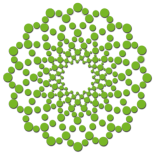




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December 27, 2018

Ann Farr
Port of Kalama
110 W. Marine Drive
Kalama, WA 98625

Sent Via Email to: SEIS@KalamaMfgFacilitySEPA.com

Re: Comments on the Draft Supplemental Environmental Impact Statement for Northwest Innovation Works' Methanol Refinery and Export Terminal.

Mrs. Farr:

The undersigned organizations (collectively “Commenters”) have reviewed the Port of Kalama’s (“Port”) and Cowlitz County’s (“County”) Draft Supplemental Environmental Impact Statement and the accompanying lifecycle greenhouse gas study (collectively “DSEIS”) for the

proposed Kalama methanol refinery and export terminal (the “proposal”) and submit the following comments.

Commenters represent tens of thousands of members and supporters working to protect and restore Washington’s environment and the Columbia River. Commenters’ members and supporters work, live, and recreate in and along the Columbia River and the surrounding landscape near Kalama, the location of Northwest Innovation Works’ (“NWIW”) proposed methanol refinery and export terminal. Commenters and their members are deeply concerned by plans to construct a 100-acre methanol refinery, export terminal, pipeline, and associated facilities in and along the lower Columbia River. The project would undermine local and regional efforts to protect water quality, recover endangered and threatened species, support vibrant fishing communities, protect human health and safety, transition to a low-carbon economy, and combat climate change. NWIW’s proposed methanol refinery is the latest in a disturbing trend of fossil fuel and petrochemical export terminals that would industrialize and pollute the lower Columbia River and increase Washington’s contribution to climate change.

Commenters oppose NWIW’s petrochemical refinery and export proposal because of its impacts on the Columbia River and our climate. Commenters call on Cowlitz County and the Washington Department of Ecology to deny NWIW’s requested permits based on these agencies’ authorities under the Washington Shorelines Management Act,¹ the substantive authority granted by the State Environmental Policy Act,² and the public trust doctrine.³ Issuing permits for new fossil fuel infrastructure like NWIW’s methanol refinery is the antithesis of addressing climate change—and the time to address climate change is now. Recent reports by the Intergovernmental Panel on Climate Change (IPCC)⁴ and the U.S. Government⁵ illustrate that severe climate change impacts could be felt by 2040, including “inundating coastlines and intensifying droughts and poverty.”⁶ A recent hot year, 2015, provided an unwelcome window into the near future of the Pacific Northwest if climate change continues unabated: “low stream levels and warm water resulted in fish die-offs; agricultural losses were between \$633 million and \$773 million in Washington alone; a combination of low snowpack and extreme precipitation deficit in spring and summer led to the most severe wildfire season in Northwest

¹ See WAC 173-27-140(1) (“Review criteria for all development.”) referencing RCW 90.58.020(1).

² RCW 43.21C.060.

³ See *Illinois Cent. R.R. Co. v. Illinois*, 146 U.S. 387, 459–60 (1892).

⁴ IPCC, [Special Report: Global Warming of 1.5 °C](#) (October 1, 2018).

⁵ U.S. Global Change Research Program, [Fourth National Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States](#) (November 23, 2018).

⁶ New York Times, [Major Climate Report Describes a Strong Risk of Crisis as Early as 2040](#), (October 7, 2018).

history.”⁷ And Washington’s critically important coastal areas are projected to experience sea level rise measured in feet, not inches.⁸ Washington simply cannot respond to these immediate threats by permitting NWIW to build a massive new petrochemical refinery that would cause millions of tons of new climate pollution each year. As Fatih Birol, the executive director of the International Energy Agency recently said: “We have no room to build anything that emits CO₂ emissions.”⁹

Incorporated by reference are all previous State Environmental Policy Act (SEPA) comments submitted by Columbia Riverkeeper and others on this proposal and exhibits thereto, including but not limited to comments on the scope of the SEIS. Because those documents are already in the Port and County’s possession, Commenters do not attach them as exhibits to this letter but do request their inclusion in the record for the Supplemental EIS.

I. Washington State Environmental Policy Act.

In adopting SEPA, the Washington Legislature declared the protection of the environment to be a core state priority.¹⁰ In SEPA, “[t]he legislature recognizes that each person has a fundamental and inalienable right to a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.”¹¹ This policy statement, which is stronger than a similar statement in the federal counterpart of NEPA, “indicates in the strongest possible terms the basic importance of environmental concerns to the people of the state.”¹²

The point of SEPA is to fully analyze the environmental impact of projects that have a significant impact on the environment.¹³ The primary purpose of an environmental impact statement “is to ensure that SEPA’s policies are an integral part of the ongoing programs and actions of state and local government.”¹⁴ SEPA “sets forth a state policy of protection, restoration and enhancement of the environment.”¹⁵ This is often characterized as the “look

⁷ Columbia Basin Bulletin, [Federal Climate Report Suggests More Warm Years Such As 2015 Will Be A Reality For Columbia Basin](#) (November 30, 2018).

⁸ See Washington Coastal Resilience Project, [Projected Sea Level Rise for Washington State](#), p. 6 (2018).

⁹ The Guardian, [World has no capacity to absorb new fossil fuel plants, warns IEA](#) (November 12, 2018).

¹⁰ RCW 43.21C.010.

¹¹ RCW 43.21C.020(3).

¹² *Leschi v. Highway Comm’n*, 84 Wn.2d 271, 279–80 (1974).

¹³ RCW 43.21C.031(1).

¹⁴ WAC 197-11-400.

¹⁵ *Polygon Corp. v. City of Seattle*, 90 Wn.2d 59, 63 (1978); RCW 43.21C.010.

before you leap” concept, meaning that an agency must ensure that environmental effects are known and carefully considered before it is too late.¹⁶

The scope of impacts that must be examined in a SEPA document, similar to NEPA, includes direct, indirect, and cumulative impacts.¹⁷ SEPA regulations define impact as “the effects or consequences of actions.”¹⁸ Agencies must “carefully consider the range of probable impacts, including short-term and long-term effects and shall include those that are likely to arise or exist over the lifetime of a proposal or, depending on the particular proposal, longer.”¹⁹ It is implicit in SEPA that an “agency cannot close its eyes to the ultimate probable environmental consequences of its current action.”²⁰

Under SEPA, an EIS must provide a reasonable set of alternatives: the preferred action and one or more alternatives (distinct and separate from mitigation measures).²¹ The range of alternatives considered must be sufficient to permit a reasoned choice as opposed to the kind of constrained choices that lead to only one project or conclusion.²²

II. The world’s largest fracked gas-to-methanol refinery would have unavoidable significant adverse impacts under SEPA.

NWIW’s methanol refinery would likely become the first or second single largest source and cause of GHG pollution in Washington,²³ increasing the state’s total carbon footprint by 1 to 2 percent. The DSEIS’ conclusion that NWIW’s climate pollution is not “significant” at the state level defies logic. As set forth in our prior comments, this project would result in significant environmental impacts, including impacts from increased greenhouse gas (GHG) emissions—such as sea level rise and altered hydrologic cycles resulting in increased droughts, floods and storm events—as well as direct impacts from construction on local resources, including harm to marine life, including protected species, and marine ecosystems through increased vessel traffic and sediment deposition.

¹⁶ See *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 371 (1989).

¹⁷ WAC 197-11-792.

¹⁸ WAC 197-11-752.

¹⁹ WAC 197-11-060(4)(c).

²⁰ *Cheney v. City of Mountlake Terrace*, 87 Wn.2d 338, 344 (1976).

²¹ WAC 197-11-440(5) and (6); see also *Organization to Preserve Agr. Lands v. Adams Cty.*, 128 Wn.2d 869, 913 (1996).

²² *Solid Waste Alternative Proponents v. Okanogan Cty.*, 66 Wn.App. 439, 444–45 (1996) (citing *Methow Valley Citizens Council v. Regional Forester*, 833 F.2d 810, 815 (9th Cir. 1987), *rev’d on other grounds*, *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989)).

²³ See DSEIS, Table 3-1. Top 15 Individual GHG Emission Sources in Washington (2016).

The DSEIS—relying on a suspect coal displacement theory and a vague, unsupported promise of “voluntary” mitigation—concludes that NWIW’s GHG pollution will have “no unavoidable significant adverse impacts” at the state or global levels.²⁴ As explained throughout this Comment, however, the DSEIS systematically minimizes and understates the true climate costs of NWIW’s proposal. The many deficiencies in the DSEIS identified in this comment letter render the analysis incomplete and in violation of the Washington SEPA. The responsible SEPA officials must therefore revisit the “no unavoidable significant adverse impacts” determination and provide a full analysis of the adverse impacts this project would have on the environment, as SEPA requires.

III. The DSEIS violates SEPA by underestimating lifecycle GHG emissions.

There are several shortcomings of the life cycle analysis of the GHG emissions attributable to the proposal. As set forth below, the DSEIS’ reliance on insufficient and misrepresented information renders the analysis entirely incomplete and suggests that the project would have much greater impacts than what is presented. Moreover, this insufficient analysis violates SEPA’s mandate that an EIS contain a “reasonably thorough discussion of the significant aspects of a [proposal’s] environmental impacts”²⁵ This standard boils down to the requirement that an EIS take a “hard look” at the proposal and its impacts on the environment and human health.²⁶ The self-serving life cycle analysis commissioned by NWIW does not meet this standard, for the following reasons.

a. The DSEIS’ upstream methane leakage rate estimate is too low.

The DSEIS uses an implausibly low estimate of the amount of greenhouse gases that will be emitted by “upstream” activity, *i.e.*, producing, processing, and transporting gas to the Kalama facility. The DSEIS calculates these emissions using an estimate of the “leak rate,” which is the percentage of the methane extracted from the ground that escapes to the atmosphere (whether through inadvertent leaks or through equipment that vents gas by design) before reaching its end use destination.²⁷ The DSEIS surveys a fraction of the available literature on methane emissions and selects a leak rate that is the absolute lowest, by far, of the provided

²⁴ DSEIS, p. 3-31.

²⁵ *Toward Responsible Dev. v. City of Black Diamond*, No. 69418-9-I, 2014 Wash. App. LEXIS 197, at *1 (Ct. App. Jan. 27, 2014).

²⁶ *See Pub. Util. Dist. No. 1 of Clark Cnty. v. Pollution Control Hearings Bd.*, 137 Wash. App. 150, 158 (2007).

²⁷ DSEIS Appx. A, p. 117.

estimates: 0.32 percent.²⁸ Other estimates listed in the DSEIS are 3 to 7 times higher.²⁹ The 0.32 estimate cannot be reconciled with the wide body of peer reviewed literature regarding emissions from gas production³⁰ and reliance on that figure does not constitute the hard look that SEPA requires.

Most of the estimates cited in the DSEIS are either peer reviewed publications or readily available government reports, such as the EPA's annual greenhouse gas inventory.³¹ The 0.32 figure, however, is simply cited as "GHGenius 2016." There reference list cites the general GHGenius website, which introduces the modeling tool, but nothing in the DSEIS identifies an actual report or publication. Not only is the .32 percent figure lower than the others provided in the DSEIS, but we are not aware of *any* peer reviewed or published government study of the gas lifecycle that adopts an estimate anywhere near this low.

The DSEIS fails to justify the disparity between the estimate it uses and other available estimates. The DSEIS asserts that the other cited literature concerns North America as a whole, but that gas production in British Columbia is lower-emitting.³² This explanation is incomplete at best. The DSEIS does not provide any citation to actual data for portions of the upstream process beyond the wellhead.³³ Although the DSEIS generally cites aspirations for effective regulation of gas production in British Columbia, production throughout North America is subject to similar rules, and the DSEIS offers no support for the contention that these rules are more stringent or better enforced in British Columbia. And the body of the DSEIS tempers the claim that B.C. emissions are lower: when comparing scenarios in which the Project receives all gas from British Columbia vs. from North America generally, the DSEIS asserts this change would increase upstream methane emissions by 44 percent.³⁴ However, the peer reviewed or EPA estimates of North American gas production provide a leak rate that is 300–700 percent, not 44 percent, higher than the figure used in the DSEIS. Of these, the most credible is the highest estimate, which is the most recent, peer reviewed, and builds on prior data.³⁵

²⁸ DSEIS, p. 3-14; DSEIS Appx. A, pp. 117–18.

²⁹ DSEIS Appx. A, pp. 117–18.

³⁰ Exhibit 1, Alvarez, *et al.*, *Assessment of methane emissions from the U.S. oil and gas supply chain*, Science (2018); *see also* Tong *et al.*, [Comparison of Life Cycle Greenhouse Gases from Natural Gas Pathways for Medium and Heavy-Duty Vehicles](#), 49 *Environ. Sci. Technol.* 12, p. 7126 (2015) (estimating methane leakage rates of 1.5–3.3 percent); *see also* Exhibit 2, Sierra Club, *Fracked Gas: Nothing "Natural" About It* (2018) (reviewing literature and estimating leakage rate of 3 percent).

³¹ DSEIS Appx. A, pp. 117–18.

³² DSEIS Appx. A, p. 118.

³³ DSEIS Appx. A, p. 118

³⁴ DSEIS Appx. A, pp. 48, 97.

³⁵ Exhibit 1; *see also* Tong *et al.* (2015) (estimating methane leakage rates of 1.5–3.3 percent).

b. The DSEIS methodology for calculating methane leakage is flawed and has been discredited.

Even the higher estimates cited in the DSEIS are almost certainly underestimates because they primarily rely on a “bottom-up inventory” methodology that multiple peer-reviewed publications have found to “systematically underestimate total emissions.”³⁶

“Bottom-up” studies use an estimate of the average emissions from an individual piece of equipment or an individual event, such as a high-bleed pneumatic device or a well completion, and multiply that per-component value by an estimate of the total number of components or events of that type (*i.e.* assuming that each well has X pneumatic controllers that emit Y tons of methane). A different method of estimating oil and gas sector methane emissions is a “top down” approach, where researchers measure the methane accumulation in the atmosphere in areas where oil and gas activity is occurring and then estimate the fraction of this methane attributable to emissions from oil and gas activity. For example, a researcher might measure methane concentrations upwind and downwind of gas activity and then subtract out the methane estimated to have been emitted from other sources. Certainty in source attribution has increased in recent years as scientists are better able to distinguish methane sources based on detected levels of co-occurring compounds such as ethane or isotopic composition of atmospheric methane.

Recently, peer-reviewed publications utilizing top-down techniques to estimate methane emissions from oil and gas have proliferated, and these studies provide compelling evidence that the aggregate methane emission estimates based on “bottom up” studies (such as those cited in the DSEIS) underestimate gas production methane emissions by a significant margin. For example, two studies in Colorado’s Denver-Julesberg Basin concluded that, during gas production alone (not including emissions from downstream segments of the industry, like transmission and distribution), the gas leak rate was about 4%.³⁷ The same team of researchers found even higher methane leak rates in Utah’s Uinta Basin, estimating escaped methane at $9 \pm$

³⁶ Exhibit 1, p. 2; *see also* Brandt, *et al.*, [Methane leaks from North American natural gas systems](#) *Energy and environment*, 343 *Science* 6172 (February 14, 2014).

³⁷ Petron, *et al.*, [A new look at methane and non-methane hydrocarbon emissions from oil and natural gas operations in the Colorado Denver-Julesburg Basin](#), 119:9 *J. Geophys. Res. Atmospheres* (June 3, 2014). This is consistent with an earlier study, by the same lead author, which estimated using top-down techniques that 2.3 to 7.7 percent of production was vented in the studied and concluded more generally that “the methane source from natural gas systems in Colorado is most likely underestimated by at least a factor of two.” Petron, *et al.*, [Hydrocarbon emissions characterization in the Colorado Front Range: A pilot study](#), 117:D4 *J. Geophys. Res. Atmospheres* 4304 (February 21, 2012).

3% of total production.³⁸ Other research has confirmed that this problem is not unique to the mountain west, and that North American emissions as a whole are understated.³⁹

The peer reviewed literature offers compelling explanations for why bottom-up estimates are systemically too low. The bottom-up methodology relies on sampling methane leaks from various pieces of equipment under “ideal operating conditions.”⁴⁰ However, evidence indicates that there are “a small number of ‘superemitters’” with emissions that are much higher than anticipated by the emission factors used in the bottom-up estimates.⁴¹ For example, one analysis of 75,000 components at five different facilities found that just 50 leaks and compressor seals were responsible for 58% of overall emissions.⁴² These rare but severe leaks are unlikely to be represented in the data used to inform bottom-up calculations, which may be based on surveys of a few dozen, or even a hundred, components. This is especially so because site and equipment operators can be expected to operate especially diligently when they know they are being surveyed, such that “there are reasons to suspect sampling bias” in the surveys used to develop the emission factors used in bottom up analysis.⁴³ On the other hand, these superemitters are likely to be captured by top-down estimates.

In summary, the DSEIS’s estimates of upstream emissions rely on a leakage rate that is doubly suspect: it is irrationally and drastically lower than the rates provided in the published literature cited by the DSEIS, but even those other estimates largely rely on a methodology that is known to systemically underestimate emissions. The SEPA “hard look” requires accounting for top-down studies of methane emissions and the flaws of bottom-up estimates.⁴⁴

c. Assuming that NWIW’s gas will come from the Montney shale formation in British Columbia does not pass SEPA’s “hard look” test.

³⁸ Karion, *et al.*, [Methane emissions estimate from airborne measurements over a western United States natural gas field](#), 40:16 Geophysical Research Letters 4393 (August 27, 2013); *see also* J. Tollefson, [Methane leaks erode green credentials of natural gas](#), Nature (January 2, 2013).

³⁹ Brandt *et al.* (2014) at pp. 733–35.

⁴⁰ Exhibit 1, p. 2.

⁴¹ Brandt *et al.* (2014) at p. 733.

⁴² EPA, [Cost-Effective Directed Inspection and Maintenance Control Opportunities at Five Gas Processing Plants and Upstream Gathering Compressor Stations and Well Sites](#), Table 2 (March 2006).

⁴³ Brandt *et al.* (2014) at p. 734.

⁴⁴ *Toward Responsible Dev. v. City of Black Diamond*, 179 Wash. App. 1012 review denied, 180 Wash. 2d 1017, 327 P.3d 54 (2014) (unpublished opinion) (“Courts review an EIS as a whole and examine all of the various components of [the] agency’s environmental analysis ... to determine, on the whole, whether the agency has conducted the required ‘hard look.’”).

Without a guarantee, or even any supporting documentation such as a completed contract, the DSEIS asserts that “NWIW will be contracting and receiving Canadian natural gas, primarily from the Montney formation in British Columbia.”⁴⁵ Because the DSEIS provides no real evidence to support that the Montney formation will be the sole (or even primary) source of NWIW’s gas for the next 40 years, a cynical reader might conclude that the project proponents selected the Montney field because it had a low reported methane leakage rate and because the British Columbian Ministry of Natural Gas Development government styles its self as “home to Best Practices”⁴⁶ for the fracking industry.

In reality, however, “is not clear why [NWIW’s] assumption should “be expected to hold true for the 40-year lifespan of the Project, especially as United States natural gas production has increased substantially in recent years.”⁴⁷ NWIW’s massive new demand for fracked gas could “cause fuel shuffling that results in an increased use of non-Canadian natural gas for other projects.”⁴⁸ Other sources of natural gas that the project could utilize would have a higher methane leakage rate, and therefore the DSEIS is using an unsupported assertion to minimize the potential emissions associated with the project, in violation of SEPA.

Even if the Montney region would ultimately supply a significant amount of NWIW’s gas, the DSEIS’ predictions about upstream methane leakage from this gas field are unlikely to hold true. First, as explained in Section III(b), above, the ultra-conservative “bottom-up” leakage rate estimates for the Montney field relied on in the DSEIS are unreliable and underestimate the actual leakage likely to occur. Second, most of the Montney field is actually in Alberta, and therefore not regulated by the British Columbian provincial government, undermining the DSEIS’s reliance on the “Best Practices” that may be employed.⁴⁹

d. The DSEIS obscures the climate pollution caused by making methanol into olefins.

NWIW’s self-serving DSEIS attempts to have it both ways: on one hand insisting that this proposal is exclusively focused on producing olefins while on the other hand obscuring the

⁴⁵ DSEIS Appx. A, p. 27.

⁴⁶ DSEIS Appx. A, p. 118.

⁴⁷ Exhibit 3, Washington Attorney General, *Comment to PSCAA on DSEIS for PSE LNG Project*, p. 1 (November 21, 2018).

⁴⁸ Exhibit 4, Washington Department of Ecology, *Comment to PSCAA on DSEIS for PSE LNG Project*, p. 1. (November 21, 2018).

⁴⁹ See Canadian National Energy Board, [*Frequently Asked Questions - An assessment of the unconventional petroleum resources in the Montney Formation, West-Central Alberta and East-Central British Columbia*](#) (Updated September 13, 2018).

climate pollution that would result from actually making NWIW's methanol into olefins.⁵⁰ The DSEIS states that the downstream GHG pollution caused by turning methanol into olefins would total 0.42 million tonnes of CO₂e, but that figure is “not reflected in the overall LCA conclusion.”⁵¹ The result of this omission is that the DSEIS repeatedly misrepresents the proposal's total direct and indirect emissions as 2.17 million tonnes CO₂e per year,⁵² instead of 2.59 million tonnes. Thus, the DSEIS purposefully obscures a very significant source of downstream emissions and the overall impacts of the project, even though the GHG emissions related to olefin production are reasonably foreseeable if—taking NWIW at its word—the proposal would only produce methanol destined to become olefins.

SEPA does not allow NWIW to obscure the actual emissions attributable to the project by claiming that carbon emissions resulting from olefin production from methanol would be the same as olefins produced from coal. The excuse that the emissions “would occur either way” does not comport with SEPA's requirement to disclose a foreseeable indirect impact of making methanol to be turned into olefins.⁵³ And, as discussed below, this reasoning conflates the lifecycle analysis with NWIW's dubious “displacement” theory and makes it more difficult than necessary for the public and decisionmakers to understand the actual downstream climate pollution resulting from NWIW's proposal. Ignoring the foreseeable GHG emissions caused by turning methanol into olefins violates SEPA's requirement to take a hard look at a proposal's impacts.

IV. NWIW's market displacement theory does not pass SEPA's “hard look” test.

For the reasons below, NWIW's reliance on the theory that its methanol will displace the use of Chinese coal-derived methanol for the next 40 years does not constitute the “hard look” that SEPA requires. To comply with SEPA, an EIS must contain a “reasonably thorough discussion” of a proposal's environmental impacts, sometimes referred to as a “hard look.”⁵⁴ The coal displacement theory is merely a loose association of unfounded assumptions selectively grouped together to prop up NWIW's proposal. As explained in the subsections below, these

⁵⁰ See DSEIS, p. 3-19; see also DSEIS Appx A, p. 92 (lifecycle emissions would be “2.59 million tonnes of GHG emissions if the MTO facility is counted”).

⁵¹ *Id.*; see also DSEIS Appx. A, p. 92 (NWIW lifecycle emissions would be “2.59 million tonnes of GHG emissions if the MTO facility is counted”).

⁵² See, e.g., DSEIS, pp. 1-6, 3-23; Fig. 3-12.

⁵³ See WAC 197-11-792 (explaining that the scope of an EIS includes direct, indirect, and cumulative impacts).

⁵⁴ *Toward Responsible Dev. v. City of Black Diamond*, 179 Wash. App. 1012 (2014); see also *Coalition for a Sustainable 520 v. U.S. Department of Transportation*, 881 F. Supp. 2d 1243, 1259 (W.D. Wash. 2012) (holding implicitly that “hard look” under NEPA sufficient for SEPA review).

assumptions, and the “displacement” theory they support, crumble when subjected to the “hard look” scrutiny that SEPA requires. Accordingly, **the displacement theory must be eliminated from any future SEPA analysis of this proposal.** Given the proposals’ massive direct GHG emissions and the need for immediate GHG reductions to avoid the worst impacts of climate change, this unsupported theory is yet another attempt to paper over the proposal’s actual impacts on our climate.

a. NWIW cannot predict or control the fluctuating fossil fuels prices that underpin its displacement theory.

NWIW’s putative ability to “displace” coal-based methanol—without displacing other, lower GHG-intense sources of olefins like naphtha—is premised on NWIW’s undisclosed assumptions about world fossil fuel prices. Even assuming, for the sake of argument, that NWIW would displace coal-based olefins under *current* fossil fuel prices, those prices are almost certain to change during the next 40 years in ways that NWIW can neither predict nor control. As the United States Court of Appeals for the D.C. Circuit recently noted, “projections of energy markets over a 25-year period are highly uncertain and subject to many events that cannot be foreseen, such as supply disruptions, policy changes, and technological breakthroughs.”⁵⁵ Considering the radical and often unforeseen fluctuations in the prices of coal, crude oil, natural gas, and methanol that have occurred in the past decade, any projection that relies on those prices remaining static over the next 40 years is arbitrary and unhelpful.

b. NWIW’s market analysis cannot accurately predict olefin production or consumption in China’s planned economy.

The coal displacement theory is also unreliable because it ignores existing non-market forces—and cannot predict potential future non-market forces—that may significantly impact how olefins are produced and consumed in China. The Chinese economy is a planned economy, subject to government control over how, where, and when to produce and consume certain commodities.⁵⁶ The Chinese government has set aggressive air pollution and GHG reduction goals that are having, and will continue to have, a significant impact on the amount of coal mining, coal burning, and coal-to-olefins production in China. Additionally, the U.S. and China are engaged in an ongoing trade dispute which, via import tariffs, would directly affect the price of NWIW’s methanol and its ability to displace other sources of methanol or olefins in Chinese markets. The DSEIS acknowledges some of these realities but does not explain how or why a classic supply curve—which does not account for some existing, and all future, non-market

⁵⁵ *Sierra Club v. United States DOE*, 867 F.3d 189, 194 (D.C. Cir. 2017).

⁵⁶ *See, e.g.*, DSEIS Appx. A, p. 59 (describing China’s strict regulation of natural gas consumption by economic sector).

forces—provides a reasonable or helpful prediction of how China’s planned economy would respond to increased methanol supply from NWIW.

Instead, the DSEIS states that the displacement “analysis is based on the assumption that no government subsidy is provided to the producer or the buyer and that the cash price of the product must cover the cost of production.”⁵⁷ Under the existing circumstances, however—which involve escalating tariffs, massive financial support stateside for NWIW from state and federal agencies,⁵⁸ and a Chinese government with a history of subsidizing its own domestic industries—this assumption, and the displacement analysis it is intended to support, are not credible.

Specifically, the displacement analysis rests on the unsupported assertion that—if denied access to NWIW’s product—China will simply increase its domestic coal-to-methanol production indefinitely to meet growing demand for methanol and olefins.⁵⁹ But China recognizes the problematic nature of its coal-to-methanol industry and is actively taking steps to reduce coal-to-methanol production and its GHG footprint.⁶⁰ NWIW’s assumption that Chinese coal-to-methanol production will automatically rise to meet methanol and olefin demand is based on an irrational application of free-market principles to a planned economy. In reality, China is already acting to reduce coal-to-methanol production, appears likely to continue to do so without this project, and NWIW should not claim credit for “causing” reductions in coal-based methanol that are actually the result of Chinese domestic policy.

Alternatively, it is plausible that China would decide to produce and consume *more* coal-derived methanol, despite the market forces that NWIW foresees. The Final SEIS should discuss whether production and consumption of coal-based methanol in China is strictly market driven or whether it is driven “more by labor policy” and “social incentives,” including China’s government’s desire to “foster downstream plastic processing as well as upstream coal mining employment in China’s poorer interior regions.”⁶¹ If coal-based methanol production in China is not strongly linked to market forces, NWIW’s production seems unlikely to influence the amount of coal-based methanol produced or consumed in China. Regardless, the SEIS needs to analyze

⁵⁷ DSEIS Appx. A, p. 58.

⁵⁸ See, e.g., Pacific Standard, [Taxpayers May Soon Be on the Hook for a \\$2 Billion Fracked Gas Refinery](#) (Nov. 7, 2018).

⁵⁹ DSEIS Appx. A, p. 58 (“[I]n the absence of attractive imported methanol, coal based domestic methanol production will continue to rise to meet growing industry needs based both in economic and market forces as well as policy direction.”).

⁶⁰ DSEIS Appx. A, pp. 59–60.

⁶¹ Center for International Environmental Law, [Fueling Plastics: How Fracked Gas, Cheap Oil, and Unburnable Coal are Driving the Plastics Boom](#), p. 6 (2017).

the actual emissions associated with the project, and not attempt to minimize or ignore those emissions through an illogical and unsupported displacement theory.

c. NWIW's methanol production may add to other methanol and olefin production in China.

NWIW's entire claim to GHG reductions is based on its theory that NWIW's methanol will be consumed *instead of* coal-based methanol. But if the Chinese methanol-to-olefin industry consumes NWIW's methanol *in addition to* the available coal-based methanol, then NWIW's proposal would result in millions of tons of increased CO₂e pollution each year. Unfortunately, the market analysis in Appendix A of the DSEIS never explains why NWIW's plan to provide more and cheaper methanol to China's olefin producers will not just result in more overall methanol consumption.

First, the market analysis ignores the fundamental economic principle that increasing and cheapening the supply of a good usually results in increased demand for that good.⁶² For instance, when crude oil production spikes and gasoline prices at the pump fall,⁶³ drivers respond, in part, by buying more gasoline.⁶⁴ Similarly, cheapening the production of olefins (by selling NWIW's cheap methanol to Chinese methanol-to-olefin plants) should decrease the market price of olefins, increasing the demand for olefins and their precursor—methanol. Accordingly, the DSEIS' assumption of a 1-to-1 displacement of coal-based methanol (and its GHG emissions) is likely incorrect because the DSEIS does not appear to account for increased olefin demand and consumption as a result of cheapening olefin production. In order to adequately address this issue, the final SEIS would need to examine the market for plastics and other end-uses for olefins. Unless the demand for plastics is static, and demand does not fluctuate in relation to price, cheaper plastics made from NWIW's cheaper methanol would result in increased plastics consumption and a concomitant increase in the GHG pollution associated with plastics manufacture.

Second, the displacement analysis does not deal realistically with China's rapidly expanding demand for methanol or the impact of that expanding demand on future GHG emissions. NWIW's market analysis essentially boils down to this statement: "the low delivered cost" of NWIW's methanol "will displace higher delivered cost product [Chinese coal-based methanol] *in a stable demand environment*."⁶⁵ But the demand for methanol in China is far from

⁶² See The Balance, [Elastic Demand with Its Formula, Curve, and Examples](#) (August 13, 2018).

⁶³ See The Balance, [How Crude Oil Prices Affect Gas Prices](#) (October 29, 2018).

⁶⁴ See New York Times, [When Gas Becomes Cheaper, Americans Buy More Expensive Gas](#) (October 19, 2015).

⁶⁵ DSEIS Appx. A, p. 80 (emphasis added).

stable. Elsewhere, the DSEIS admits that there is “rapid grow in Chinese methanol consumption”⁶⁶ and that “demand for methanol is growing.”⁶⁷ The downfall of NWIW’s theory is that, as demand for methanol in China continues to grow, the Chinese methanol-to-olefin industry will ultimately absorb both NWIW’s production *and* all of the higher-cost methanol produced by Chinese coal-to-methanol plants. At that point, the GHG emissions from NWIW’s proposal would add to, rather than displace, GHG emissions from China’s coal-to-methanol plants. The SEIS must account for this potential increase, and analyze the impacts to the environment as SEPA requires.

NWIW essentially admits that increasing demand for methanol in China will, at some future date, undercut its coal displacement theory, as described in the preceding paragraph.⁶⁸ NWIW’s response to this obvious deficiency in its market analysis is that—at any future level of increased methanol demand—NWIW’s cheap methanol would still be displacing methanol made by some hypothetical future high-cost, high-GHG coal-to-methanol plant that would occupy the marginal position on the methanol supply curve.⁶⁹

The first problem with NWIW’s dismissal of the impact of increasing methanol demand on the displacement theory is that NWIW assumes that China would increase its coal-to-methanol production if methanol demand ever exceeds the capacity of China’s existing coal-to-methanol facilities (plus imports). As explained in Section IV(b) above, China may not necessarily increase its coal-to-methanol production if methanol demand exceeds supply. China recognizes the problematic nature of coal-to-methanol, has already taken steps to limit its production, and could decide to prohibit the construction of any new coal-to-methanol facilities in the future (as China has prohibited natural gas-to-methanol facilities, albeit for different reasons). If China caps or restricts future coal-to-methanol production, the hypothetical future coal-to-methanol plant that NWIW envisions displacing would never have existed anyway and NWIW’s GHG emissions will merely add to the emissions of the existing coal-to-methanol plants that would be operating at full capacity to meet increased methanol demand. Again, the DSEIS fails to account for this reasonably foreseeable outcome.

The second problem with NWIW dismissing the impact that increasing methanol demand will have on displacement is that, even if NWIW would displace some hypothetical future high-cost source of methanol, that source might not be a coal-to-methanol plant (as the DSEIS

⁶⁶ DSEIS Appx. A, p. 64.

⁶⁷ *Id.* at p. 78.

⁶⁸ *See* DSEIS Appx. A, p. 80 (“As the methanol market continues to grow, some of this displacement of higher cost existing supply may be mitigated . . .”).

⁶⁹ *See* DSEIS Appx. A, p. 80 (asserting that, even at high levels of methanol demand, “the continued development of high cost CTM or CTO plants will be reduced”).

assumes). As demand increases, the methanol provider on the margin of the supply curve could change from a coal-to-methanol plant to some other source of methanol with higher production costs than coal—but a smaller carbon footprint than NWIW. For instance, if the marginal supplier in a high-demand scenario turns out to be a facility that makes methanol via electrolysis powered exclusively by solar energy,⁷⁰ then NWIW’s methanol would wind up “displacing” a lower-GHG source of methanol. Given rapidly increasing demand for methanol, constantly shifting fossil fuel prices and regulations, and rapidly evolving petrochemical technologies, it is not reasonable to assume that any particular source of methanol will be on the margin of the supply curve in three, five, fifteen, or forty years. Accordingly, NWIW’s assertion that it will be displacing high-GHG coal-derived methanol for the entire lifetime of the Kalama proposal is mere salesmanship and cannot survive the “hard look” required by SEPA.

d. Cheap crude oil and naphtha-derived olefins may displace coal-based olefins independently of NWIW’s proposal.

NWIW’s displacement analysis, focused exclusively on the methanol-to-olefin market, conveniently side-steps the impact that naphtha-derived olefins may have on the production of Chinese coal-based olefins. If the cost of naphtha-based olefins dips (as a result of low crude oil prices) below the cost of coal-based olefins, then (by NWIW’s logic) olefin consumers would purchase naphtha-based olefins to the exclusion of coal-derived olefins. Nevertheless, NWIW fails to explain what crude oil price would allow naphtha-derived olefins to undersell coal-derived olefins or why NWIW expects world crude prices to remain above that magic number for the next 40 years, especially in the current volatile market. One study found that coal-based olefin production in China became unprofitable—and olefin derived naphtha became even more profitable—when the world price of crude was less than \$65 per barrel.⁷¹ As of December 21, 2018, crude oil was trading at around \$50 per barrel.⁷² In fact, WTI crude has only barely climbed above \$65 per barrel on a few occasions in the last four years.⁷³ The displacement theory NWIW has relied on disintegrates under that scenario because cheap crude oil and naphtha could easily remove the Chinese CTO industry with or without NWIW, a possibility conveniently ignored in the DSEIS.

⁷⁰ See, e.g., Uusitalo *et al.*, *Potential for greenhouse gas emission reductions using surplus electricity in hydrogen, methane and methanol production via electrolysis*, Energy Conversion and Management, Vol. 134, pp. 125–34 (February 2018).

⁷¹ Exhibit 5, Qun *et al.*, *A comparison between coal-to-olefins and oil-based ethylene in China: An economic and environmental prospective*, 165 *Journal of Cleaner Production* 1351–1360, 1356 (2017).

⁷² See Oilprice.com (last accessed December 21, 2018).

⁷³ See Macrotrends, [WTI Crude Oil Prices - 10 Year Daily Chart](http://www.macrotrends.net/energy/wti-crude-oil-prices) (last accessed December 21, 2018).

NWIW's rejoinder is that the supply of "refinery co-produced olefins [*i.e.* naphtha-derived olefins] will not increase without an expansion in oil refining capacity,"⁷⁴ so Chinese coal-to-olefins will remain marketable because demand for olefins is increasing and there is not a sufficient supply of naphtha to meet that demand. The DSEIS, however, does not provide any data to support its implication that the current or future demand for olefins in China exceed existing naphtha-based olefin supplies. Further, NWIW incorrectly implies that world petroleum refining capacity is not expanding. It is, and growth in global demand for refined products, like naphtha, is tapering off at the same time.⁷⁵ With crude prices remaining low and refinery capacity increasing, cheap naphtha-based olefins could easily disrupt China's coal-to-methanol-to-olefins market. If cheap naphtha displaces coal as a raw material for olefins because of low crude prices, NWIW cannot reasonably claim credit for reducing the GHG footprint of China's olefin industry. The DSEIS therefore does not provide the "hard look" that SEPA requires.

Contrary to the impression generated by the DSEIS, most of the olefins consumed in China are not derived from methanol made from coal *or* fracked gas. The most significant source of olefins consumed in China is actually naphtha,⁷⁶ so comparing the GHG emissions produced by making olefins from naphtha versus NWIW's proposed method should be a key part of the DSEIS. Unfortunately, the DSEIS merely contains this terse statement: "The LCA evaluated the GHG emissions from [the naphtha-to-olefins] process and found it to have greater GHG emissions than the proposed project."⁷⁷ The apparent basis for this statement, found in Appendix A, does not rely on the best available peer-reviewed science. Appendix A asserts that making olefins from naphtha results in 2.32 kg CO₂e/kg olefin, while NWIW's process is slightly more efficient, emitting 1.85 to 2.26 kg CO₂e/kg of olefin.⁷⁸ This comparison overestimates the GHG intensity of producing olefins from naphtha and understates the GHG emissions from NWIW's olefins, making NWIW's proposal appear "greener" than making olefins from naphtha. The GHG intensity of NWIW's olefins is actually higher than reported in this comparison because, as explained in Section III, above, NWIW's estimated upstream methane leakage rate is likely an order of magnitude too low. Conversely, the GHG intensity of naphtha-based olefins reported in peer-reviewed literature is lower than the figure used in this comparison, a reality that the DSEIS acknowledges but fails to explain.⁷⁹ The final SEIS should compare olefin production from

⁷⁴ DSEIS Appx. A, p. 141.

⁷⁵ See Bloomberg Businessweek, *Shale? Here's the Other Wave Washing Into the Oil Market* (March 6, 2018) (noting that the International Energy Agency predicted a 7 million gallon per day increase in refinery capacity by 2023).

⁷⁶ DSEIS Appx. A, p. 141 (acknowledging that "naphtha steam cracking has the largest share of the olefin market").

⁷⁷ DSEIS, p. 3-23.

⁷⁸ DSEIS Appx. A, Table 5.12.

⁷⁹ DSEIS Appx. A, p. 141.

naphtha versus fracked gas once the GHG emissions of production from naphtha and fracked gas are adequately quantified.

V. Additional Problems with the Life Cycle Analysis.

a. The DSEIS presents outdated and irrelevant information about methane's impact on our climate.

The DSEIS relies on outdated scientific information about methane's global warming potential (GWP). Specifically, the DSEIS uses a value for methane's GWP of 25, which is from the IPCC's 2007 Fourth Assessment Report (AR4), but it has since been updated by the IPCC's Fifth Assessment Report (AR5).⁸⁰ While some governments may still use the 2007 value to report GHG emissions for consistency, it would be arbitrary to ignore the latest science in a SEPA document assessing the actual impacts of the Kalama facility's GHG emissions.⁸¹

The DSEIS violates SEPA by exclusively using the 100-year GWPs. To disclose the near-term impact of emissions, the DSEIS should use the 20-year GWP instead of, or at least in addition to, the 100-year value.⁸² As the IPCC explained, "The choice of emission metric and time horizon depends on type of application and policy context"⁸³ Twenty years is a far more relevant time scale for discussing climate impacts due to methane pollution than one hundred years. Reducing GHG emissions and impacts over these next 20 years is crucial because that is the time period in which our global society must take action to limit climate change: CO₂ emissions need to reach net zero around 2050 to have a 50 percent chance of limiting warming to 1.5 degrees Celsius.⁸⁴ Recent reports by the IPCC⁸⁵ and the U.S. government⁸⁶ also illustrate that severe climate change impacts could be felt as early as 2040 if current emission trends continue. Because avoiding these GHG thresholds and impacts are relevant policy goals, ignoring the 20-

⁸⁰ DSEIS Appx. A, p. 4.

⁸¹ See *W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, No. CV 16-21-GF-BMM, 2018 WL 1475470, at *16 (D. Mont. Mar. 26, 2018) (holding, in analogous context, that agency acted arbitrarily by only evaluating methane using outdated global warming potential).

⁸² See, e.g., Tong, *Comparison of Life Cycle Greenhouse Gases from Natural Gas Pathways for Medium and Heavy-Duty Vehicles*, 49 *Environmental Science & Technology* 12 (2015) (a study, cited in the DSEIS, that presented both the 20- and 100-year methane GWPs when describing the life cycle methane emissions from fracked gas production).

⁸³ IPCC, AR5, p. 87 (2014).

⁸⁴ Rogelj *et al.*, [Energy system transformations for limiting end-of-century warming to below 1.5°C](#), *Nature Climate Change*, Vol. 5 (June 2015).

⁸⁵ IPCC, [Special Report: Global Warming of 1.5 °C](#) (October 1, 2018).

⁸⁶ U.S. Global Change Research Program, [Fourth National Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States](#) (November 23, 2018).

year GWP of NWIW’s methane pollution violates SEPA’s purpose, because it will result in uninformed decision-making. Moreover, in an analogous case in under the National Environmental Policy Act, a federal court decided that an agency acted arbitrarily by only evaluating the long-term GWP of methane pollution.⁸⁷ The DSEIS’ proffered justification for using the 100-year GWP—“for consistency with International, United State and Washington reporting requirements”⁸⁸—has little if any relevance to the merits of NWIW’s proposal. Discussing the 100-year global warming potential of methane is not helpful to decision-makers or the public because the effects of, and meaningful responses to, methane emissions must occur much sooner.

The 20-year GWP of methane is used in the lifecycle analysis just once—buried on page 99 of Appendix A of the DSEIS. Even accepting the DSEIS’ untenably low upstream methane leakage rate, using the 20-year GWP of methane brings the life cycle GHG emissions attributable to NWIW’s proposal to around 3 million tons of CO₂e per year. That would make NWIW the second largest individual cause of GHG pollution in Washington, and the largest when TransAlta is decommissioned.⁸⁹ The DSEIS also misleadingly suggests that using the 20-year GWP of methane actually makes NWIW’s proposal *better* for our climate in the near-term.⁹⁰ Here again, NWIW is relying on its dubious “coal displacement” theory, and some very aggressive estimates of coal-bed methane leakage, to obscure the methanol proposal’s huge climate footprint. As set forth above, reliance on the coal displacement theory is arbitrary and capricious, and the DSEIS therefore fails to provide the “hard look” at methane emissions that SEPA requires.

b. The life cycle analysis should describe the GHG emissions from burning NWIW’s methanol as fuel.

Based on the publicly available information, it is just as likely that NWIW’s methanol will be burned for fuel as converted into olefins. While the DSEIS states—without any documentary evidence, guarantee, or enforceability—that NWIW “intended” for all of the methanol to be made into olefins,⁹¹ Wu Lebin, president of the Chinese Academy of Sciences Holding Company (which controls NWIW) has recently and repeatedly told media outlets that some or all of NWIW’s methanol could be used for fuel.⁹² Given the growing demand for

⁸⁷ See *W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, No. CV 16-21-GF-BMM, 2018 WL 1475470, at *16 (D. Mont. Mar. 26, 2018).

⁸⁸ DSEIS Appx. A, p. 4.

⁸⁹ See DSEIS, Table 3-1. Top 15 Individual GHG Emission Sources in Washington (2016).

⁹⁰ DSEIS Appx. A, p. 99.

⁹¹ DSEIS, p. 3-23; DSEIS Appx. A, pp. ix, 1, 6.

⁹² *Columbia Riverkeeper et al., Scoping Comments on the New EIS for the Kalama Methanol Refinery*, p. 10 (March 1, 2018).

methanol for fuel and olefin production in China, either outcome is entirely plausible. The DSEIS, however, cannot merely rely on empty statements of intent, especially where those assertions have been undermined by statements made elsewhere by the project proponent. SEPA requires a hard look at the reasonably foreseeable consequences of each proposal, not the project proponent's intended consequences.

The GHG emissions resulting from using methanol to make fuel is quantifiable and the analysis of such emissions should be included as a foreseeable alternative end product and included in SEPA analysis. Moreover, NWIW's representations about the end use of the methanol are suspect because the company understands that the viability of its proposal likely hinges on NWIW's ability to distinguish methanol from LNG and other fossil fuel exports that are unpopular in the Pacific Northwest. Therefore, the final SEIS lifecycle analysis should contain an alternative that discloses the GHG emissions attributable to burning NWIW's methanol as fuel, as well as an alternative focused on turning it into olefins.

VI. SEPA requires the disclosure, and analysis of the impacts, of a new regional fracked gas pipeline.

Commenters reiterate their request, contained in multiple previous SEPA comments, that the final SEIS disclose and discuss the impact of a new regional gas pipeline that would be an indirect and/or cumulative impact of NWIW's Kalama proposal, as required by SEPA.⁹³ The DSEIS discusses non-GHG related changes and information updates to NWIW's proposal, as well as related actions like the Kalama Lateral Pipeline and electrical supply improvements.⁹⁴ Similarly, the DSEIS should have addressed new information on the construction of another major fracked gas pipeline into the Pacific Northwest that would be triggered by NWIW's massive fracked gas consumption.

a. A new regional gas pipeline into the Pacific Northwest would be an indirect impact of NWIW's demand for fracked gas.

A new regional fracked gas pipeline into the Pacific Northwest is an indirect effect of the Kalama methanol refinery that must be addressed in the EIS. "A proposal's effects include . . . indirect impacts caused by the proposal" and include the impacts resulting from growth—such as new regional pipeline infrastructure—caused by a proposal.⁹⁵ Given the nature of the Kalama methanol refinery and the state of the regional gas pipeline system, the most reasonable assumption is that gas supply for the Project will require expansion of the regional pipeline

⁹³ WAC 197-11-792 (requiring analysis of a proposal's indirect and cumulative impacts).

⁹⁴ DSEIS, p. 1-4.

⁹⁵ WAC 197-11-060(4)(d).

system.⁹⁶ As such, the expansion of the regional pipeline system necessitated by NWIW's massive gas demand is an indirect effect of the methanol refinery that must be addressed in the EIS.

New information supports Commenters' long-held assertion that the Kalama methanol facility would place a strain on regional pipeline capacity and ultimately cause a new regional pipeline to be built. A representative of the Northwest Industrial Gas Users (NWIGU) recently told the Oregon Public Utilities Commission that "our region is now experiencing high [gas] prices . . . not from an actual supply shortage but from an infrastructure constraint"⁹⁷ (*i.e.* limited pipeline capacity into the Northwest). Similarly, in early 2018, NWIGU told the Washington Utilities and Transportation Commission that the "Northwest Pipeline capacity into [the Puget Sound area] is fully contracted" and "the need for an expansion of Northwest Pipeline to meet growth in peak day demand" could occur within "a year or two."⁹⁸ The Northwest Gas Association's 2018 Outlook also demonstrates that the Pacific Northwest has a tight supply-demand balance under current circumstances.⁹⁹ Accordingly, the addition of 320,000 Dth/D of new demand from the Kalama methanol refinery would push the region over the threshold at which a new regional pipeline would be constructed, making a new regional pipeline an undisclosed indirect impact of NWIW's proposal in violation of SEPA.

b. A new regional gas pipeline into the Pacific Northwest would be a cumulative impact of NWIW's demand for fracked gas.

A new regional fracked gas pipeline into the Pacific Northwest is, at least, a cumulative impact of the Kalama methanol refinery that must be addressed under SEPA.^{100, 101} The Washington Shorelines Hearings Board explained that SEPA requires agencies "to consider the effects of a proposal's probable impacts combined with the cumulative impacts from other

⁹⁶ See Columbia Riverkeeper, *Supplemental Comments on Kalama Methanol Draft EIS* (September 12, 2016).

⁹⁷ Willamette Week, [A Natural Gas Pipeline Explosion in British Columbia Spikes Prices in Portland and Raises Questions About Oregon's Energy Future](#) (December 12, 2018).

⁹⁸ See Exhibit 6, NWIGU, *Comments on Puget Sound Energy's 2017 Final IRPs* (February 22, 2018).

⁹⁹ Northwest Gas Association, [2018 Outlook](#), Appendix A5 (2018).

¹⁰⁰ WAC 197-110060(4)(e); WAC 197-11-330(3)(c) ("Several marginal impacts when considered together may result in a significant adverse impact."); *White v. Kitsap Cnty.*, SHB No. 09-019 at 17 (2009) (cumulative impacts of a proposed action together with the impacts of pending and future actions should be considered).

¹⁰¹ See also Exhibit 7, Columbia Riverkeeper, *Letter to Army Corps of Engineers Regarding Cumulative Impacts of the Kalama Methanol Refinery* (August 9, 2018).

proposals. . . .”¹⁰² As explained in more detail below, the incremental impact of the Kalama methanol refinery’s demand for fracked gas—when added to the existing demand for fracked gas in the Pacific Northwest and the reasonably foreseeable demand from NWIW’s proposed Port Westward methanol refinery—would necessitate the construction of a new regional fracked gas pipeline into the Pacific Northwest. A new regional gas pipeline into the Pacific Northwest is therefore a cumulative impact of the Kalama methanol refinery.

Together, the demand for fracked gas created by NWIW’s proposed methanol refineries at Port Westward and Kalama would exceed our region’s existing gas pipeline supply capacity, necessitating a new regional fracked gas pipeline. NWIW cannot reasonably dispute this fact because Clay Riding—long-time gas industry expert and Vice President of Energy Resources for NWIW—recently admitted it.¹⁰³ Gas industry documents supplied in Section VI(a), above, also explain that NWIW’s proposed refineries, which would together likely exceed 600 dekatherms per day of fracked gas demand, would exceed the supply capacity of the regional gas pipeline system.

NWIW’s additional gas demand is reasonably foreseeable because NWIW has a specific, active proposal to construct a fracked gas to methanol refinery at Port Westward, Oregon. As of today’s date, the “Projects” page of NWIW’s website explains that NWIW is “investing nearly \$4 billion in the construction of facilities at the Port of Kalama in Washington State and Port Westward in Oregon State” and that “NWIW is working closely with the Port of St. Helens in Oregon to develop plans for a facility at the Port Westward Industrial Park.” NWIW also has a detailed lease option agreement to allow construction and operation of the proposed methanol refinery at Port Westward.¹⁰⁴ And earlier this year, NWIW reaffirmed its interest in developing the proposed methanol refinery at Port Westward by negotiating an extension of its exclusive lease option until February 2020.¹⁰⁵

The parameters of NWIW’s proposal at Port Westward are sufficiently defined to allow the inclusion of the Port Westward methanol refinery’s fracked gas demand in the cumulative impacts analysis for the Kalama methanol proposal. As NWIW president Vee Godley explained to Port of St. Helens Executive Director Doug Hayes on March 17, 2018:

¹⁰² *Quinault Indian Nation v. Hoquiam*, SHB No. 13-012c, Order on Summary Judgment, p.18 (Dec. 9, 2013)

¹⁰³ Personal communication between Clay Riding, Vice President of Energy Resources for NWIW, and Jasmine Zimmer-Stucky, Senior Organizer for Riverkeeper (May 25, 2018) (further documentation available upon request).

¹⁰⁴ *Lease Option Agreement between NWIW and Port of St. Helens*, pp.6–7 (February 12, 2014) (available upon request).

¹⁰⁵ See [Port of St. Helens Resolution 2018-3](#) (February 14, 2018).

“NW[IW] is in the process of developing a world scale state of the art methanol manufacturing facility at your Port Westward location producing 10,000 Tonnes per day of methanol for the dedicated use in the fine chemicals materials industries. To manufacture methanol, we have various utility and feedstock requirements including a requirement for approximately 210 megawatts of steady state power.”¹⁰⁶

The amount of methanol, and the electricity demand, referenced in Mr. Godley’s letter are identical to the Kalama refinery proposal, so the fracked gas demand from both refineries should be similar if not identical. Additionally, correspondence from the Port of St. Helens to Columbia County described the exact location of the planned refinery and contained NWIW’s representations about some details of the Port Westward and Kalama proposals.¹⁰⁷ Even though the Port Westward methanol refinery is neither fully permitted nor absolutely certain to be constructed, the availability of specific information and NWIW’s prolonged interest make the Port Westward methanol refinery a “reasonably foreseeable” proposal for NEPA purposes that must be addressed in the cumulative impacts analysis for NWIW’s Kalama methanol refinery.

VII. NWIW’s proposed mitigation is misleading, incomplete, and violates SEPA.

The DSEIS impermissibly conflates the requirement to consider a range of alternatives with the requirement to consider mitigation measures. Alternatives analysis and mitigation requirements are two distinct concepts and requirements under both SEPA and its federal analog, the National Environmental Policy Act (NEPA). Both are necessary for compliance with the law. Yet the DSEIS conflates and muddles the requirements, using the ULE process “alternative”—and other “alternatives” such as shore power for berthed vessels—to pose as “mitigation.” Conflating these two core EIS requirements violates SEPA and misleads the public and decision makers about the actual nature of the GHG mitigation that NWIW is proposing.

An EIS, or a supplement thereto, must provide a reasonable set of alternatives (the preferred action and one or more alternatives) as well as separate discussion of mitigation measures.¹⁰⁸ The section of an EIS that includes analysis of mitigation measures is “not intended to duplicate the [alternatives] analysis in subsection (5) and *shall avoid doing so to the fullest extent possible.*”¹⁰⁹ Regarding mitigation, the EIS must “[c]learly indicate those mitigation measures (*not described in the previous section as part of the proposal or alternatives*), if any,

¹⁰⁶ *Letter from Godley (NWIW) to Hayes (Port of St. Helens)* (March 17, 2018) (available upon request).

¹⁰⁷ *Email and attachments from Paula Miranda (Port of St. Helens) to Henry Heimuller (Columbia County)*, (April 10, 2018) (available upon request).

¹⁰⁸ WAC 197-11-440(5) and (6)

¹⁰⁹ WAC 197-11-440(6)(b)(iii) (emphasis added).

that could be implemented or might be required”¹¹⁰ Alternatives and mitigation are further defined in the regulations as separate and distinct concepts.¹¹¹ Based on Washington regulations alone, the DSEIS’ consideration of the ULE refining process as both an alternative production process and mitigation of the emissions from production violates SEPA.

Washington case law also demonstrates that the two concepts must be kept separate. In *Citizens for Safe and Legal Trails v. King County*, the court explained that while “alternatives” include analysis of alternatives for achieving the project purpose that may be less environmentally damaging than the preferred action, mitigation measures are to address environmental impacts after an alternative is chosen.¹¹² That is, any alternative may have environmental effects, and mitigation measures address the effects that will occur regardless of the choice of alternatives.¹¹³

Similarly, federal NEPA case law¹¹⁴ addresses alternatives and mitigation analysis as two separate components, with mitigation analysis required in addition to discussion of alternatives. The Ninth Circuit recently stated that the discussion of mitigation measures in an EIS is intended to show how adverse environmental impacts that will occur after the construction of a project might be alleviated, regardless of whichever alternative is chosen.¹¹⁵

NWIW’s continued reliance on this approach in the DSEIS is directly contrary to the plain requirements of Washington regulation and case law. The ULE process and the use of shore power cannot serve as both project alternatives and “mitigation.” Doing so tests the logical definition of mitigation and merely incentivizes applicants like NWIW to manufacture alternatives that would have worse impacts than the preferred alternative and, rejecting them, call that “mitigation.” The DSEIS’s “mitigation” is just the choice between two manufacturing alternatives, both of which would create a huge increase in greenhouse gas pollutants from a new petrochemical plant.

¹¹⁰ WAC 197-11-440(6)(c)(iii) (emphasis added).

¹¹¹ See WAC 197-11-768 and 786.

¹¹² *Citizens for Safe and Legal Trails v. King County*, 118 Wn. App. 1048 (2003).

¹¹³ See *Citizens for Safe and Legal Trails*, 118 Wn. App. at ¶ 9. See also *Victoria Tower Partnership v. City of Seattle*, 59 Wn. App. 592, 601 and 603 (1990) (holding that the primary function of an EIS is to first identify potential adverse impacts from an action to then enable the agency decision-maker to ascertain whether and to what extent to require mitigation or to deny the proposal).

¹¹⁴ Washington courts will look to federal case law interpreting and applying National Environmental Policy Act (“NEPA”) for guidance in interpreting and applying SEPA. See, e.g., *ASARCO v. Air Quality Coal.*, 92 Wn.2d 685, 709 (1979); *Kucera v. State Dep’t of Transp.*, 140 Wn.2d 200, 215-16 (2000); *Gebbers v. Okanogan PUD No. 1*, 144 Wn.App. 371 (2008).

¹¹⁵ *Protect Our Communities Foundation v. Jewell*, 825 F.3d 571, 582 (9th Cir. 2016).

Besides being incomplete and misleading, NWIW's newly-disclosed "100 percent" mitigation proposal is completely devoid of substance or enforceability. SEPA guidance requires NWIW to "clearly identify the mitigation measures" NWIW is proposing and describe whether those measures are mandatory or potential.¹¹⁶ And Ecology recently reiterated its preference for GHG emission mitigation measures that are real, specific, identifiable, quantifiable, verifiable, and permanent.¹¹⁷ NWIW's vague offer to mitigate a portion of its GHG emissions by paying for unknown, unspecified carbon credits from undisclosed carbon markets, banks, or funds does not meet any of these requirements. Vaguely promising partial "voluntary" mitigation, but failing to provide any details about that mitigation or its impacts, does not satisfy Ecology's SEPA guidance regarding mitigation or the "hard look" requirement.

Most of NWIW's sizeable carbon footprint would come from GHG pollution occurring outside of Washington's borders. In response, NWIW recently promised to mitigate "100 percent of its GHG emissions"—but only those that occur inside Washington.¹¹⁸ This makes little practical sense and will not provide meaningful offsets to mitigate the impacts of the project. This further ignores the fact that NWIW's upstream and downstream GHG emissions will affect Washington's climate, natural resources, and communities in exactly the same way as NWIW's emissions that occur inside of Washington.

VIII. NWIW's proposal would add to the plastic pollution choking our oceans.

Plastic pollution, especially in the world's oceans, is a long-acknowledged problem and the focus of increasing global concern. A recent study concluded that, in 2010 alone, between 4.8 and 12.7 million metric tons of land-based plastic garbage found its way into our oceans.¹¹⁹ And the "quantity of plastic waste available to enter the ocean from land is predicted to increase by an order of magnitude by 2025."¹²⁰

If, as NWIW intends, its methanol would be made into plastic products, the SEIS should explain the amount and likely fate of those plastic products at the end of their useful life and the consequent impacts on the human environment. First, the SEIS should explain how much plastic would be generated from NWIW's methanol over the project's lifetime. The EIS should also explain how methanol-based plastic waste makes its way into the environment and, specifically,

¹¹⁶ Washington State Department of Ecology, *Publication No. # 98-114: State Environmental Policy Act Handbook*, p. 57 (2003).

¹¹⁷ Exhibit 4, p. 2.

¹¹⁸ DSEIS, p. 3-31.

¹¹⁹ Jambeck, *et al.*, *Plastic waste inputs from land into the ocean*, 347 *Science* 769–771 (2015).

¹²⁰ *Id.*

the world's oceans. After being used, what percentage of plastics is recycled, put into landfills, burned, or reach the ocean?

To the extent possible, the SEIS should estimate how much of the plastic derived from NWIW's methanol would ultimately enter the ocean, based on the total volume of plastic produced over the project's lifetime, the likely destinations and uses of such plastic products, and the rate at which such plastics enter the world's oceans. Data presented in the article in the journal *Science*, "Plastic waste inputs from land into the ocean,"¹²¹ may assist in making such calculations.

The SEIS should also examine the cumulative impact of how the growth of North American petrochemical facilities, like NWIW, affects the quantity of plastic trash entering our oceans. There is a direct link from cheap and plentiful North American shale gas to expanded plastics production, and from there to increased marine plastic pollution.¹²² Even if the direct impact of NWIW's contribution to marine plastics pollution difficult to describe, NWIW is part of a continent-wide increase in the manufacture of plastics precursors driven by a glut of cheap shale gas. This industry growth will increase plastics production by 40 percent,¹²³ with corresponding and measurable increases in marine plastics pollution. The SEIS should therefore at least discuss the cumulative impact of marine plastics pollution from NWIW and similar facilities that are currently proposed or recently activated in North America.

IX. The Port, NWIW, and Life Cycle Associates' conflicts of interest undermine the DSEIS' conclusions.

The entities responsible for producing the DSEIS—the Port, NWIW, and Life Cycle Associates—each have significant financial incentives to produce a report showing the lowest possible climate impact. The political and regulatory realities surrounding this proposal are clear; Washington's leaders and public demand real action to address the worsening impacts of climate change. Admitting that this project would result in a massive net addition of greenhouse gas (GHG) pollution into our atmosphere would severely jeopardize the proposal's ability to obtain key permits and millions of dollars in public subsidies.

The financial incentives are clear. NWIW hopes to reap massive profits by arbitraging cheap North American fracked gas, exported in the form of methanol. According to NWIW's

¹²¹ *Id.*

¹²² The Guardian, [\\$180bn investment in plastic factories feeds global packaging binge](#) (December 26, 2017).

¹²³ *Id.*

2013 projections, the project would generate \$150 million of profit each year.¹²⁴ The Port is guaranteed at least \$1.8 million in cash each year based on methanol wharfage alone, and this amount does not include rent or dockage fees also guaranteed to the Port.¹²⁵ Finally, Life Cycle Associates is substantially more likely to obtain similar lucrative contracts from project developers in the future if it under-estimates NWIW's climate impacts. Indeed, Life Cycle Associates' highly questionable analysis of the upstream methane emissions from the Tacoma LNG facility¹²⁶ likely enticed NWIW to retain the firm. Handing SEPA review over to these three entities is the regulatory equivalent of appointing the proverbial fox to guard the henhouse.

Unfortunately, but unsurprisingly, the financial interests of the project proponents and their consultant resulted in a self-serving and inaccurate assessment of the proposal's climate impacts. This bias permeates the entire DSEIS, but is highly visible when, for example, the DSEIS ignores the best available science about upstream methane leakage rates or switches between using the 20- and 100-year GWP for methane based on which portrays the proposal more favorably.

This conflict of interests was completely foreseeable and could have been avoided had the Washington Department of Ecology (Ecology) not abdicated its authority¹²⁷ to perform the SEPA analysis (or had the Washington Energy Facility Site Evaluation Counsel exercised its jurisdiction over this massive fossil fuel export facility). Despite these missteps, if the project proponents insist on carrying forward their flawed and self-serving analysis into a Final SEIS, Ecology should to prepare its own SEIS¹²⁸ to objectively describe the proposal's GHG emissions prior to deciding whether, and under what conditions, to approve the Shorelines Conditional Use Permit.

CONCLUSION

Please re-examine the DSEIS' misguided conclusion that the world's largest fracked gas-to-methanol refinery would somehow benefit our climate and have no significant adverse impacts on the Columbia River estuary or public health. NWIW's proposal—which, at its core, is no different than previously rejected coal, crude oil, and LNG export schemes on the

¹²⁴ Exhibit 8. Pan-Pacific Energy Corp, *Port of Kalama Methanol Project Business Plan*, p.28 (Dec. 2013).

¹²⁵ See *Dock Usage Agreement between the Port of Kalama and NWIW Kalama, LLC*, §§ 1.10, 1.11, 4.1, and 4.2 (April 9, 2014).

¹²⁶ See Exhibit 3; see also Exhibit 4.

¹²⁷ WAC 197-11-938(9); see also *Letter from Vee Godley (NWIW) to Sally Toteff (Ecology)*, p. 1 (Aug. 25, 2015) (“Ecology could have taken on the SEPA lead agency duties for the Kalama proposal under WAC 197-11-938(9) given that the storage tanks’ capacity exceeded 1,000,000 gallons”) (available on request).

¹²⁸ As contemplated and authorized by WAC 197-11-600(3)(b) & (c).

Columbia—does not embody the “global transition to a carbon-free future”¹²⁹ that Washington State demands and deserves.

Sincerely,



Miles Johnson, Senior Attorney for Columbia Riverkeeper

Submitted on behalf of:

*Columbia Riverkeeper
Sierra Club
Center for Biological Diversity
Stand.earth
Oregon Physicians for Social Responsibility
Food and Water Watch
Washington Physicians for Social Responsibility
350 PDX
Rogue Climate
350 Seattle
350 Tacoma
350 Eastside
Bark
Green Energy Institute
Center for Sustainable Economy
Cascadia Wildlands*

Exhibits:

- Exhibit 1: Alvarez, *et al.*, *Assessment of methane emissions from the U.S. oil and gas supply chain*, Science (2018).
- Exhibit 2: Sierra Club, *Fracked Gas: Nothing “Natural” About It* (2018).
- Exhibit 3: Washington Attorney General, *Comment to PSCAA on DSEIS for PSE LNG Project* (Nov. 21, 2018).

¹²⁹ Governor Jay Inslee (quoted in Columbia Basin Bulletin, *Federal Climate Report Suggests More Warm Years Such As 2015 Will Be A Reality For Columbia Basin* (November 30, 2018)).

- Exhibit 4: Washington Department of Ecology, *Comment to PSCAA on DSEIS for PSE LNG Project* (Nov. 21, 2018).
- Exhibit 5: Qun *et al.*, *A comparison between coal-to-olefins and oil-based ethylene in China: An economic and environmental prospective*, 165 *Journal of Cleaner Production* 1351–1360, 1356 (2017).
- Exhibit 6: NWIGU, *Comments on Puget Sound Energy's 2017 Final IRPs* (February 22, 2018).
- Exhibit 7: Columbia Riverkeeper, *Letter to Army Corps of Engineers Regarding Cumulative Impacts of the Kalama Methanol Refinery* (August 9, 2018).
- Exhibit 8: Pan-Pacific Energy Corp, *Port of Kalama Methanol Project Business Plan* (Dec. 2013).

cc'd via email:

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- Taylor Aalvik, Natural Resources Director, Cowlitz Indian Tribe
- Julie Carter, Policy Analyst, Columbia River Inter-Tribal Fish Commission
- Carl Merkle, Confederated Tribes of the Umatilla Indian Reservation
- Maia Bellon, Director, Washington Department of Ecology
- Perry Lund, Washington Department of Ecology, Shorelines Division
- Reed Schuler, Senior Policy Advisor to Governor Inslee, Climate & Sustainability