

GREENHOUSE GASES

VOLUME 2, SECTION 15

The Environmental Impact Statement (EIS) details the environmental assessment undertaken for the Site C Clean Energy project. The EIS includes the project rationale, identifies potential effects and proposes measures to avoid or mitigate these effects. The EIS also describes the benefits Site C would provide for customers, Aboriginal groups, northern communities and the province as a whole.

ABOUT THE ASSESSMENT

The assessment of greenhouse gases considers the net change in greenhouse gas (GHG) emissions from the construction and operations phase of the project, including emissions associated with construction activities, land use change and clearing to form the reservoir.

During construction, GHG emissions are expected from direct fuel combustion associated with equipment operation, and from emissions associated with materials used in construction (e.g. concrete, fly ash, steel, stainless steel, aluminum and copper). GHG emissions are also expected to result from the project's land clearing and construction activities and are estimated over the construction phase and for project operations.

The results are reported using the following key indicators:

- Total direct project GHG emissions, and net emissions considering the change from current conditions to post-inundation scenarios
- GHG emissions intensity per unit of energy (g CO₂e/kWh), including comparison with other modes of electricity generation

ASSESSMENT AREA

The local assessment area is the project activity zone, which is the area within which GHG emissions from construction activities would occur and where the reservoir would be formed. In recognition of the nature of the potential environmental effects of a change in GHG emissions on global climate, the assessment compares project-related GHG emissions to global, national, and provincial GHG emissions.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECTS	KEY MITIGATION MEASURES
Emission of GHGs from construction activities Release of GHGs during operation	<ul style="list-style-type: none"> • Implement fleet management measures to reduce fuel consumption and increase fuel efficiency • Reduce the long-term conversion of land while still achieving the purpose of the project

MONITORING

GHG emission generating activities would be monitored throughout construction and operations.

KEY FINDINGS

- The net project-related quantities of GHGs released to the atmosphere are a small fraction of the provincial, national, and global emissions, and are considered low (in terms of total and emission intensity) in the context of CEA Agency guidance.
- In comparison to other forms of electricity generation, GHG emissions from the project are as low as other forms of renewable electricity, and are much lower than non-renewable gas or coal electricity.



Comparison of GHG Emissions intensity	
Generating Facility Type	Average (g CO ₂ e/kWh)
Site C Clean Energy Project	10.5
Canadian Boreal Hydroelectric	36
Tropical Hydroelectric	2,150
Model Coal	1,000
Integrated Gasification Combined Cycle (Coal)	798
Diesel	717
Natural Gas Combined Cycle	545
Solar Photovoltaic	58
Wind Turbines	14

ABOUT THE SITE C CLEAN ENERGY PROJECT

Site C is a proposed third dam and hydroelectric generating station on the Peace River in northeast B.C. Site C would provide 1,100 megawatts (MW) of capacity, and produce about 5,100 gigawatt hours (GWh) of electricity each year – enough energy to power the equivalent of about 450,000 homes per year in B.C.

Site C is undergoing a cooperative environmental assessment by the Canadian Environmental Assessment Agency (CEA Agency) and the British Columbia Environmental Assessment Office (EAO). The environmental assessment process commenced in August 2011 and is anticipated to take approximately three years to complete.

FOR MORE INFORMATION visit bchydro.com/sitec

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