Northmore Gordon

Expert Witness

Greenhouse Gas Emissions

Presentation to the Inquiry and Advisory Committee Hearing

for

Crib Point Gas Jetty and Crib Point-Pakenham Pipeline Project Environmental Effects Statement

Ed Smith Presenting 9 November 2020

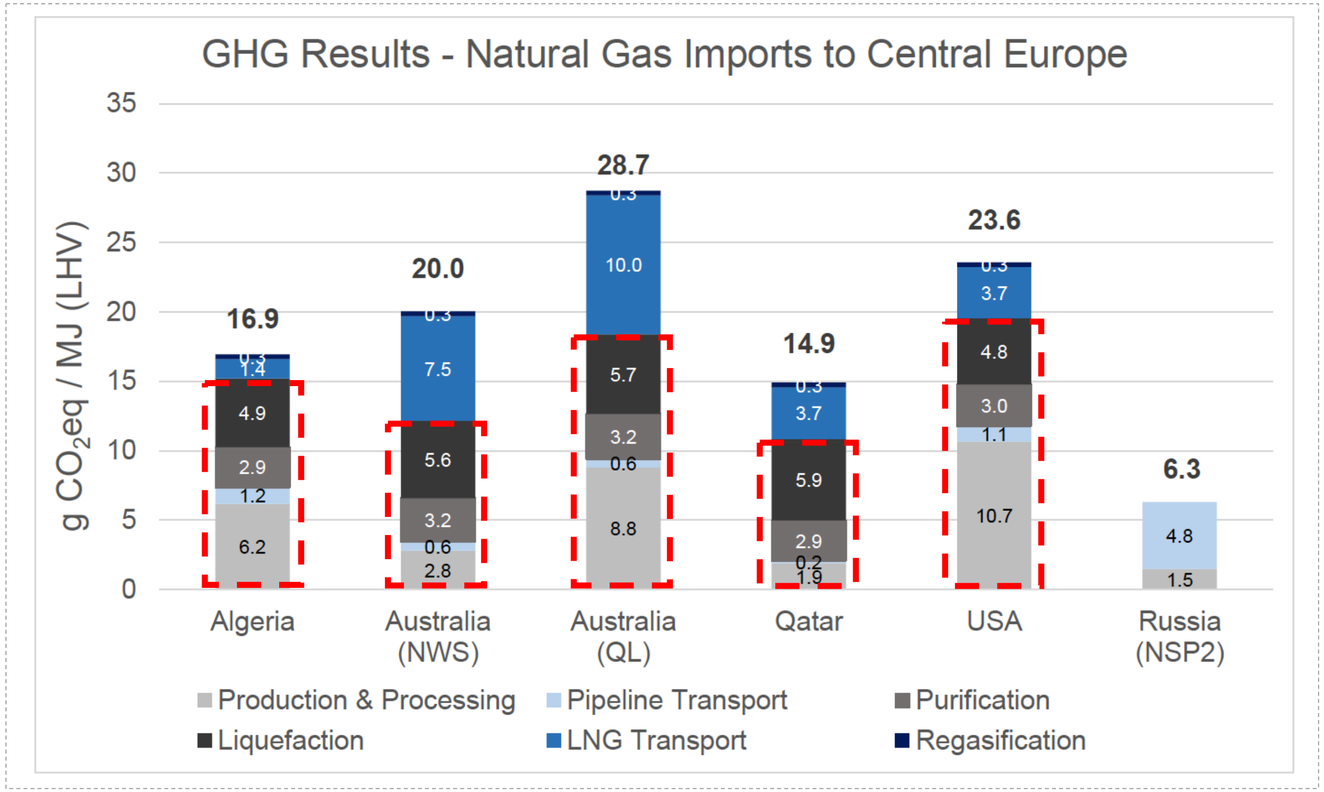
Scope 3 emissions to be included in the inventory.

Upstream emissions for LNG associated with extraction, liquefaction and transport be calculated for multiple LNG source countries under the precautionary principle.

The decarbonisation benefits are potentially overstated.

The original modelling done by Mr Sichlau and the subsequent analysis using Reservoir CO_2 levels does not sufficiently address all upstream emissions.

Upstream emissions from various LNG sources



Qatargas = 8.2646 g CO2-e/MJ for extraction and liquefaction (from 2018 Sustainability Report)

Source: thinkstep: GHG Intensity of Natural Gas Transport, March 2017
Comparison of Additional Natural Gas Imports to Europe by Nord Stream 2 Pipeline and LNG Import Alternatives
Peer reviewed by DEKRA

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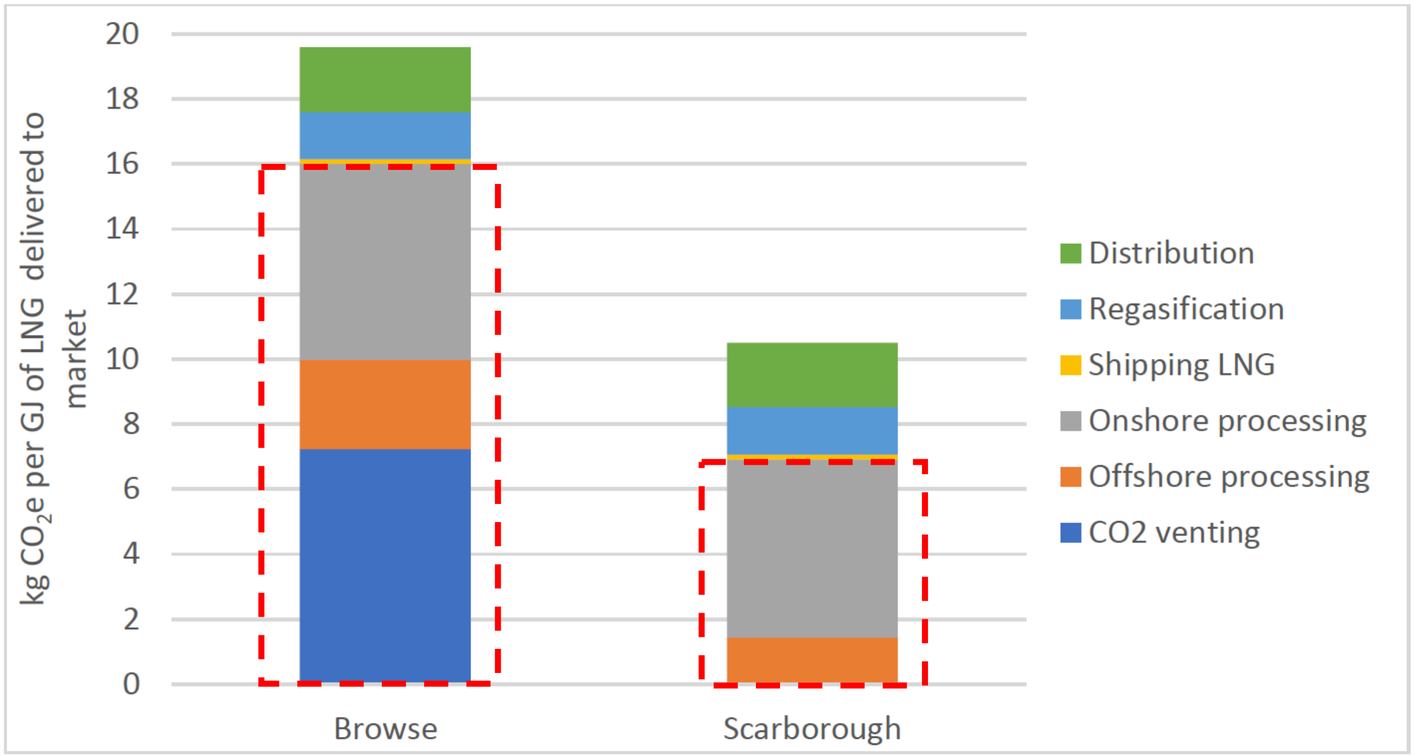
Upstream emissions from various LNG sources



Source: ERM (for Woodside Energy Limited), April 2020
Comparative Life Cycle Assessment: Browse and Scarborough
Peer reviewed by CSIRO

Qatargas = 8.2646 kg CO2-e/GJ for extraction and liquefaction.

Browse and Scarborough are gas fields in Western Australia

What is best practice?

Voluntary actions establishing a path to best practice

Carbon neutral LNG shipments

Emissions for production, liquefaction, shipping, regasification, and end-use are offset

- Shell to Tokyo Gas and South Korea’s GS Energy in 2019
- Shell to Taiwan's CPC and China's CNOOC in 2020
- Total to China’s CNOOC in 2020

LNG supply with upstream emissions offsets

Pavilion Energy - In their latest tender for 2023-2028 supply Singapore’s largest LNG importer is requiring suppliers to quantify greenhouse gas emissions associated with each LNG cargo produced, transported and imported into Singapore. It’s also asking bidders to offer carbon offsets as part of sales deals.

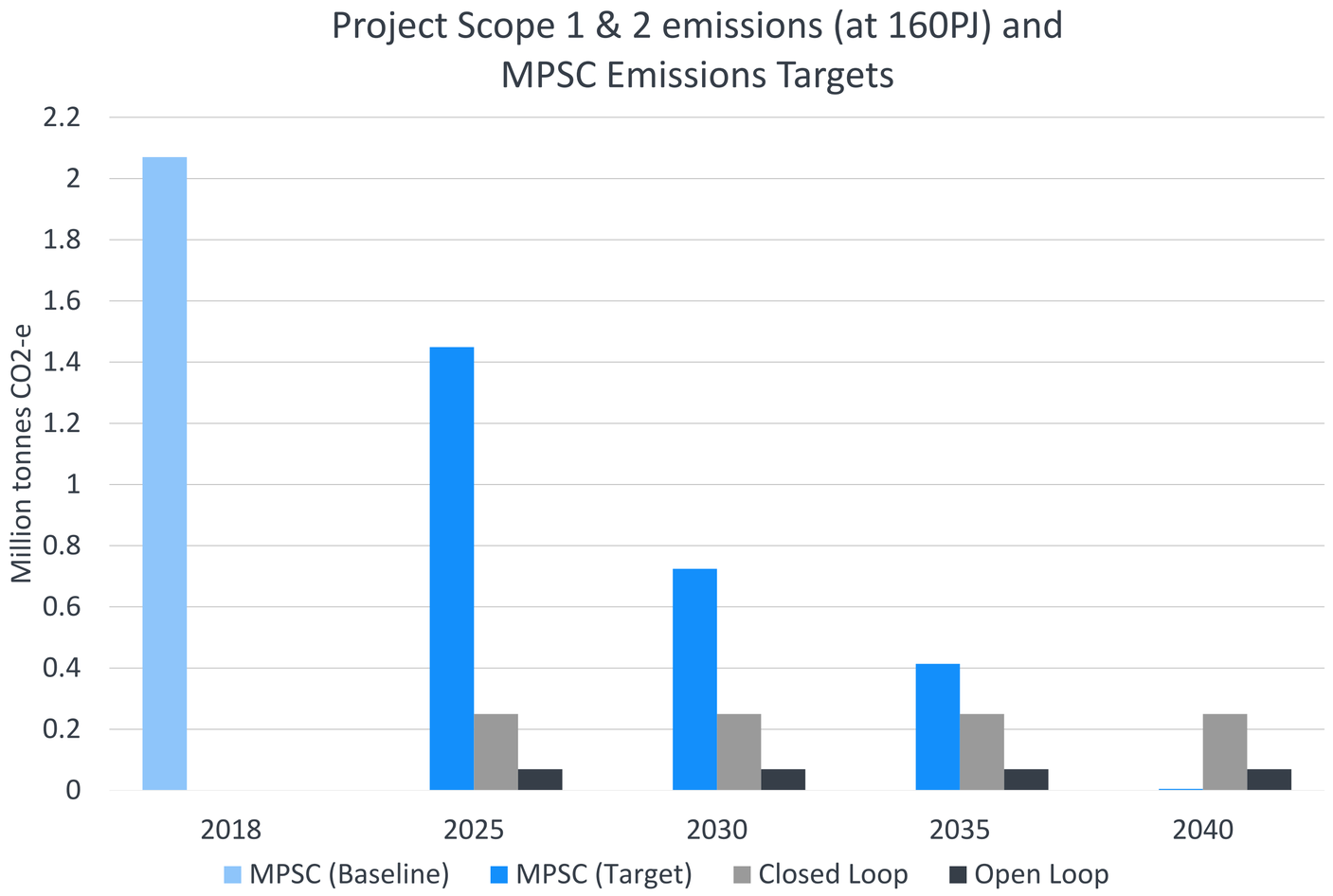
EES Greenhouse Gas Inventory Review

Calculations covering construction and operational emissions utilise a reasonable estimation methodology that follows industry standards.

The base assumptions used in the calculations pertaining to equipment selection cannot be fully verified.

The use of offsets has not been adequately addressed.

Mornington Peninsula Shire Council (MPSC) has a community reduction target of net zero emissions by 2040. This project will have a significant impact on the ability to meet this target over time without the use of offsets.



Safeguard mechanism

For facilities with scope 1 emissions over 100,000 tCO_2-e per year.

Closed loop scope 1 emissions for the AGL import terminal for 160PJ of gas delivery are 238,070 tCO_2-e per year.

It will take a minimum of 5 months of closed loop operations to trigger the safeguard mechanism.

If triggered the facility will need a baseline based on ‘best practice’ (benchmark baseline).

The options for AGL should this annual baseline be exceeded include:

- Apply for a baseline variation
- Multi-year monitoring to allow overs/unders between years
- As a last resort, surrender Australian Carbon Credit Units (ACCUs)

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Australia 1300 854 561
Singapore +65 9855 1784

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