Preliminary Greenhouse Gas (GHG) Methodology Guidance

Guidance on Providing an Accurate Preliminary GHG Calculation

Context

This document provides guidance for the preliminary Greenhouse Gas (GHG) calculation which 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.

The intent of this new approach is to assist applicants in determining the GHG emissions impacts of projects. It is desired that, in the long term, opportunities to reduce GHG emissions will be considered in infrastructure investment decisions and operations.

Please note that if a project is shortlisted by the Province for funding under the CCF, a full Climate Lens GHG assessment conducted or validated by a qualified assessor will also be required prior to federal approval. Guidance on this federal requirement can be found here.

This preliminary GHG calculation, required at the application stage, will provide an initial estimation of the net increase or decrease in GHG emissions anticipated by the project. It will provide the foundation for the full Climate Lens GHG mitigation assessment. Unlike the full mitigation assessment, this preliminary GHG calculation does not require validation by a qualified party. The preliminary calculation 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 will be shortlisted for funding approval.

The preliminary GHG calculation will require 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 calculation. 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 proponent 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 1.1 – June 1st, 2018
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
7. Community Energy Association Heating Publications

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

Calculator/Resource	*Outcome 1- Increase Capacity to Manage Renewable Energy*	*Outcome 2 - Increase Access to Clean Energy Transportation*	*Outcome 3 - Increase Energy Efficiency of Buildings*	*Outcome 4 - Increase Generation of Clean Energy*
BC Organics Infrastructure Program	*Yes*	*No*	*No*	*Yes*
Greenhouse Gas Industrial 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 calculation document, 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 (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulphur hexafluoride (SF_6); and nitrogen trifluoride (NF_3). These will be converted to tonnes CO_2 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 a proponent, such as boilers, furnaces or vehicles; Scope 2: Indirect emissions from sources that are owned or controlled by a proponent, such as purchased heat or electricity; Scope 3: Other indirect emissions form sources not owned or directly controlled by a proponent.
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 emissions as a result of operating the project over the life of the asset and cumulative to 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 calculation 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