve net-zero emissions by 2050?
- What are the associated costs of implementing each action or measure; potential impacts on tolls, technical challenges, risks, infrastructure requirements, and any other relevant considerations?
- Has the applicant committed to providing periodic project milestones that demonstrate progress in GHG reductions towards net zero?
- How does the net-zero plan impact the economic feasibility of the project?

Commented [A28]: With regard to guiding question 2, ECCC notes that several of these considerations should already be considered in the proponent's BAT/BEP Determination.

5. Impact of the project on Canada's efforts to reduce GHG emissions

In recent years, there has been a substantial evolution in Canada's climate policy environment, shaping the future context for Canadian energy supply, demand, trade, and infrastructure. Among these commitments are the Paris Agreement, Canada's 2030 target, the goal of Canada achieving net-zero emissions by 2050^{Footnote 8}, and other obligations. Given the magnitude of change required for Canada and the world to reach net-zero emissions by 2050, future policy, market, and technology changes will continue to shape energy in Canada over the next three decades. Examples of key developments include the 2016 [Pan-Canadian Framework on Clean Growth and Climate Change](#), the [Canadian Net-Zero Emissions Accountability Act](#) (including the 2030 Emissions Reduction Plan.)^{Footnote 9}, [A Healthy Environment and a Healthy Economy](#), and [Canada's National Adaptation Strategy](#).

The Commission recognizes that displacing high emission intensity projects with lower emission intensity projects or facilitating GHG removals can contribute to Canada's climate change commitments.

[Proponents can outline the project's impacts on federal emissions reductions efforts and on global GHG emissions following guidance outlined in 5.1.3. of the SACC.](#)

Impact of the project on Canada's efforts to reduce GHG emissions: Guiding Question that the Commission may consider in its assessment

- Is the project contributing to the Government of Canada's ability to meet its commitments in respect of climate change by reducing or eliminating GHG emissions or by facilitating GHG removals?

6. Climate change resilience

Applicants are expected to undertake an assessment of the resilience of the project to climate change impacts. The scope and scale of an assessment of a project's climate related-risks and development of a risk treatment plan should be tailored to the individual project, depending on the potential vulnerabilities and complexity of interactions.

The [Draft technical guide related to the strategic assessment of climate change: Assessing Climate Change Resilience](#) sets out an approach to assessing how a project is resilient to, and at risk from, both the current and future impacts of a changing climate.

Climate change resilience: Guiding Questions that the Commission may consider in its assessment

- How is the project at risk from climate change impacts?
- Has the applicant considered the magnitude and probability of these climate-related risks and identified appropriate risk treatments and adaptive management measures (as necessary) in the project design?

7. Upstream emissions

The Filing Manual sets out when [applicants are required to provide an estimate of upstream emissions](#) and the extent to which those emissions would be incremental as a result of the project. The SACC [and the 1st Technical Guide provides guidance on contains](#) the thresholds for [consideration of when an upstream emissions assessment must be performed](#), and these thresholds are applied in the context of CER-regulated projects. Consideration of upstream emissions will typically include quantitative estimates of emissions, as well as a qualitative discussion about the incrementality of these emissions. The qualitative discussion provides context in which the project will be operating, and whether the estimated upstream emissions would occur with or without the project.

Commented [A29]: The CER filing manual relies on the proponent to indicate whether a project is likely to meet the upstream threshold. It does not seem that there is a mechanism to validate their claim at any point. It could be in the interest of a proponent to claim that emissions are below the threshold even if they are not. How will CER ensure that all projects that should actually complete an upstream assessment are doing so?

Upstream emission assessments may also be a key element in considering the overall cumulative effects of any proposed project. The Commission expects that the scope of the upstream assessment be consistent with the development assumptions that support a given project (see [section A.2.7](#)). Further, the Commission expects the assessment to be consistent with the long-term economic, financial, and engineering assumptions made in an application.

Sections 3.2 and 3.3 of the [SACC](#) outline information requirements for an upstream GHG emissions and uncertainty assessment. Further guidance on upstream GHG assessment is provided in section 5 of the [Draft technical guide related to the strategic assessment of climate change: Guidance on quantification of net greenhouse gas \(GHG\) emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment](#).

Upstream Emissions: Guiding Questions that the Commission may consider in its assessment

- Are the project-related upstream emissions above the thresholds outlined in the SACC? If yes, did the applicant undertake a quantitative assessment of upstream GHG emissions associated with the project?
- Did the applicant follow the methodology outlined in ECCC's draft [1st draft Technical Guides](#)?
- Will the project result in incremental upstream GHG emissions? Has the applicant appropriately addressed the impact of cumulative and incremental emissions on Canada's climate change commitments?
- How have the potential risks associated with future changes to climate change laws, regulations, and policies applicable to upstream emissions been quantified and planned for?

Decision making and conditions [based on climate change factors](#)

The information contained in the application, and any additional information provided through the adjudicative process, will inform the Commission's assessment of the GHG emissions and climate change factor. The Commission may impose conditions related to this factor. These conditions would vary based on the scope, scale, and nature of projects under review. Conditions may refer to additional mitigation measures and other requirements to avoid or reduce a project's GHG emissions. Conditions may also include a reporting requirement in which the applicant would be expected to demonstrate progress toward implementing these mitigation measures as well as the plan for reaching net-zero emissions by 2050 (for projects with a lifetime beyond 2050).

FYI – Reminder...

Filing Requirements for an effects assessment are described in [section A.2.5](#) and [section A.2.6](#).

[Table A-1](#) in [section A.2.4](#) provides examples of the circumstances and interactions that lead to the need for detailed information and considers all phases of an applied for project (construction, operation, maintenance and abandonment), including the potential for accidents and malfunctions during each phase.

[Table A-3](#) was designed to assist Applicants in identifying detailed information needs specific to individual socio-economic elements. The elements and circumstances described in the table are not exhaustive.