

# Comparative Life Cycle Assessment: Browse and Scarborough

April 2020

## ERM was commissioned by Woodside Energy Ltd to undertake a comparative Life Cycle Assessment (LCA) for Woodside's proposed Browse and Scarborough projects.

This analysis demonstrates how Browse and Scarborough-sourced gas would compare in environmental impacts, either on a grid-average basis, directly against coal-fired generation, or against a portfolio of fossil fuel power sources until 2040.

### Key Findings

Exporting Liquefied Natural Gas (LNG) from the proposed Woodside operated Browse and Scarborough projects to markets in Asia could:

  
reduce global CO<sub>2</sub> emissions by over  
**650** million tonnes by **2040**

  
improve air quality in  
customer markets

  
reduce global emissions by  
4 tonnes of GHG for every  
tonne emitted in Australia

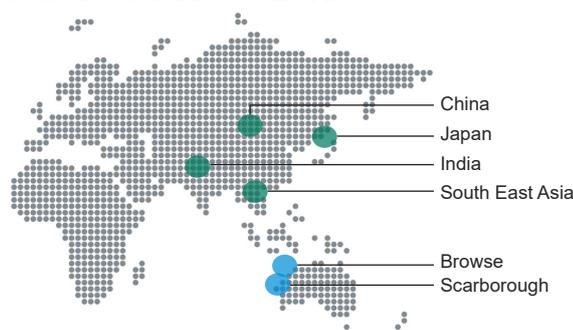
### Methodology

The LCA compares the environmental impact of electricity generated from LNG originating from Browse and Scarborough in four markets in Asia (China, Japan, South East Asia and India), with the environmental impact of specific electricity grid mixes in the same markets.

The study tests the role of Browse and Scarborough gas under a range of:

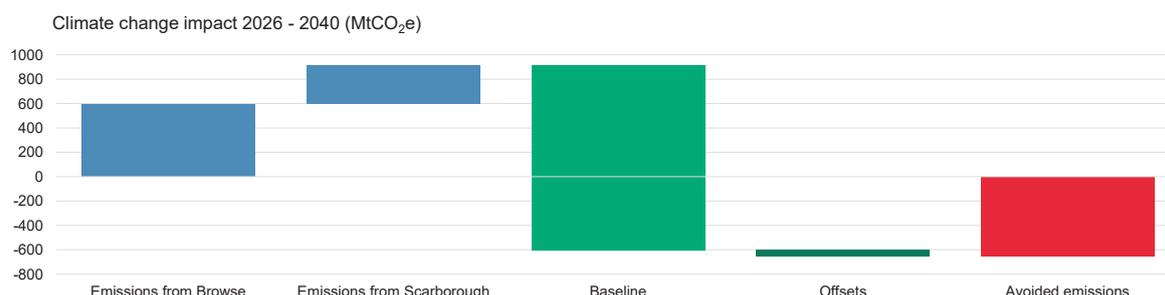
- market conditions
- policy
- technology
- climate outcomes

over the years 2026 to 2040.



The report was produced by ERM in association with Life Cycles, and critically reviewed against the international standard ISO 14044:2006 by CSIRO.

### Outcomes



If Browse and Scarborough gas is used to generate electricity in the target markets, it could release approximately 913 Mt CO<sub>2</sub>e over the 2026 to 2040 period, compared to 1514 Mt CO<sub>2</sub>e (Baseline Emissions) if the projected fossil fuel portfolio is used. This would result in avoided global emissions of 651 Mt of CO<sub>2</sub>e, accounting for the use of CO<sub>2</sub>e offsets for Browse and Scarborough.

The results from the LCA also identify that LNG-based electricity supply into Asia will improve local air quality outcomes in all scenarios, reducing the impact of particulate matter equivalents (PM<sub>2.5</sub>e), photochemical ozone equivalents (NMVOCe) and acidification (H<sup>+</sup>e).

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