



**Investing in Canada Infrastructure Program
Green Infrastructure - Climate Change Mitigation
CleanBC Communities Fund – Intake 3**



Preliminary Greenhouse Gas (GHG) Assessment Methodology Guidance

Guidance on Providing an Accurate Preliminary GHG Assessment

Context

A Preliminary Greenhouse Gas (GHG) Assessment with calculations will be required as part of the application process for the [CleanBC Communities Fund \(CCF\)](#) and will be an important factor upon which projects are evaluated. If the project receives provincial approval in principle, a full Climate Lens must be conducted as it is a requirement for federal approval. For the Climate Lens a complete description of the estimation and methodology approach including details on assumptions and calculations will also be required. Guidance on this federal requirement can be found [here](#).

Completing a Preliminary GHG Assessment will assist applicants in determining the GHG emissions impacts of the proposed project. It is desired that, in the long term, opportunities to reduce GHG emissions will be considered in infrastructure investment decisions and operations.

The Preliminary GHG Assessment is required as a part of the CCF application and will provide an initial estimation of the net increase or decrease in GHG emissions anticipated by the project. If the project receives provincial approval in principle, this Assessment will provide the foundation to complete the federal Climate Lens requirement. In defining the Preliminary GHG Assessment boundaries, applicants are encouraged to consider and identify all direct and significant indirect emissions sources associated to a project, but should exercise judgement if the quantification would require considerable efforts and onerous data collection procedures that could render the preliminary assessment to be prohibitively costly. The Preliminary GHG Assessment is being accepted at the application stage so that applicants do not need to expend the additional costs and effort on a more comprehensive Climate Lens assessment, until they have certainty that the project has will been shortlisted for provincial approval in principle.

The Preliminary GHG Assessment requires completion of the GHG mitigation assessment table in the application under the Outcome-specific questions section (annotated example in Appendix 1). A document showing the methodology used to determine these calculations (outlined below in the Estimation Approach section) must also be uploaded as part of the application.

Tools and Resources

A significant number of tools and resources exist that may be useful in conducting the Preliminary GHG Assessment. They range from project specific calculators, to protocols, to methodology documents. The list of seven resources below is not exhaustive but provides a foundation to quantify GHG emissions for projects that meet any of the four outcomes of the CCF. Table 1 presents potential solutions for individual outcomes.

Note that all of these resources use different approaches and methodologies and the onus will be on the applicant to modify them appropriately to be pertinent to their individual baseline and project scenarios. This includes employing BC specific emissions factors identified in the BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions or in Canada's most recent National Inventory Report for Greenhouse Gas Sources and Sinks.

List of Resources

1. [Infrastructure Canada's Climate Lens General Guidance – Version 1.22](#) (March 11, 2021)
2. [Verified Carbon Standard Methodologies](#)
3. [California-based Greenhouse Gas Credit Exchange](#)
4. [United Nations Framework Convention on Climate Change Approved Small Scale Methodologies](#)
5. [International Standards Organization 14064 – Part 2: specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements](#)
6. [The Greenhouse Gas Protocol – The GHG Protocol for Project Accounting](#)

Table 1: Calculators and Resources – as relevant to CCF outcomes

Calculator/Resource	<i>Outcome 1- Increase Capacity to Manage Renewable Energy</i>	<i>Outcome 2 - Increase Access to Clean Energy Transportation</i>	<i>Outcome 3 - Increase Energy Efficiency of Buildings</i>	<i>Outcome 4 - Increase Generation of Clean Energy</i>
BC Organics Infrastructure Program	Yes	No	No	Yes
Greenhouse Gas Industrial Reporting and Control Act established protocols	Yes	No	Yes	Yes
Community Energy Leadership Program calculator	Yes	No	Yes	Yes
BC Carbon Neutral Local Government GHG Calculators: Low Emission Vehicles – Calculator/Guidance	No	Yes	No	No
BC Carbon Neutral Local Government GHG Calculators: Energy Efficient Building Retrofits and Fuel Switching - Calculator/Guidance	No	No	Yes	No
BC Carbon Neutral Local Government GHG Calculators: Solar Thermal (Hot Water) Retrofits - Calculator/Guidance	Yes	No	Yes	Yes
BC Carbon Neutral Local Government GHG Calculators: Household Organic Waste Composting - Calculator/Guidance	Yes	No	No	Yes

Estimation Approach

As part of the Preliminary GHG Assessment, a complete description of the estimation approach including methods, calculations and details on assumptions will be required. The key components that should be documented for both the Baseline* and Project Scenarios are:

- a. Boundary of the assessment
The required scope and/or limits of the assessment. In the context of a greenhouse gas assessment, specific elements could include the timescale of the assessment, what particular construction materials and/or activities are considered, etc.
- b. Greenhouse gases considered
Greenhouse gases (GHGs) are gases that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. The seven GHGs tracked through the National Inventory Report are: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulphur hexafluoride (SF₆); and nitrogen trifluoride (NF₃). These will be converted to tonnes CO₂ equivalent for the purpose of the calculations. See resources on BC specific emissions factors on page 2 for guidance.
- c. Emission scopes
The scope of emissions as related to the project, typically represented by Scope 1: Direct emissions from sources owned or controlled by an applicant, such as boilers, furnaces or vehicles; Scope 2: Indirect emissions from sources that are owned or controlled by an applicant, such as purchased heat or electricity; Scope 3: Other indirect emissions from sources not owned or directly controlled by an applicant.
- d. Data collection and calculation procedures
Information on surveys, modelling, algorithms, emissions factors, activity data, calculations or any other pertinent data sources used to inform your analysis. Formulas should be clearly documented as well as processes for the acquisition of data.
- e. Exclusions from the assessment
Information or data that was intentionally omitted from the assessment with a rationale or justification for exclusion.
- f. Assumptions
Assumptions that were used in place of known data or information.

The quantification process should adhere to the principles of: relevance, completeness, transparency, accuracy, conservativeness and consistency. For detailed information on these principles, please refer to the [International Standards Organization 14064 – Part 2 Guidance](#).

At minimum, the scope and boundary of the calculations should include direct and significant indirect emissions as a result of operating the project over the life of the asset and in the year 2030, as indicated in the table in the application form (Appendix 1).

Supporting documents on calculations, protocols, proxies, methodologies, etc. should be appended as part of the Preliminary GHG Assessment document to ensure a full review can be conducted.

*Baseline Scenario - GHG reductions will need to be compared to a baseline scenario. This baseline scenario will look at the emissions as a result of what would have likely been built without including efficient design that reduces emissions in the project, based on typical industry practices, community business plans, local conditions, recently constructed facilities, compliance with applicable federal, provincial, or municipal regulations, and what would be constructed to meet any minimum standards or codes.

The baseline is a hypothetical reference case/description of what would have most likely occurred in the absence of a proposed project. In the case of existing facilities, historical information on the use of energy and emissions from at least 3 years prior to project implementation shall be used in the baseline calculations. For facilities less than 3 years old, any historical data available should be used (with a minimum of one year of data required).

Appendix 1: Preliminary GHG Mitigation Assessment Table

The timescale of the assessment should match the intended lifespan of the asset.
*If the project involves multiple assets, please indicate the total lifespan for all assets assessed.

To align with Canada's 2030 GHG reduction commitment under the Paris Agreement, applicants must highlight projected GHG values in 2030. We're seeking the typical annual baseline and reduction values – If you're aware of activities that may significantly impact the annual values in 2030, please note them in your assessment.

A hypothetical reference case/description of what would have most likely occurred in the absence of a proposed project or any considerations about climate change mitigation

The year in which use of the asset commences

Assessments should include estimates of a project's cumulative emissions over the useful lifespan of the infrastructure

GHG Mitigation Assessment (all GHGs should be entered in tonnes of CO ₂ equivalent)					
Expected lifespan of the asset in years*			Indicate the year in which the expected lifespan of the asset begins		
GHG Results in 2030			Lifetime Overall GHG Results		
Baseline scenario emissions, In 2030		tCO ₂ e	Baseline scenario emissions, Lifetime (cumulative)		tCO ₂ e
Estimated project emissions, In 2030		tCO ₂ e	Estimated project emissions, Lifetime (cumulative)		tCO ₂ e
Net emissions	REDUCTION or INCREASE	tCO ₂ e	Net emissions	REDUCTION or INCREASE	tCO ₂ e

A specific activity or set of activities being assessed for potential to reduce GHG emissions, increase the storage of carbon, or enhance GHG removals from the atmosphere

Emissions in CO₂ equivalent (CO₂e) using the Global Warming Potentials identified in the most up-to-date version of Canada's National Inventory Report and report in tonnes (t) of carbon dioxide equivalent (CO₂e).

The difference between the baseline scenario and project scenario