Air Quality

Woodfibre LNG Limited is committed to building a Project that is right for Squamish. The Woodfibre LNG Project will be powered by electricity from BC Hydro. By powering the plant with electricity, the Project will generate approximately 80% fewer greenhouse gas emissions than if it was powered by natural gas. This will make Woodfibre LNG one of the cleanest LNG facilities in the world.

Below is a table identifying and comparing estimated emissions in tonnes per year from an LNG plant powered by electric drive vs. a plant powered by gas turbines. The majority of the Woodfibre LNG air emissions will come from elements removed from natural gas prior to liquefaction, which elements are subsequently incinerated.

	Electric Drive	Gas Turbine
Greenhouse Gases	80,000	450,000
Nitrogen oxides (NOx)	20	310
Sulphur oxides (SOx)	17	17

At peak capacity, the Project will have a greenhouse gas intensity of 0.059 t CO2e per tonne LNG, which is well below the threshold of 0.16 t CO2e per tonne LNG in the *Greenhouse Gas Industrial Reporting and Control Act*.

The Application includes an assessment of the potential Project-related effects to air quality in **Section 5.2 Atmospheric Environment (Air Quality)**. Data from air monitoring stations in Langdale, Squamish and Horseshoe Bay, all in the Sea-to-Sky airshed, were used to identify existing air quality conditions.

There are several types of compounds that are generally accepted as indicators of changing air quality. The ones that are expected to be emitted from the Project, and for which air quality criteria exist, include:

- combustion gases, including nitrogen oxides (NOx) expressed as NO_2, sulphur dioxide (SO_2), and carbon monoxide (CO)
- particulate matter, including: total suspended particulate; particles that are smaller than 10 microns (0.01 mm) in diameter (referred to PM_{10}, or inhalable particulate matter); and particles that are smaller than 2.5 microns (0.0025 mm) in diameter (referred to as $PM_{2.5}$, or respirable particulate matter)

These compounds were assessed against the regulatory requirements (both BC and federal ambient air quality objectives), as well as against relevant air quality indicators and targets specified in the Sea-to-Sky Air Quality Management Plan. The assessment concluded that the changes to air quality as a result of the Project are below ambient air quality criteria for all the indicator compounds listed above. Therefore, the residual effects are considered negligible or not significant.

The Project has the potential to emit other compounds for which there are no regulatory criteria. These compounds are important for the assessment of predicted Project-related effects on human health. For this reason, in addition to the selected indicator compounds listed above, the assessment included five groups of other compounds:

- volatile organic compounds
- polycyclic aromatic hydrocarbons
- hydrogen sulphide (H_2S)
- hazardous air pollutants
- metal compounds

These five non-indicator compound groups were included in the modeling that was done as part of the assessment. The effects of changes in air quality due to these non-indicator compounds were assessed as indirect effects in the pathways for the human health risk assessment that was part of the overall assessment.

Section 9.2.2 (Human Health Risk Assessment) includes an assessment of the potential effects on humans by Project-related emissions. The purpose of the human health risk assessment is to quantify the potential health risks to people from current conditions before the Project (known as the *baseline case*) as well as from the predicted conditions once the Project is in operation (known as the *application case*) using modelling. The conditions of the two cases were compared to determine if any changes in health risk may result from the Project. The assessment concluded that there were no Project-related significant adverse effects to human health.

MITIGATION MEASURES

To further ensure that any Project-related effects to air quality are minimized, Woodfibre LNG Limited will initiate a number of mitigation measures:

- Limiting the use of generators, which release exhaust gases, to emergency power needs during Project operation.
- Reducing emissions from mobile equipment through regular maintenance and by reducing vehicle idling time.
- Providing electrical power to the docking facilities at the Project site to encourage, where feasible, LNG carriers to use electricity instead of their auxiliary engines while docked.
- Implementing a Dust Control Plan for construction, operation, and decommissioning activities. The site will be monitored by an environmental monitor to make sure that this plan is properly implemented and effective. Measures to reduce the emission of dust may include:
    - watering of exposed surfaces
    - reducing the height of material drops
    - covering stockpiles
    - controlling the speed of off-road vehicles operating on the site