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My comments on the Kalama Manufacturing and Marine Export Facility Second Supplemental EIS are included in the attached file "Kalama Methanol Comments.pdf".

I am commenting on the Kalama Manufacturing and Marine Export Facility Second Supplemental EIS. My name is Susan Hildreth. I can be reached at hildreth@seanet.com.

Extracting natural gas, facility operations, and downstream shipping and product uses all contribute to greenhouse gas (GHG) emissions associated with the proposed Kalama methanol facility.

The SSEIS shows clearly that the facility would generate around 4.6 million tons of carbon dioxide pollution each year, equivalent to around 5 percent of the state's total climate emissions, and that it is possible the facility's all-in carbon pollution could be more than double that.

The SSEIS then gives equal weight to falsely deterministic economic modeling that is fraught with speculative assumptions in an attempt to forecast a very bleak future 40 years of human development. The final SSEIS should apply weighting factors that are commensurate with the admitted speculative nature and that eliminate the anti-scientific bias that results in the claim that the project reduces GHG emissions. On this basis the project should be denied a Shoreline permit.

The Final SSEIS Should Correct the Assessment of the Impacts from Upstream Emissions

The draft SSEIS claims a full accounting of emissions from the extraction and transmission of the natural gas used in the project, but the estimate is at least 50% low based on the methods used.

By using bottom-up methodology, the SSEIS fails to provide a scientifically serious accounting of methane. The Final SSEIS should capture methane leakage using satellite-based "top-down" methodology <https://www.pnas.org/content/115/46/11712>.

Furthermore, the SSEIS uses a global warming potential for methane about 30 percent lower than the figure recommended by the IPCC's most recent report <https://www.ipcc.ch/assessment-report/ar5/>. The final SSEIS should consider all factors influencing methane emissions—including temporal variation—by using the IPCC's recommended method to provide a scientific basis for this important policy decision.

In addition, while including speculative future economic scenarios favorable to the project, the draft SSEIS neglects economic scenarios related to transmission, including the limited capacity of existing pipelines from Canadian fracking fields to Kalama. The existing pipelines that transport gas south from Sumas, Whatcom County, lack the capacity to supply the plant. This project, if permitted and constructed would incentivize pipeline companies to build an additional pipeline along the length of Washington's Interstate 5 corridor. The final SSEIS should include GHG emissions associated with this pipeline construction and operation.

This pipeline expansion would likely set the stage for a proliferation of even more gas-based projects in the Northwest, everything from LNG to gas-fired power production to fertilizer manufacturing. If the final SSEIS is to include speculative future market scenarios, this scenario should be added.

Furthermore, the final SSEIS should compare the Kalama investments and investments incentivized by the project to comparable investments in wind and solar energy production, and electric transmission grid improvements which move us to a zero-emissions economy. See <http://web.stanford.edu/group/efmh/jacobson/Articles/I/USStatesWWS.pdf>.

If market analyses 40 years in to the future favorable to the project are to be used, the final SSEIS should add these market considerations as well.

The Final SSEIS should Correct a Faulty Assessment of Emissions Produced at the Facility

The draft SSEIS uses a global warming potential for methane about 30 percent lower than the figure recommended by the IPCC's most recent report and the final SSEIS should correct this error by using the IPCC recommendation.

The project would increase greenhouse gas emissions within Washington state by almost one million metric tons of carbon dioxide equivalent a year. The Kalama facility would be one of the 10 largest sources of greenhouse gas emissions in the state.

Mitigation through carbon offsets do not account for the fact that methane traps sunlight most intensely over a period of 20 years and is many times more powerful as a greenhouse gas than carbon dioxide. This gas will accelerate climate change through 2040, exactly the time when we need to be most rapidly reducing emissions to avert the worst effects of climate change. Emissions should be eliminated wherever they can be short term. The bureaucratic morass that would accompany binding and effective carbon offsets is so immense that it should not be a consideration in whether to approve the Shoreline permit. NW Innovation Works' statement that it will voluntarily offset in-state emissions should be eliminated from the Final SSEIS and the Ecology website. The state made these offsets mandatory as part of an early permit. Existing emission sources should be mitigated instead of expanding the fossil fuel infrastructure into the future.

The State's total GHG emissions in 2017 were 97.5 MMT, which is 7.0 MMT higher than the State's 2020 target. The State's GHG emissions increased from 2012 to 2015 due to increased emissions from the electricity sector and the growth of Washington's carbon-fueled economy (Ecology 2018). Comparable investments in wind and solar energy should be made or incentivized by the State instead, if necessary to meet State GHG emissions targets.

The final SSEIS needs to consider the failure to comply with the State's 2020 and the Shoreline permit should be denied. The fiction of needing to use natural gas as a "transition" fuel is long outdated and apparently is leading to the abandonment of State emissions goals. See <http://web.stanford.edu/group/efmh/jacobson/Articles/I/USStatesWWS.pdf>

The Final SSEIS Needs to Eliminate or Correct a Faulty Assessment of GHG Emissions Dependent on How the Product will be Used.

Section 3.0 of the draft SSEIS is flawed for the following reasons:

1. It selectively accepts future uncertainties favorable to the project over uncertainties unfavorable to the project.
2. It concludes that China will burn only 40% of the methanol against considerable evidence to the contrary.
3. It compares approval and construction of the project to a future "business as usual" scenario that is arbitrary and unscientific, and weighs it favorably to the project as if it is fact.

4. It credits the project for reducing GHG emissions relative to this arbitrary and unscientific future “business as usual” scenario, when in fact the project increases GHG emissions and the imperative is to reduce GHG emissions.
5. The aggregate result of these flaws is that the draft SSEIS confidently asserts that the project would displace future coal-based production and does not explain how it might displace clean energy.

Selective Acceptance of Some Uncertainties Over Others Needs to be Corrected in the Final SSEIS

Complicating factors in forecasts, price volatility, and sources of uncertainty are described in Section 3.5.2.3 (p.68) of the draft SSEIS. Yet Section 3.4.5 states that “Scenarios with substantially different global policies (fossil fuel/plastics phase outs or bans for example) are too uncertain to include in this analysis.” (p.49).

The final SSEIS should include definition of and comparison with a renewable energy future scenario that realizes WA State emissions targets. Instead, the draft SSEIS accounts for changes in future emissions due to substitution that displaces methanol produced from coal and oil, which will be based on the whims of political entities is not **science** and this is itself a cynical political choice. The final SSEIS should elevate the uncertainties that hold out a positive outcome for the health of humanity and the planet, instead of ruling them out.

The future uncertainties that are accepted and applied in Section 3.0 of the draft SSEIS are consistent with climate catastrophe, and the effects of this on “markets” are ignored.

Expanding the fossil fuel infrastructure in order to bail out the natural gas industry scenario for 40 years is a climate disaster scenario that is not even worth contemplating. You don’t need all the modeling to know that relying on natural gas is better than relying on coal or oil. But that does not mean that a transition through a natural gas infrastructure expansion is a climate solution.

A climate solution should be reflected in the final SSEIS. A transition to wind, water and solar (primarily, see <http://web.stanford.edu/group/efmh/jacobson/Articles/I/USStatesWWS.pdf>) is a climate solution, and investments in natural gas infrastructure delay this outcome. The final SSEIS should include the scenario where demand for wind, water driven and solar electricity increases, because fossil fuel infrastructure is not expanded via the construction of the facility at Kalama, and those like it.

The Final SSEIS needs to compare these life affirming scenarios to the scenario where the Kalama project, and the many other fossil fuel infrastructure expansion projects that will be encouraged by its approval, go forward.

The arbitrary choices made in the draft SSEIS, as described above, reflect a deeply cynical and politically cowardly bias that favors project approval.

The Final SSEIS Should Abandon or Supplement the Assertion that China will Burn Only 40%

Section 3.4.6.2 (p 53) states, “Given a distribution of end uses (split with 60 percent for olefins and 40 percent for fuel) set at the outset of the model, these shares of the total 3.6 MMT of methanol are held constant throughout the 40-year project timeline.”

This is entirely out of the control of the Department of Ecology and flies in the face of logic and evidence to the contrary. And it results in a favorable conclusion for proceeding with the project. Ecology should instead heed its own assessment of China's plans, quoted below from Section 3.5.1.2 (p.64):

"China accounts for the largest vehicle fleet and transportation energy consumption in the world. Traditionally, methanol consumption as fuel has been in the form of methanol derivatives such as MTBE and as fuel blends ranging from M5 to M30 methanol-gasoline mixes (gasoline with between 5 percent and 30 percent methanol mixed in)."

"China has made significant research investments towards methanol use as fuel (CAERC). Figure 3.5-3 shows that China's consumption of methanol fuel has increased dramatically over the past two decades, reaching an estimated 500,000 barrels of methanol and methanol derivatives in 2016. More than 80 percent of methanol used for fuel is currently consumed for transportation. Regardless of how methanol fuel is combusted, whether by mobile or stationary sources, emissions are the same."

In the face of declining coal use and a glut of fossil fuels for methanol, it is hard to explain why the Chinese are pursuing this project. The answer lies in the fact that while the Chinese-funded methanol company was touting the benefits of producing cleaner plastics to gain approval of the Kalama facility, it was telling its investors that the methanol would help fill China's insatiable fuel appetite for other uses, such as transportation. Wu Lebin, chairman of the Chinese Academy of Sciences Holding Company, the main backer of the Kalama project, publicly stated that the fuel will be burned as feedstock for fuel and industries, according to Oregon Public Broadcasting and supporting documents linked here https://www.opb.org/news/article/methanol-plant-kalama-fossil-fuel-china/?utm_source=Sightline%20Institute&utm_medium=web-email&utm_campaign=Sightline%20News%20Selections .

The final SSEIS should apply a scenario based on 100% of the methanol from the Kalama facility being combusted.

The Draft SSEIS Applies a "business as usual" scenario that is Arbitrary and Unscientific

The "business as usual" scenario applied in the draft SSEIS is rife with uncertainty which the SSEIS acknowledges (Section 3.5.2.3, p.68), while it does not respond to the climate catastrophe that is certain to be consistent with its assumptions. This results in a positive assessment of the GHG emissions benefits of the project that are only relative to a nightmarish reference point: that states and nations fail to live up to their climate agreements. The collapse of agriculture and many other outcomes of this scenario are matters of established science. These outcomes will affect demand for methanol and warrant revised economic forecasting in the Final SSEIS.

The draft SSEIS assumes unchecked growth of fossil fuels for transportation and cheap plastic. Then, relative to that catastrophic failure, it selectively uses dubious logic to show that the Kalama methanol would make things slightly better.

This is cynical and politically cowardly.

The Draft SSEIS Asserts that the Project has No Effect on Supply and Demand for Methanol

The Final SSEIS needs to address the flawed assertion that the Kalama project will not contribute to global growth in methanol production related emissions and in emissions resulting from combustion of the product.

The facility increases GHG emissions and expands the fracking industry, and requires construction of a pipeline that will facilitate other uses of natural gas. These are facts.

The draft SSEIS includes a speculative analysis that Ecology states is essential to understanding how the project would ultimately reduce emissions relative to a “business as usual” scenario for markets if the Kalama facility is not built.

The statement on the Ecology website that “Worldwide demand for methanol is likely to increase in the decades ahead, leading to higher greenhouse gas emissions with or without the Kalama facility” indicates an implicit political bias that should be removed from the final SSEIS. It is absurd logic that suggests that another 100 new global suppliers don’t matter either, so Washington State might as well become one of them. Everyone else is contributing to climate catastrophe, oblivious to impacts of climate change, Washington State should also contribute.

The speculation offered in the report could just as well speculate on a scenario that includes the expansion of the use of water, wind and solar energy to produce electricity, accompanied by public expansion of electrical grid to distribute that electricity. But, “Scenarios with substantially different global policies (fossil fuel/plastics phase outs or bans for example) are too uncertain to include in this analysis.”3.4.5 p.49 . That statement is flawed in 2 ways—it assumes that bans/phaseouts are the only avenues to a renewable energy economy and it ignores climate catastrophe.

The draft SSEIS fails to consider the scenario where feeding more low-cost methanol into global markets would increase demand—and consumption—of methanol. Despite many pages of economics, the draft SSEIS assumes that changes in supply will have no effect on price, and therefore that methanol consumption is fixed. This assumption is belied by the very fact that China is seeking fracked natural gas products from North America.

In addition, the draft SSEIS does not realistically account for the likelihood that the approval and construction of the Kalama facility would lead to methanol being burned as a fuel. Northwest Innovation Works has said all of the methanol from the Kalama facility will be used in plastics production, but increasing methanol supply makes it more likely that more methanol will be used as fuel, regardless of the source.

In fact, the entire premise of the Kalama project is establishing 40 more years of consumer demand for gas rather than moving away from fossil fuels. Instead the Final SSEIS should count the project’s potential for displacement of clean renewable energy.

Increasing Emissions but Not As Much, When The Fundamental Imperative Is To Reduce Emissions

Expanding the natural gas infrastructure is not moving in the right direction. Global greenhouse gas emissions would increase with the addition of the Kalama facility. The assertion that these emissions might be less than if that demand was met by other sources is in the context of climate catastrophe either way.

The analysis confidently asserts that Kalama's new lost-cost methanol would displace future coal-based production it does not even attempt to explain how it might displace clean energy. It does not, for example, acknowledge that an influx of cheap gas-derived methanol for fuel tanks would delay the much-needed transition to clean electric vehicles.

And, it is doubtful that exporting methanol to China will replace the shrinking use of coal to produce plastics. If anything, it will compete with cleaner processes, including future technologies that may produce methanol from the carbon dioxide in the atmosphere. Methanol from fracked gas only serves to delay new, cleaner technologies.

The final SSEIS must not weigh established and irrefutable science on equal terms with speculation about the course of humanity's political and economic future. Table 3.5-13 (p. 84) needs to be modified in the Final SSEIS to include weighting factors that reflect the uncertainties and speculation, or it needs to be eliminated as irresponsible promotion of climate catastrophe, for the reasons described above.

The SSEIS concludes that Kalama's methanol would prevent coal-based competitors from producing more methanol in the future. This is the source of the alleged greenhouse gas "reductions". But this is not actually reducing emissions in any practical sense or even pushing existing coal projects offline, but rather hypothetically decreasing production from coal-to-methanol facilities at some point in the future. It is a dubious proposition.

With approval of the Kalama facility, Washington becomes a helpless third world country at the mercy of market forces and an extraction industry, being played off against the well-being of the planet. Neoliberal economics is not science, your application of it is a political choice.

The draft SSEIS' claim that the project would reduce net GHG emissions assumes and promotes catastrophic climate failure. It is the State's failure to invest in wind and solar energy alternatives, storage and grid improvements that force this bleak assessment.

Washington State needs to act at every level to limit and eliminate GHG emissions by putting its citizens to work building a renewable electricity infrastructure.