



GOLDER

WesPac Tilbury Marine Jetty

WORKING GROUP MEETING 1: GREENHOUSE GAS EMISSIONS

MAY 9 2019

Chapter Summary

GREENHOUSE GAS MANAGEMENT

The greenhouse gas (GHG) assessment was developed to be consistent with Air Quality

- Same boundaries for emission estimation (RAA, LAA, limit to marine shipping)
- Same sources of emissions
- Same bounding condition of the operational phase

The goal of the assessment is to understand the impact of the project on climate change (through GHG emissions)

- Estimated the annual project GHG emissions (direct and indirect)
- Considered emissions of CO₂, CH₄, N₂O in CO₂ equivalent
- Estimation methods consistent with regulatory requirements
- Annual project emissions put in the context of provincial, national sector and federal emissions (relative contribution)

Chapter Summary

GREENHOUSE GAS MANAGEMENT

Source	Annual GHG Emissions (kt CO ₂ e/yr)	Project Total as a Relative Percentage (%)	
Direct Emissions			
Fugitive losses	4.16	N/A	
Dredging	1.03		
Security vessels	0.03		
Indirect Emissions			
Purchased electricity	0.06		
LNG carrier	0.19		
LNG bunker vessel	0.02		
Tugs	0.22		
Supply chain marine vessel combustion (between Project site and Sand Heads)	6.56		
Project Total	12.27		
British Columbia (2016)	60,100	0.02	
Transportation – domestic navigation (Canada)	3,800	0.3	
Fugitive sources – natural gas (Canada)	12,000	0.1	
Canada (2016)	704,000	0.002	

Chapter Summary

GREENHOUSE GAS MANAGEMENT

Summary of Residual Project Effects:

- All residual project effects were assessed to be negligible
- Project will likely result in increased GHG emissions despite mitigation measures
- Project will participate in regulatory programs as required

Chapter Summary

UPSTREAM GREENHOUSE GAS REPORT

Completed an upstream GHG emissions assessment following the draft methodology from ECCC

- Quantitative estimate of the GHG emissions released upstream of the Project
- Three different publicly available methodologies with unique emission factors
- Discussion of conditions under which the upstream emissions could be expected to occur even if the project were not built
- Includes development of “Project” and “No Project” cases

Chapter Summary

UPSTREAM GREENHOUSE GAS REPORT

- Total upstream GHG emissions estimated to range from 1,750 kt CO₂e to 2,414 kt CO₂e by 2053
- Development of LNG facilities aligns Canadian and global climate strategies
 - provides a lower emission intensity alternative to coal and other fossil fuels
- Project case estimates reduced emissions between 1,120 kt CO₂e and 1,149 kt CO₂e compared to the “No Project” case

Issue #1: “No Project” Case

UPSTREAM GREENHOUSE GAS REPORT

- Scaling the ISO LNG shipment levels by several orders of magnitude quickly
- Feasibility to ship 75% of LNG by ISO container trucks and through an alternate port
- The availability of an alternate port with the required capacity
- the expected price in the target market would exceed the production and transportation costs
- The timeline to build capacity to accommodate these shipments

Issue #2: Upstream GHG Assessment

UPSTREAM GHG REPORT

Summary of concerns across all comments:

- More analysis on the supply and demand of LNG, including comparison to the demand for renewables
- The business case for the Project including current business contracts and agreements
- Concern over the project leading to expanding oil extraction and increased volume flow
- Inclusion of downstream emissions

Discussion

GENERAL GREENHOUSE GAS ASSESSMENT CONCERNS

Concern	Path Forward
Fugitive and boil-off GHG emissions, including marine	Closed loop system
Maintenance and repairs (emissions from blow down procedures)	Blow down transferred back to FortisBC, beyond scope of assessment
Expanding shipping emissions out to Canada's territorial sea	Shipping emissions calculated according to AIR, between project and Sand Heads Lighthouse
Residual effects criteria	Selection of criteria is consistent with similar projects and focused on the only relevant criteria

Discussion

GENERAL GREENHOUSE GAS ASSESSMENT CONCERNS

Concern	Path Forward
Request for cumulative effects assessment	Residual effects were assessed to be negligible. According to project methodology and AIR, no cumulative effects assessment is needed
Requirement to offset GHG emissions	Not part of current regulatory programs
Alignment with GHG targets	Will participate in regulatory programs, as required
Inclusion of temporary berth	Operations phase considered a bounding condition for the construction phase due to the number and type of sources