

Nexwlelexwem / Bowen Island, March 31, 2023

Ms. Christine Kennedy
President
Woodfibre LNG Limited
PO Box 17533 The Ritz PO
Vancouver B.C. V6E 0B2

Re: Woodfibre LNG's Roadmap to Net Zero

Dear Ms. Kennedy:

I am contacting you on behalf of Concerned Citizens Bowen about Woodfibre LNG's Roadmap to Net Zero which was made public last week.

As you know, Concerned Citizens Bowen has been diligently reviewing the plans that Woodfibre LNG has produced over the years. We were about to contact you about the promised assessment of greenhouse gas emissions, so your report could not be better timed. Thank you.

We have reviewed the Plan, and we have a number of remarks and questions, I hope you can provide us with answers.

1) Context and scope of the Plan

In a presentation before the District of Squamish Mayor and Council, on March 22, 2022, you suggested that *"...projects like this will off-set some of the 60 to 80 coal fired power plants currently planned in China."*

Such claims were also made by Woodfibre LNG spokespersons on other occasions.

The direct consequence and expectation is that the evidence of such claims is presented in a life-cycle analysis comparing both fuels when used in such way.

At a presentation on May 24, 2022, before Bowen Island Mayor and Council, company spokesperson Julia Diamond responded to a question from Councillor David Hocking if the company had done life-cycle emissions analyses of its LNG against that of coal used in Asia. The response from Diamond was:

"We are doing that scenario analyses right now in terms...um...of the tonnage of carbon emissions that are not just produced by the facility itself but all of the upstream production and downstream transport. So we anticipate being able to make that plan public once we do the analyses."¹

However when we read Woodfibre LNG's Plan, the company defines the Scope 1, 2, and 3 in its Plan on page 10, as follows:

- Scope 1 is direct GHG emissions that occur from sources that are owned or controlled by Woodfibre LNG.
- Scope 2 is indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling for the Woodfibre LNG facility.
- Scope 3 is other indirect GHG emissions that are not directly associated with the Woodfibre LNG facility (upstream sources such a gas production and downstream sources such as those related to transporting, shipping and end-use).

The general definition of Life cycle analysis or LCA is:

-A methodology for assessing environmental impacts associated with all the stages of the life cycle of a commercial product, process, or service².

And the goal of LCA is to³:

- Quantify or otherwise characterize all the inputs and outputs over a product's life cycle,
- Specify the potential environmental impacts of these material flows,
- Consider alternative approaches that change those impacts for the better

The suggestions by Woodfibre LNG in its definition of its Scope 2 and 3, that the greenhouse gas emissions included would be "indirect" are therefore faulty. The greenhouse gas emissions in scope 2 and 3 are a DIRECT result from the construction of Woodfibre LNG and its production of LNG, if those were to happen.

Obviously, since the Eagle Mountain Woodfibre gas pipeline and compressor stations, are a DIRECT result of the request by Woodfibre LNG to Fortis BC to supply WFLNG with methane gas⁴, all GHG emissions associated with the construction and use of this pipeline must be included in this life-cycle analyses as well.

As mentioned, Woodfibre LNG's Plan addresses Scope 1 and 2: the green house gas emissions from the proposed facility itself, and GHG emissions associated with the purchase

¹<https://www.youtube.com/watch?v=2Hdk6ZCv0xE> From 24:03 to 25:55 min

²https://en.wikipedia.org/wiki/Life-cycle_assessment

³<https://sftool.gov/plan/400/life-cycle-assessment>

⁴<https://talkingenergy.ca/project/eagle-mountain-woodfibre-gas-pipeline-project>

of electricity, steam, heat, or cooling for the Woodfibre LNG facility. Scope 3 and the comparison with coal is however not included.

In other words, we are not anywhere closer in understanding whether or not LNG from WFLNG would emit more or less GHGs over its life-cycle than coal when used in power plants in China or Asia.

Questions:

- When can we expect Scope 3 analyses to be made public?
- When will the life cycle analysis comparing WFLNG LNG against coal when used in Asian power plants be available?

2) Regarding previous and current emissions estimates of the project

2.1) On page 24 of the Plan, under “Previous Studies”, it is suggested that the study done by Golder Associates in 2015 as part of Woodfibre LNG’s Environmental Assessment Application “...used conservative assumptions to calculate emissions and consequently, the emissions were over estimated.”

That is curious, since the 2020 report⁵ by Mantle 314 prepared for Woodfibre LNG stated that: “*The estimated annual emissions for the Woodfibre LNG facility are 129 ktCO₂e/year.*” and “...the analysis was prepared by Golder Associates and is in line with the GHG protocol.”

Note: The GHG protocol = The Greenhouse Gas protocol. A corporate Accounting and Reporting Standard promoted by the World Resources Institute and World Business Council for Sustainable Development⁶.

Also note that this earlier Golder Associates emissions estimate of 129,400 Tonnes of CO₂e/year was for the plant using a sea water cooling system.

As you know, the reasons why WFLNG opted earlier for a sea water cooling can be found in the *Woodfibre LNG Response to EAO Supplemental Information Request: Assessment of Alternative Cooling Methods*, April 2015. In Chapter 4.0 *Identification of preferred cooling method*, it says:

“Based on a high level comparison of the relative environmental effects associated with the technically and economically feasible cooling alternatives, as described in Table 3-2, the seawater cooling system was identified as the preferred cooling method for the Woodfibre LNG facility. Seawater cooling systems provide greater stability of production and require less energy to operate than air cooling systems due to the narrow and predictable range of seawater temperatures, particularly when withdrawn at depth.”

⁵Mantle 314: 2020. Woodfibre LNG Facility GHG emissions comparison. Page 1.

⁶<https://ghgprotocol.org/>

And particularly in the summer, as same document on page 2 says:

“...the Project will be designed for and is anticipated to operate at maximum production in the summer when winter gas pipeline constraints have eased and more gas is available for liquefaction. As a result, the design air temperature is a primary operational concern and the facility must be able to meet production at peak summer temperatures.”

The sea water cooling system was rejected by the Squamish Nation Chiefs and Council in 2016, due to concerns over herring spawn in the area around Woodfibre.

The direct consequence of the adoption of air-cooling , according to Woodfibre LNG’s own assessment of alternative cooling methods, can only result in requiring the use of more energy to operate the plant. But, curiously, it is now suggested in the Plan that the facility is expected to use less energy, and therefore emit less green house gasses, although it uses a cooling method that according to the company would use more energy, since it is less efficient and highly dependent for its effectiveness on the outside air temperature.

The suggested numbers are even harder to accept when we take the increasing summer **air temperatures** in the area into account, signified by the 2021 heat dome, and the 2022 heat waves and prolonged warm summer conditions going all the way into October. These air temperatures are expected to go up. Every month we learn that previous month was the warmest on record⁷.

With these rising summer air temperatures, the cooling requirements of the plant will continue to increase, and it is therefore incorrect to present annual Tonnage CO₂e emissions and Carbon Intensity as a given for the next 25 to 40 years.

Obviously, if Woodfibre LNG would go into production and producing greenhouse gas emissions through its product’s life cycle, it will directly contribute to making it even harder to cool its operation, locking itself into a sequence of reciprocal cause and effect in which the two elements intensify and aggravate each other, leading inexorably to a worsening of the situation (= the definition of a vicious circle.)

Our questions:

- Can we have a response from Golder Associates on the suggestion that their 2015 estimate was too high?
- What base line was used to calculate summer conditions?
- What average daily summer temperature was used?
- What summer air temperature trend information was used?
- Would the facility be shut down if the outside temperatures become too high?
- What energy requirement increases can be expected over the next decades?
- Can you make the “internal” and Brightspot Climate Inc. Calculations public for verification purposes?

⁷<https://climate.nasa.gov/vital-signs/global-temperature/>

2.2) The best use of hydro electricity

The plan's reports chapter: 4.1.6 Air Cooling section, suggest :*"...that the Scope 2 emissions (BC Hydro) will be reduced by 3,280 tCO₂e per year"*.

Please note that that electricity when used to electrify B.C.'s energy grid has the potential to reduce greenhouse gas emissions by a far larger amount than Woodfibre LNG would do cooling down methane gas to export it to a far away country, with it introducing green house gas and fugitive emissions due transportation, re-gasify and end-use burning.

As a society, our only interest is now how we can best use hydro generated electricity where it has most effect to reduce green house gas emissions by replacing fossil fuels so we can meet our GHG emission reduction goals.

Question: -Can you provide a life cycle analysis comparing the use of Hydro generated electricity when used by Woodfibre LNG to when used to reduce greenhouse gas emissions directly in B.C. and Canada?

3) The plan's suggested green house gas emissions mitigation measures

Please note that the greenhouse gas emissions of the production of construction materials and the manufacturing of the plant itself are absent from Table 3: Woodfibre LNG facility estimated emissions during construction. They must be included or should be recognized as upstream emissions and to be included in Scope 3.

3.1) Capturing CO₂ at the source is a proven technology, but must be seen in relationship to what we are dealing with: the processing of a fossil fuel, that will ultimately be burned, and that green house gasses will be released during all stages upstream and downstream.

3.2) "Offsetting" green house gas emissions through terrestrial biomass sinking. Woodfibre LNG suggests that by acquiring carbon credits it will "off-set" green house gas emissions during phase 1 and 2 through so called terrestrial biomass sinking.

The IPCC report *AR6 Synthesis Report - Climate Change 2023*, made public on March 20, 2023, makes it clear that we must drastically bring down green house gas emissions globally fast. The message in essence: *"Act now or be too late."* This means that we cannot continue to add fossil fuel facilities that will only add GHG emissions.

The International Energy Agency stated in 2021 that *"if the world is to stay within safe limits of global heating and meet the goal of net zero emissions by 2050.⁸"*, we cannot add new fossil fuel infrastructure.

⁸<https://www.theguardian.com/environment/2021/may/18/no-new-investment-in-fossil-fuels-demands-top-energy-economist>

So called offsetting of greenhouse gas emissions, is increasingly seen as a way to enable the continuation of existing industry practices, instead of addressing the core issue: the growing output of greenhouse gasses and the urgent need for rapid reduction. In the case of Woodfibre LNG, used as an excuse to add new fossil fuel infrastructure.

Secondly, as direct CO2 capturing has a high degree of certainty, terrestrial biomass sinking is at a mid range level in verification confidence. There is growing uncertainty about effectiveness, because it is indirect, and because of increasing uncertainty about the ability of forests to absorb GHG emissions due to the effects of climate change.

Note that since the early 2000s decade, B.C. forests have become an emitter of greenhouse gasses⁹.

Of course in theory, under certain circumstances through a large enough forest of certain maturity and size, over a certain time period, Woodfibre LNG's Scope 1 CO2 could be absorbed. But that is under optimal circumstances, and those are increasingly negatively effected or even wiped out by the effects of climate change, making it for forests increasingly difficult if not impossible to absorb that CO2¹⁰.

The ability of the forests mentioned in the Plan to be successful in absorbing Woodfibre LNG's GHG, is, because of the above reasons, highly questionable.

Question:

-Since you have claimed, WFLNG to be able to offset GHGs in Asia, why doesn't the Plan consider that other members of the Royal Golden Eagle Group, to which Woodfibre LNG is also a member, are responsible for indirect deforestation elsewhere?

a) Although, paper giant APRIL, member company of the Royal Golden Eagle Group, launched its Sustainable Forest Management Policy, reports of policy breaches and social conflicts - land disputes over free prior and informed consent over converting old growth forests to tree plantations - continue¹¹. It was reported in 2020, that APRIL obtained wood from forest clearance on peat-lands in Indonesia through a supplier, even despite its zero deforestation vow.

b) Although Royal Golden Eagle has vowed to end deforestation, its palm oil trading and processing arm, called APICAL, was caught in 2020 buying palm oil from a mill supplied by a producer that is actively destroying forests in the Leuser Ecosystem (Indonesia)¹².

It makes the whole effort of carbon offsetting a rather silly exercise, an PR stunt, an attempt at green washing.

⁹ Saxifrage, B. 2022. How B.C.'s forests became a carbon-spewing liability. National Observer.

¹⁰Black, T. Andrew et al. 2008. Carbon Sequestration in British Columbia's Forests and Management Options, University of Victoria.

https://pics.uvic.ca/sites/default/files/uploads/publications/WP_Forestry_November2008.pdf

¹¹ Koalisi Untuk Masyarakat. 2019. Revealing Asia Pacific Resources International Limited's trail of disputes across Indonesia. <https://environmentalpaper.org/wp-content/uploads/2019/09/APRIL-social-conflicts-mapping.pdf>

The effects of climate change continue to increase, undermining all current calculations of cooling, net-zero by 2050, and carbon offsetting. It's a reality we must accept. Only drastic reductions in GHG emissions will be effective to keep climate change from spinning out of control, making living conditions on earth impossible for current life.

If you, as the president of Woodfibre LNG, really want to help in the fight against climate change by bringing down greenhouse gas emissions, there is only one option:

Do not build the Woodfibre LNG facility, as the only thing this facility will do, is to add more emissions to the atmosphere and increase the effects of climate change.

Awaiting your early reply, I remain.

Kind regards

J.H. Anton van Walraven

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Concerned Citizens Bowen is a Nexwlelexwem/Bowen Island based organization that has been active since 2015 to protect the natural recovery of Atl'ka7tsem (Howe Sound).

CC:

- Nexwsxwniw'ntm ta Uxwumixw, Chiefs and Council Squamish Nation
- Steven Guilbeault - CND Minister of Environment and Climate Change of Canada
- The Honourable George Heyman, Minister of Environment of British Columbia
- Patrick Weiler, MP West Vancouver - Sunshine Coast - Sea to Sky Country
- Jordan Sturdy, MLA West Vancouver - Sea to Sky
- Mayor and Council, District of Squamish
- Mayor and Council, District of West Vancouver
- Mayor and Council, Bowen Island
- Mayor and Council, Village of Lions Bay
- Ruth Simons, President and ED, Atl'Ka7tsem / Howe Sound Biosphere Region
- Tracey Saxby, My Sea to Sky