Greenhouse gas emissions

PNG LNG

The benefits of natural gas

Natural gas projects such as PNG LNG are vital in helping the world move to a substantially less carbon-intensive future.

- Gas-fired electricity generation produces less than half the greenhouse gas emissions of coal-fired generation, and uses a minute fraction of the water that coal-fired electricity requires.
- Every million tonne of LNG that replaces coal-fired power generation is equal to taking more than 500,000 cars off the road.
- For every tonne of carbon dioxide emitted in LNG production, 4 tonnes of emissions from the coal alternative could be avoided in Japan. Between 5.5 and 9.5 tonnes can be avoided in China. (Source: APPEA Submission to the Carbon Pollution Reduction Scheme Green Paper.)
- The tangible environmental benefits that PNG LNG can deliver become clear when considering the project will produce approximately 6.6 million tonnes of LNG each year.

PNG context

PNG contributes only a small proportion of worldwide carbon dioxide emissions: less than 0.02%.

- PNG ratified the UN Framework on Climate Change in 1993 and the Kyoto Protocol in 2002. In March 2008, PNG entered into a cooperative agreement with Australia to reduce greenhouse gas emissions from deforestation. Nearly two thirds of PNG is forested.
- PNG's forests are targeted for carbon emission reduction schemes under the reduced emissions from deforestation and degradation. This mechanism is aimed at offsetting carbon emissions by protecting forest that otherwise would be logged.

Project greenhouse gas emissions

While the use of natural gas as an energy source has significant greenhouse benefits over coal, the production and transportation of LNG does produce some greenhouse gas emissions.

- The project will use technology that significantly reduces greenhouse gas emissions. This technology, called aero-derivative, is much more efficient than the widely-used frame-turbine technology, resulting in a 15% reduction in emissions compared to other LNG operations.
- The key sources of greenhouse gas emissions associated with the upstream project facilities and the LNG facility are the natural gas used in turbines for power generation and compression, and the venting of gas as a safety measure.
- Greenhouse gas emissions are also produced during the shipping of LNG via diesel or marine bunker fuel and heavy fuel used by ships and tugboats.
- The greenhouse impact of land clearing for the onshore facilities and pipeline have not yet been identified because methods for measuring emissions from decomposing vegetative matter in PNG have not yet been developed.

Emissions from project construction and operations

During construction of both upstream and LNG facilities, it is estimated that total emissions for the construction period will be 0.548 million tonnes of carbon dioxide equivalent (Mt of CO2-e).

- During the 30-year operational period, emissions from upstream facilities are expected to total 0.754 Mg CO2-e.
- For the LNG facilities the total is anticipated to be 58.54 Mt CO2-e.

Total project greenhouse gas emissions

Annual greenhouse gas emissions	3.136 Mt CO2-e
Total greenhouse gas emissions over the project life	77.414 Mt CO2-e
LNG plant	75% of total emissions
Hides gas conditioning plant	20% of total emissions
Balance of activities (shipping/Juha production facility)	5% of total emissions

Further information

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