
APPENDIX R

Comments on the Draft EIS and Responses

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of impacts that should be considered.⁵¹ The EPA also has previously recommended that the Commission estimate the GHG emissions from the development and production of gas being transported through proposed pipelines, as well as from product end use, due to the reasonably close causal relationship of this activity to pipeline projects.⁵²

The Commission may not legitimately argue that a lack of information about specific wells providing gas for the Project precludes analysis of upstream climate impacts. It is not necessary to know the exact locations of all of the wells that will supply gas to the Project, or the methods used to obtain that gas, in order to analyze the potential impacts. The Commission already knows the total capacity of the pipeline and the region from which gas will be supplied. Therefore, average production rates and production methods from wells in the supply region could be obtained from state databases,⁵³ which could then be used to estimate the number of wells and the types of equipment and production methods necessary to supply the full pipeline capacity. The Commission could also request such information from producers and marketers that have contracts to supply gas to the pipeline, if such contracts are offered in this docket. Were the Commission to obtain such additional information for the Project, it would also be necessary to circulate a new or revised DEIS to provide this information to the public and allow for

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CO26-43 “Life-cycle” emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown,

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⁵¹ Memo. from the Council of Envtl. Quality to Heads of Fed. Dep’ts and Agencies on Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews 14 (2016), available at https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf (accessed July 5, 2019) [hereinafter, “CEQ Final Guidance”]. Although CEQ withdrew the CEQ Final Guidance in response to President Trump’s Executive Order 13,783, see “Promoting Energy Independence and Economic Growth,” Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 82 Fed. Reg. 16,576 (Apr. 5, 2017), this does not preclude agencies from utilizing the tools contained therein to consider the impacts of its actions on climate change when conducting environmental reviews, as required by NEPA and relevant case law.

⁵² “EPA Comments on the Mountain Valley Pipeline Draft Environmental Impact Statement,” *supra* note 49, at 3.

⁵³ See, e.g., *Links to State Well Data*, USGS <https://www.usgs.gov/core-science-systems/ngdp/core-research-center/links-state-well-data> (providing links to state-level information on gas wells) (accessed July 5, 2019).

comment. This information could then be used to analyze the potential GHG emissions and to develop a reasonable range of alternatives and mitigation measures to offset such emissions should the Project move forward.

There is ample evidence that full lifecycle analysis of an LNG export project is feasible. Indeed, several recently published papers provide examples, eliminating any argument that it is not possible for the Commission to undertake such an analysis. For example, studies have been completed by the National Energy Technology Laboratory,⁵⁴ scientists from Carnegie Mellon University,⁵⁵ and additional academic experts.⁵⁶

With regard to indirect impacts, the reasonably foreseeable effects “of authorizing a pipeline that will transport natural gas” include the fact “that gas will be burned” *Sabal Trail*, 867 F.3d. at 1372. Indeed, the end use of the transported gas “is not just ‘reasonably foreseeable,’ it is the project’s entire purpose . . .” *Id.* Moreover, “[i]t is just as foreseeable . . . that burning natural gas will release into the atmosphere the sorts of carbon compounds that contribute to climate change.” *Id.* Accordingly, the Commission “is a ‘legally relevant cause’ of the direct and indirect effects of pipelines it approves,” for NEPA purposes, because “Congress broadly instructed the agency to consider ‘the public convenience and necessity’ when evaluating applications to construct and operate interstate pipelines,” and “[b]ecause FERC could

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CO26-44 “Life-cycle” emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown.

CO26-45 “Life-cycle” emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown.

⁵⁴ Skone, T., G. Cooney, M. Jamieson, J. Littlefield, and J. Marriott. “Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States.” NETL/DOE(2014), available at <https://www.eercy.gov/sites/prod/files/2014/05/16/Life%20cycle%20GHG%20Perspective%20Report.pdf> (accessed July 5, 2019). See Attach. 2.

⁵⁵ Abrahams, L., C. Samaras, W. Griffin, and H. Matthews. “Life Cycle Greenhouse Gas Emissions From U.S. Liquefied Natural Gas Exports: Implications for End Uses.” ENVIRONMENTAL SCIENCE & TECHNOLOGY 49 (2015), available at <https://pubs.acs.org/doi/pdf/10.1021/es503617p> (accessed July 5, 2019). See Attach. 3.

⁵⁶ Kasumu, A. S. V. Li, J. W. Coleman, J. Liendo and S. M. Jordaan. “Country-level Life Cycle Assessment of Greenhouse gas emissions from Liquefied Natural Gas Trade for Electricity Generation.” ENVIRONMENTAL SCIENCE & TECHNOLOGY 52, 1735-1746 (2018).

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deny a pipeline certificate on the ground that the pipeline would be too harmful for the environment.” *Id.* Accordingly, “greenhouse-gas emissions are an indirect effect of authorizing [a gas pipeline], which FERC could reasonably foresee, and which the agency has legal authority to mitigate.” *Id.* at 1374. For these reasons, the Commission’s EIS must “include a discussion of the ‘significance’ of this indirect effect as well as the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.*

Likewise, the induced production of gas for export is a reasonably foreseeable effect of the construction of the Project. By providing access to international markets, the Project, including both the Pacific Connector pipeline and the Jordan Cove terminal, may cause further development of gas production in the U.S. and thus have additional indirect or cumulative impacts. The DEIS must carefully consider the climate impacts associated with induced production of gas. Indeed, in *Sierra Club v. DOE*, the court upheld lifecycle analysis of emissions associated with an LNG export facility. 867 F.3d 189, 195–96 (D.C. Cir. 2017). This analysis was significantly more complete than what the Commission has proffered here, although it was still inadequate in multiple respects.

The Commission must also analyze and disclose the cumulative impacts of the GHG emissions resulting from its actions. Analysis of cumulative impacts protects against “the tyranny of small decisions,” *Kern*, 284 F.3d at 1078, by confronting the possibility that agency action may contribute to cumulatively significant effects even where impacts appear insignificant in isolation, 40 C.F.R. §§ 1508.7, 1508.27(b)(2).⁵⁷ The impact of “[GHG] emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to

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CO26-46 Climate change is discussed in section 4.14 of the draft EIS.

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⁵⁷ See also *Considering Cumulative Effects Under the National Environmental Policy Act*, CEQ (1997), available at https://www.energy.gov/sites/prod/files/ncapub/ncpa_documents/RcdDmt/G-CEQ-ConsidCumulEffects.pdf (accessed July 5, 2019); see also 40 C.F.R. § 1508.27(b)(7) (“Significance cannot be avoided by . . . breaking [an action] down into small component parts.”).

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conduct.” *Cir. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008). “Given the national, cumulative nature of climate change, considering each individual drilling project in a vacuum deprives the agency and the public of the context necessary to evaluate oil and gas drilling on federal land before irretrievably committing to that drilling.” *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 83 (D.D.C. 2019). Thus, an agency’s failure to quantify GHG emissions renders its cumulative impact analyses inadequate. *Id.* at 76. Here, the Commission failed to consider the cumulative climate impacts of the GHG emissions associated with project, together with other past, present, and reasonably foreseeable oil and gas development managed by this agency and others, as required by NEPA.

The Commission must analyze and disclose the impacts of this action, and its cumulative climate impacts analysis should include the incremental GHG emissions increases, added to other past, present, and reasonably foreseeable emissions on a regional and national scale. *See* 40 C.F.R. §§ 1508.7, 1508.27(a). The Commission must complete a comprehensive cumulative impacts analysis that compares GHG emissions from the Project to emissions from other certificates the Commission approved in this region and across the country. *See WildEarth Guardians*, 368 F. Supp. 3d at 76–77 (“To the extent other [agency] actions in the region—such as other lease sales—are reasonably foreseeable when an [Environmental Assessment] is issued, [the agency] must discuss them as well.”).

Similarly, here, the Commission must analyze and disclose to the public the cumulative GHG emissions from similar, collectively significant certificate approvals in this region and nationally. *See id.* at 77. (“[NEPA] does, however, require that [the agency] quantify the emissions from each leasing decision—past, present, or reasonably foreseeable—and compare

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those emissions to regional and national emissions, setting forth with reasonable specificity the cumulative effect of the leasing decision at issue.”). Therefore, to the extent other Commission certificate approvals in this region are reasonably foreseeable, the Commission must discuss them as well. *See id.*

At a bare minimum, the Commission must attempt to gather information on the upstream and downstream climate impacts associated with the production and end-use of the gas that will flow through the Project. Where, as here, the Commission is acting pursuant to a broad congressional directive in the NGA to consider the public interest and is making a decision pursuant to NEPA’s action-forcing procedures, both the NGA and NEPA provide the Commission with the ability to gather information necessary to make a decision in a rational manner. For example, as described above, the Commission previously has used its authorities under the NGA to seek information from Applicants regarding the ostensible need for the Project. *See Jordan Cove Energy Project L.P.*, 154 FERC ¶ 61,190 at P 39 (Mar. 11, 2016); *see also Dominion Transmission, Inc.*, 163 FERC ¶ 61,128, at 2 (May 18, 2018) (Comm’r Glick, dissenting) (“it is critical that, as an agency of the federal government, the commission comply with its statutory responsibility to document and consider how its authorization of a natural gas pipeline facility will lead to the emission of greenhouse gases, contributing to climate change”).

Likewise, NEPA clearly requires the agency to attempt to obtain information that is important to a comparison among alternatives. Where “incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency *shall include the information in the [EIS].*” 40 C.F.R. § 1502.22(a). Here, information about the upstream and downstream impacts associated with the production and end-use of gas is essential to a reasoned

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CO26-47 “Life-cycle” emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown.

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choice among alternatives that may have lower lifecycle climate impacts and is critically important to the statutorily mandated consideration of whether the proposed action is in the public interest. *See Sabal Trail*, 867 F.3d at 1373 (“Congress broadly instructed the [Commission] to consider the ‘public convenience and necessity’ when evaluating applications to construct and operate interstate pipelines” (quoting 15 U.S.C. § 717f(e)).

The D.C. Circuit recently affirmed this principle: “It should go without saying that NEPA also requires the Commission to at least *attempt* to obtain the information necessary to fulfill its statutory responsibilities.” *Birckhead*, 925 F.3d. at 521. Accordingly, the Commission must attempt to obtain information about the sources of the gas that will flow through the Project, as well as information about all end uses of that gas, and must use that information to carefully examine upstream and downstream climate impacts. *See id.* (“We are troubled, as we were in the upstream-effects context, by the Commission’s attempt to discount downstream impacts based on its lack of information about the destination and end use of the gas in question.”).

The Commission’s failure to even attempt to identify and evaluate the environmental impacts associated with the upstream production or downstream consumption of gas is especially unreasonable in view of the fact that such information is clearly available. For example, with regard to upstream production of gas, the DEIS states that “[a]ccording to [Applicants], the Project is a market-driven response to increasing natural gas supplies *in the U.S. Rocky Mountain and Western Canada markets*, and the growth of international demand, particularly in Asia.” DEIS at 3-4 (emphasis added). Accordingly, the Commission clearly does have access to comprehensive information about the sources of the gas that will flow through the Project.

Likewise, more information about this issue may be available from Applicants. Indeed, as discussed above, the Commission previously rejected the Project in part due to a lack of evidence

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CO26-49 “Life-cycle” emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown.

CO26-50 The Commission would make its finding of public benefit in its decision-document Project Order. The EIS is not a decision-document. The Commission would issue its Order after we have produced a final EIS.

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regarding the market need for the Project. Such evidence includes information and contracts regarding the purchase and sale of gas—i.e. information about sources and end uses. As described above, Applicants have failed to provide any rigorous evidence of need, instead relying entirely on self-serving agreements between the two affiliate corporations proposing the LNG terminal and pipeline. Accordingly, as described, the Commission should deny the requested authorization due to a lack of need.

Because information about the sources and end uses of LNG is required for the showing of need under Section 7 of the NGA with regard to the proposed Pacific Connector pipeline, Applicants must make any such information available to the Commission. Likewise, because this is, in the Commission's own view, an integrated project with the Pacific Connector pipeline providing the only source of gas for the export facility, a failure to provide such information must be fatal to both the pipeline and the Jordan Cove terminal. In turn, the Commission may not rationally require information about the sources and destinations of the LNG that will flow through the Project to determine whether there is need for the project that outweighs certain impacts, such as the use of eminent domain to displace unwilling landowners, but then refuse to consider that same information as it pertains to adverse impacts related to climate change. Considering evidence for one purpose but turning a blind eye to that same evidence's conspicuous relevance to another purpose does not comport with NEPA's hard look standard.

The Commission's DEIS flouts these established NEPA principles by asserting that lifecycle impacts, such as both upstream impacts associated with the production of gas and downstream impacts associated with the consumption of gas, are somehow beyond the EIS's scope. DEIS at 1-18. This approach fails to comply with NEPA, as already explained to the Commission by the D.C. Circuit. Without any attempt to quantify the lifecycle impacts

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CO26-51 “Life-cycle” emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown.

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associated with the gas that will flow through the Project, “it is difficult to see how FERC could engage in ‘informed decision making’ with respect to the greenhouse-gas effects of this project, or how ‘informed public comment’ could be possible.” *Sabal Trail*, 867 F.3d at 1374. Likewise, because “an agency decisionmaker reviewing this EIS would . . . have no way of knowing whether total emissions, on net, will be reduced or increased by this project, or what the degree of reduction or increase will be . . . the EIS fails to fulfill its primary purpose.” *Id.* at 1375; *see also Mid States Coal. Progress v. Surface Transp. Bd.*, 345 F.3d 520, 550 (8th Cir. 2003) (“it would be irresponsible . . . to approve a project of this scope without first examining the effects that may occur as a result of the reasonably foreseeable increase in [fossil fuel] consumption.”).

C. **The Commission May Not Lawfully Dismisss or Ignore Available Methodology for Evaluating Climate Impacts**

As part of its refusal to adequately consider climate impacts associated with the Project, the Commission erroneously asserts that there is no reliable method for it to evaluate climate impacts. For example, the Commission asserts that “there is no universally accepted methodology to attribute discrete, quantifiable physical effects on the environment to the Project’s incremental contribution to GHGs.” DEIS at 4-806. Thus, the Commission rejected using atmospheric models from the EPA, National Aeronautics and Space Administration, the IPCC, “and others,” asserting that these models are too large and complex to “determine the incremental impact of individual projects.” However, the Commission has neither specifically identified these models (particularly those from “others”), nor explained why they are purportedly too large or complex to apply here. Moreover, this assertion is particularly dubious in light of the Commission’s refusal to consider emissions from the production or consumption of the gas that will flow through the Project. In fact, because the Jordan Cove terminal is purportedly being designed to export gas for use in Asia, models that assess impacts on the

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CO26-52 Comment noted. Climate change is discussed in section 4.14 of the draft EIS.

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climate—and information about the climate goals of relevant Asian nations—are appropriate for use in this context. At a bare minimum, the Commission must at least identify the relevant models and provide a thorough and reasoned explanation for the assertion that these models are inapplicable.

Moreover, in addition to rejecting these unidentified models for their ostensible complexity, the Commission also rejected “simpler models and mathematical techniques.” DEIS at 4-806. Again, the Commission failed to identify any of these simpler models or explain how the agency came to the conclusion that they are unreliable. The Commission must, at a minimum, identify these models and techniques and explain the basis for its refusal to employ them.

NEPA requires a more searching analysis than merely disclosing the amount of pollution. Merely quantifying GHG emissions is inadequate. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216-17 (9th Cir. 2008). CEQ has explicitly addressed the inappropriateness of an agency’s assertion that the emissions resulting from its actions represent only a small fraction of global emissions in order to avoid analysis and disclosure of climate impacts, as follows:

Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small

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addition to global atmospheric GHG concentrations that collectively have a large impact.⁵⁸

While the Commission must include quantitative estimates of the total GHG emissions resulting from its approvals, it must also include an assessment of ecological, economic, and social impacts of those emissions, including an assessment of their significance. *See* 40 C.F.R. §§ 1508.8(b); 1502.16(a)-(b). The inclusion of this information in an agency's NEPA analysis allows members of the public and interested parties to evaluate this information, submit written comments where appropriate, and spur further analysis as needed. *W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, CV16-21-GF-BMM, 2018 WL 1475470, at *16 (D. Mont. Mar. 26, 2018). Without all the relevant information, a NEPA analysis cannot "foster informed decision-making." *Id.* (citing *Block*, 690 F.2d at 761). The Commission must analyze the significance and severity of emissions, so that decisionmakers and the public can determine whether and how those emissions should influence the choice among alternatives. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52 (1989) (recognizing that EIS must discuss "adverse environmental effects which cannot be avoided[.]" which is necessary to "properly evaluate the severity of the adverse effects").

The Commission should not place the burden of analyzing data and drawing conclusions from it on the public. *WildEarth Guardians*, 368 F. Supp. 3d at 83. Even if it were possible for the public to analyze GHG emissions of agency decisions based on the data made available, it does not relieve the Commission from its burden to consolidate the available data as part of its "informed decisionmaking," before taking action. *Id.* (citing *WildEarth Guardians v. Jewell*, 738 F.3d 298, 303 (D.C. Cir. 2013) (quoting *New York v. Nuclear Regulatory Comm'n*, 681 F.3d 471, 476 (D.C. Cir. 2012))).

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⁵⁸ See CEQ Final Guidance, *supra* note 51.

To take the required hard look, the Commission must tell the public what quantitative estimates mean in terms of “actual environmental effects.” *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216 (9th Cir. 2008) (“While the [Environmental Assessment] quantifies the expected amount of CO₂ emitted from light trucks MYs 2005-2011, it does not evaluate the ‘incremental impact’ that these emissions will have on climate change or on the environment more generally. . . . The [Environmental Assessment] does not discuss the actual environmental effects resulting from those emissions.”); *Or. Nat. Res. Council v. U.S. Bureau of Land Mgmt.*, 470 F.3d 818, 822-23 (9th Cir. 2006) (rejecting assessment of logging project’s impacts by looking exclusively at the number of acres to be harvested); *Klamath-Siskiyou Wildlands Ctr. v. U.S. Bureau of Land Mgmt.*, 387 F.3d 989, 995 (9th Cir. 2004) (While tallies of “the number of acres to be harvested” and “the total road construction anticipated” were “a necessary component” and “a good start” to the analysis, respectively, they do not amount to the required “description of *actual* environmental effects”); 40 C.F.R. § 1508.25(c).

While the Commission is not required to use any specific protocols to determine the significance of emissions under NEPA, it must undertake a more robust discussion of GHG emissions than what is presented in the DEIS. *WildEarth Guardians*, 368 F. Supp. at 78. An agency’s failure to provide a discussion of the significance of impacts resulting from its decisions and associated climate implications deprives the public of important information on the cumulative GHG emissions and true climate implications of agency actions. See *Or. Nat. Desert Ass’n v. U.S. Bureau of Land Mgmt.*, 625 F.3d 1092, 1099-1100 (9th Cir. 2010) (“[NEPA] require[s] agencies to take a ‘hard look’ at how the choices before them affect the environment, and then to place their data and conclusions before the public.”). Accepted methods exist to quantify and analyze the significance of GHG emissions (through monetization), which the

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Commission could use to evaluate the significance of those emissions and to balance consequences of emissions against benefits of a specific approval.⁵⁹ Here, the Commission failed to analyze and disclose the significance of the emissions and related climate change impacts using existing tools, such as the Interagency Working Group's (IWG) Social Costs of Greenhouse Gases and global carbon budgeting.

1. Social Cost of Carbon

One tool that the Commission could have used to put the significance of the emissions in a context that decisionmakers and members of the public could understand is the Social Cost of Carbon (SCC) protocol, which was “designed to quantify a project’s contribution to costs associated with global climate change.” *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1190-91 (D. Colo. 2014) (The SCC was an available tool to quantify the significance of GHG impacts, and it was “arbitrary and capricious to quantify the *benefits* of the lease modifications and then explain that a similar analysis of the *costs* was impossible”) (emphasis in original). The SCC allows agencies to “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options.” 40 C.F.R. § 1502.14.

The SCC was developed by the IWG on the Social Costs of Greenhouse Gases.⁶⁰ The IWG was comprised of multiple federal agencies and White House economic and scientific

⁵⁹ See Jayni Hein et al., *Pipeline Approvals and Greenhouse Gas Emissions*, at 5, NYU SCHOOL OF LAW INST. FOR POLICY INTEGRITY (2019), available at <https://policyintegrity.org/publications/detail/pipeline-approvals-and-greenhouse-gas-emissions>. See Attach. 4.

⁶⁰ Technical Support Document: Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 13,866, at 1, IWG (2016), available at https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/SCC_tsd_final_clean_8_26_16.pdf [hereinafter *IWG 2016 Report*

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CO26-54 The Social Cost of Carbon (SCC) tool, as well as the Social Cost of Methane and Nitrous Oxide tools, estimates the monetized climate change damage associated with an incremental increase in carbon dioxide (CO₂) emissions in the given year. It estimates the cost today of future climate change damage, represented by a series of annual costs per metric ton of emissions discounted to present-day value. We recognize the availability of the SCC tool, but conclude that it is not appropriate for use in project analyses because (1) the SCC is not meaningful in our NEPA analysis for project decisions under the Natural Gas Act (NGA). The Commission has determined that the SCC tool is more appropriately used in NEPA analyses by regulators whose responsibilities are tied more directly to fossil fuel production or consumption. The Commission’s authority under Section 7 of the NGA has no direct connection to the production or end use of natural gas. The Commission does not control the production or consumption of natural gas. Producers, consumers, and their intermediaries respond freely to market signals about location-specific supply and location-specific demand. The Commission oversees proposals to transport natural gas between those locations. Our NEPA analysis considers all construction emissions and annual operational GHG emissions that are causally related to the proposed action that is before the Commission.

(2) FERC staff does not use monetized cost-benefit analyses as part of the NEPA review. Siting infrastructure involves making qualitative judgments between different resources as to which there is no agreed-upon quantitative value. As such, we do not conduct a monetary cost-benefit analysis in our NEPA review. The draft EIS did quantify some of the Project’s direct socioeconomic benefits (e.g., employment and tax payments) because those benefits occur in units of dollars and are directly comprehensible in units of dollars. However, because Commission staff lack quantified information about all of the costs and benefits of the Project, the final EIS does not use the limited available quantified benefits in a cost-benefit analysis to inform Commission staff’s comparison of alternatives, choices of mitigation measures, or determination about the significance of the Project’s environmental impacts. FERC staff notes that the Project draft EIS used various tools and measurements to disclose and quantify potential impacts associated with the Project. FERC staff chose quantification tools appropriate to each individual resource. For example, the EIS used acres of wetland disturbance, number of existing residences within 50 feet of the proposed construction right-of-way, decibels of noise associated with operation of aboveground facilities, and, as presented in section 4.9.2 of the draft EIS, dollar amounts were estimated to present potential economic effects of the Project. For GHG emissions, FERC staff used tons of GHG emissions to quantify and disclose the potential impacts of GHG emissions associated with the Project. We believe that providing estimated tons of GHG emissions was an appropriate tool to use to quantify the potential GHG impacts associated with the Project.

(3) The SCC tool has technical limitations that limit its usefulness in NEPA analyses for Commission certificate proceedings. FERC staff acknowledges that the SCC methodology does constitute a tool that can be used to estimate incremental physical climate change impacts. The integrated assessment models underlying the SCC tool were developed to estimate certain global and regional physical climate change impacts due to incremental GHG emissions under specific socioeconomic scenarios. However, the EPA states that “no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations” and consequently, significant variation in output can result. Additionally, there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews. Therefore, although the integrated assessment models could be run through a first phase to estimate global and regional physical climate change impacts from Project related GHG emissions, we would still have to arbitrarily determine what potential increase in atmospheric GHG concentration, rise in sea level, rise in sea water temperatures, and other calculated physical impacts would be significant for a particular pipeline project. Because we have no basis to designate a particular dollar figure calculated from the SCC tool as “significant,” such action would be arbitrary and would meaningfully inform neither the NEPA conclusions nor the public. For these reasons, FERC staff chose not to use the SCC tool in the NEPA analysis for this Project.

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experts, and the SCC was developed using up-to-date peer-reviewed models.⁶¹ According to one analysis, “[t]he SCC estimates the benefit to be achieved, expressed in monetary value, by avoiding the damage caused by each additional metric ton (tonne) of carbon dioxide (CO₂) [released] into the atmosphere.”⁶² These costs are created when GHG emissions force climate change, increasing global temperatures. This leads to sea level rise, increased intensity of storms, drought, and other changes, which have negative economic impacts including property damage from storms and floods, reduced agricultural productivity, impacts on human health, and reduced ecosystem services. The SCC estimates the dollar value of these negative economic impacts and recognizes that every marginal ton of CO₂ carries with it a SCC.⁶³

While the SCC may underestimate climate costs because it does not include all important damages, the IWG’s metrics remain the best estimates yet produced by the federal government for monetizing the impacts of GHG emissions and are “generally accepted in the scientific community.” 40 C.F.R. § 1502.22(b)(4). Several courts have rejected agency refusals to use the SCC as a means of evaluating the impact of GHG emissions that result from agency action. *See, e.g., Sabal Trail*, 867 F.3d at 1375; *Montana Envtl. Info. Ctr. v. U.S. Office of Surface Mining*

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C.F.R. § 1502.22(b)(3) (requiring the use of “existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment.”).

⁶¹ Technical Support Document: - Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12,866, at 2, IWG (2013), available at <https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/info/reg/technical-update-social-cost-of-carbon-for-regulator-impact-analysis.pdf> (accessed July 5, 2019); Technical Support Document: - Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12,866, at 2, IWG (2010), available at https://www.epa.gov/sites/production/files/2016-12/documents/scc_isd_2010.pdf (accessed July 5, 2019).

⁶² Ruth Greenspan Bell & Dianne Callan, *More than Meets the Eye: The Social Cost of Carbon in U.S. Climate Policy, in Plain English* , at 1, ELI (2011), available at https://wriorg.s3.amazonaws.com/s3fs-public/pdf/more_than_meets_the_eye_social_cost_of_carbon.pdf?_ga=2.264401292.2091293810.1554226136-1873117202.1554226136 (accessed July 5, 2019).

⁶³ Richard Revesz, et al., *Global Warming: Improve Economic Models of Climate Change*, 508 NATURE 173, 173-175 (2014).

Reclamation and Env'tl., 274 F. Supp. 3d 1074, 1094-99 (D. Mont. 2017) (rejecting agency's failure to incorporate the federal SCC estimates into its cost-benefit analysis of a proposed mine expansion); *Zero Zone, Inc. v. DOE*, 832 F.3d 654, 679 (7th Cir. 2016) (holding estimates of the SCC used to date by agencies were reasonable); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1190-93 (D. Colo. 2014) (holding the SCC was an available tool to quantify the significance of GHG impacts, and it was "arbitrary and capricious to quantify the *benefits* of the lease modifications and then explain that a similar analysis of the *costs* was impossible") (emphasis in original). If an agency monetizes the economic benefits of fossil fuel extraction, it must then also monetize the costs of carbon pollution. *See Montana Env'l. Info. Ctr.*, 274 F. Supp. 3d at 1094-99. An agency may not assert that the social cost of fossil fuel development is \$0: "by deciding not to quantify the costs at all, the agencies effectively zeroed out the costs in its quantitative analysis." *High Country Conservation Advocates*, 52 F. Supp. 3d at 1192; *see also Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1200 (9th Cir. 2008) (finding that while there is a range potential social cost figures, "the value of carbon emissions reduction is certainly not zero").

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Even if NEPA does not require a cost benefit analysis, NEPA does require the Commission to assess the significance of its actions, and the SCC remains one of the best tools available to analyze and disclose to the public the significance of GHG emissions. For example, disclosing that a certificate approval will have \$100 million in climate impacts makes it an easily digestible figure for the public.

The SCC is particularly notable in its absence from the DEIS. Although in the past, the Commission has refused to use the SCC to consider climate impacts, the Commission is entirely silent with regard to its use for the Project. The D.C. Circuit recently rejected the Commission's

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previous effort to disregard the SCC, holding that the Commission must “explain in the EIS, as an aid to the relevant decisionmakers, whether [its previous] position on the Social Cost of Carbon . . . still holds, and why.” *Sabal Trail*, 867 F.3d at 1375. The Commission must provide such an explanation in a new or supplemental DEIS, so that the public can comment on the agency’s apparent refusal to utilize this important tool.

2. Social Cost of Methane

Similarly, the Social Cost of Methane is another available tool that the Commission could use in its NEPA analysis to analyze and disclose the significance of impacts of its decisions as required by 40 C.F.R. §§ 1508.8(b), 1502.16(a)-(b). In August 2016, the IWG provided an update to the SCC technical support document,⁶⁴ adopting a similar methodology for evaluating the climate impact of each additional ton of methane and nitrous oxide emissions.⁶⁵ Similar to the SCC, the Social Cost of Methane provides a standard methodology that allows state and federal agencies to quantify the social benefits of reducing methane emissions.

The Social Cost of Methane is intended to “offer a method for improving the analyses of regulatory actions that are projected to influence [methane or nitrogen oxide] emissions in a manner consistent with how [carbon dioxide] emission changes are valued.”⁶⁶ Like the SCC, the Social Cost of Methane is presented as a range of figures across four discount rates; it is based on results from three integrated assessment models, displayed in dollars per metric ton of emissions; and increases over time because emissions become more damaging as their atmospheric

⁶⁴ *IWG 2016 Report*, *supra* note 60, at 3. The August 2016 update added some clarifying information around uncertainties in the modeling that supports the social cost of carbon, *id.* at 2, but did not adjust the damages values (the costs) published in the 2015 update, *id.*; compare *id.* at 7 with *Technical Support Document: - Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12,866*, at 1, 7, IWG (2015).

⁶⁵ *IWG 2016 Report*, *supra* note 60, at 2-3.

⁶⁶ *Id.* at 3.

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CO26-56 See response to Comment CO26-54.

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concentrations increase.⁶⁷ The IWG estimated that each additional ton of methane emitted in 2020 will cost between \$540 and \$3,200 dollars (measured in 2007 dollars).⁶⁸

The IWG's social cost metrics remain the best estimates produced by the federal government for monetizing the impacts of GHG emissions and are "generally accepted in the scientific community," as required by 40 C.F.R. § 1502.22(b)(4). This is true despite the issuance of Executive Order 13,783, which disbanded the IWG and formally withdrew its technical support documents "as no longer representative of governmental policy."⁶⁹ However, this Executive Order did not find fault with any component of the IWG's analyses. To the contrary, it encourages agencies to "monetiz[e] the value of changes in [GHG] emissions" and instructs agencies to ensure such estimates are "consistent with the guidance contained in [Office of Management and Budget (OMB)] Circular A-4."⁷⁰ The IWG tools, however, illustrate how agencies can appropriately comply with the guidance provided in Circular A-4, as OMB participated in the IWG and did not object to the group's conclusions. As agencies follow the Circular's standards for using the best available data and methodologies, they will necessarily choose similar data, methodologies, and estimates as the IWG, since the IWG's work continues to represent the best estimates presently available.⁷¹ Thus, the IWG's 2016 update to the estimates of the Social Costs of Greenhouse Gases remains the best available and generally

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⁶⁷ *Id.* at 7.

⁶⁸ *Id.* For comparison purposes, the current social cost of carbon values for CO₂ emissions in the 2019 to 2020 range is \$120 to \$123 per ton. *IWG 2016 Report*, *supra* note 60, at 25.

⁶⁹ Promoting Energy Independence and Economic Growth, Exec. Order No. 13,783, § 5(b), 82 Fed. Reg. 16,093, 16,095-96 (Mar. 31, 2017), available at <https://www.govinfo.gov/content/pkg/FR-2017-03-31/pdf/2017-06576.pdf> (accessed July 5, 2019).

⁷⁰ *Id.* § 5(c), at 16,096.

⁷¹ Richard L. Revesz, et al., *Best Cost Estimate of Greenhouse Gases*, 357 SCIENCE 655, 655 (2017), available at http://policyintegrity.org/files/publications/Science_SCC_Letter.pdf (explaining that, even after President Trump's Executive Order, the social cost of GHG estimate of \$50 per ton of carbon dioxide is still the best estimate) (accessed July 5, 2019).

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accepted tool for assessing the significance of GHG emissions, notwithstanding the fact that this document has since been withdrawn.

“Accurate scientific analysis” is “essential to implementing NEPA.” *WildEarth Guardians*, 369 F. Supp. 3d at n.31 (quoting 40 C.F.R. § 1500.1(b)). “And NEPA requires an agency to ensure ‘scientific integrity’ in its environmental assessments.” *Id.* (quoting 40 C.F.R. § 1502.24). For example, agencies “may not forgo using the [SCC] simply because courts have thus far been reluctant to mandate it.” *Id.* “Given that [DOE] and other agencies consider the [SCC] reliable enough to support rulemakings . . . the protocol may one day soon be a necessary component of NEPA analyses.” *Id.* (citing *Zero Zone, Inc. v. DOE*, 832 F.3d 654, 677 (7th Cir. 2016)); *see also High Country Conservation Advocates*, 52 F. Supp. 3d at 1193 (“I am not persuaded by the[] cases [the Government cites], or by anything in the record, that it is reasonable completely to ignore a tool in which an interagency group of experts invested time and expertise.”).

In the absence of other tools, the Commission should use the Social Costs of Greenhouse Gases to assist in analyzing and disclosing to the public the significance of the GHG emissions of its decisions when preparing NEPA analyses. Even if NEPA does not require a cost benefit analysis, NEPA does require the Commission to assess the significance of its actions, and the Social Costs of Greenhouse Gases remain as the best tools available to analyze and disclose to the public the significance of GHG emissions. Critically, these protocols not only contextualize costs associated with climate change but can also be used as a proxy for understanding climate impacts and to compare alternatives. See 40 C.F.R. § 1502.22(a) (stating agency “shall” include all “information relevant to reasonably foreseeable significant adverse impacts [that] is essential to a reasoned choice among alternatives”).

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3. Global Carbon Budgeting

Another measuring standard available to the Commission for analyzing the significance of GHG emissions is to apply those emissions to the remaining global carbon budget through carbon budgeting—which offers a cap on the remaining stock of greenhouse gases that can be emitted while keeping global average temperature rise below scientifically researched warming thresholds, beyond which climate change impacts may result in severe and irreparable harm.⁷² Research shows that enormous and rapid cuts in GHG emissions are needed to meet climate goals. The IPCC's Special Report on 1.5°C estimated a remaining budget from the start of 2018 of approximately:

- 420 Gigatonnes of CO₂ (GtCO₂) for a two-thirds chance of limiting warming to 1.5°C;
- 580 GtCO₂ for a 50% chance of limiting warming to 1.5°C;
- 1170 GtCO₂ for a two-thirds chance of limiting warming to 2°C; and
- 1500 GtCO₂ for a 50% chance of limiting warming to 2°C.⁷³

In order to meet these targets, global CO₂ emissions would need to reach net zero in about 30 years to stay within a 580 GtCO₂ budget, reduced to 20 years for a 420 GtCO₂ budget.⁷⁴

However, there are also significant uncertainties in these carbon budgets—uncertainties that in some cases are nearly as large as the entire budgets themselves. While the multiple sources of uncertainties cannot be formally combined, the IPCC concluded that, overall, “current

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CO26-58 Climate change and Oregon's climate goals are discussed in section 4.14 of the draft EIS.

⁷² The Paris Agreement states that global warming must be held “well below 2°C above pre-industrial levels” with a goal to “limit the temperature increase to 1.5°C.” U.N. Framework Convention on Climate Change Conference of the Parties, Twenty-First Session, *Adoption of the Paris Agreement*, Art. 2, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015), available at http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf (accessed July 5, 2019).

⁷³ See Joeri Rogelj et al., *Mitigation Pathways Compatible With 1.5°C in the Context of Sustainable Development* 108 (V. Masson-Delmotte et al. eds., 2018), available at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter2_Low_Res.pdf (accessed July 5, 2019).

⁷⁴ *Id.* at 96.

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understanding of the assessed geophysical uncertainties suggests at least a ±50% possible variation for remaining carbon budgets for 1.5°C-consistent pathways.”⁷⁵ In other words, the remaining global carbon budget may be significantly smaller than these estimated budgets. The potential carbon emissions from existing fossil fuel reserves—the known belowground stock of extractable fossil fuels—considerably exceed both 2°C and 1.5°C of warming. Globally, the IPCC found in AR5 that, “[e]stimated total fossil carbon reserves exceed [the 2°C budget] by a factor of 4 to 7.”⁷⁶ Another study found that, to meet the target of 2°C, “a third of oil reserves, half of gas reserves and over 80% of current coal reserves should remain unused from 2010 to 2050.”⁷⁷

Research shows that potential emissions from just U.S. federal fossil fuels could take up all or a significant portion of the remaining global carbon budget. A 2015 analysis prepared by EcoShift Consulting estimated that the potential emissions from all U.S. fossil fuels is 697-1,070 GtCO₂eq.⁷⁸ Federal fossil fuels—including crude oil, gas, coal, oil shale, and tar sands—account for as much as 492 GtCO₂eq, or approximately 46 to 50% of total potential emissions.⁷⁹ Unleased federal fossil fuels comprise 91% of these potential emissions, with already leased federal fossil fuels accounting for as much as 43 GtCO₂eq.⁸⁰ Unleased federal gas has potential

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⁷⁵ *Id.* at 107.

⁷⁶ AR5, *supra* note 47, at 63.

⁷⁷ Christophe McGlade & Paul Ekins, *The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2°C*, 517 NATURE 187, 187 (2015), available at <https://www.nature.com/articles/nature14016.pdf> (accessed on July 5, 2019).

⁷⁸ Dustin Mulvaney et al., *The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels*, at 18, ECO SHIFT CONSULTING (2015), available at <https://www.curenegy.policy.org/wp-content/uploads/2015/08/Potential-Greenhouse-Gas-Emissions-U-S-Federal-Fossil-Fuels.pdf> (accessed on July 5, 2019).

⁷⁹ *Id.*

⁸⁰ *Id.*

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GHG emissions ranging from 37.86 to 47.26 GtCO₂eq, while leased federal gas represents 10.39 to 12.88 GtCO₂eq.⁸¹ Unleased federal crude oil has potential GHG emissions ranging from 37.03 to 42.19 GtCO₂e, while potential emissions from leased federal crude oil represents from 6.95 to 7.92 GtCO₂e.⁸² Therefore, the Commission should analyze and disclose to the public how the emissions resulting from its certificate approval decisions would impact the remaining global carbon budget.

While global carbon budgets are imperfect, they represent tools presently available to the Commission to use in analyzing and disclosing to the public the significance of the Commission's certificate approval decisions on GHG emissions and their implications for climate change. The global carbon budget is rapidly being spent, and every additional ton of emissions is a debit against the climate. Failing to account for the cumulative impacts of the Commission's certificate approvals violates NEPA by "impermissibly subject[ing] the decisionmaking process ... to the tyranny of small decisions." *Kern*, 284 F.3d at 1078. Thus, the Commission should measure the cumulative emissions resulting from its certificate approvals against the remaining carbon budget, thereby providing the Commission and the public the necessary context for understanding the significance of the Commission's decisionmaking. See 40 C.F.R. § 1508.27(a).

The Commission's insistence that there are no tools available to consider climate change impacts falls far short of NEPA's requirement that agencies take a hard look at the impacts of their proposed actions. For example, other agencies have utilized the SCC as a tool for considering climate impacts. However, rather than utilize tools that may have methodological

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⁸¹ *Id.*

⁸² *Id.*

shortcomings, but nevertheless represent the best available scientific methods for assessing climate impacts, the Commission has replaced what may be an imperfect assessment of climate impacts with no assessment at all. This refusal to take *any* look at climate impacts does not comply with NEPA.

D. The Commission May Not Lawfully Ignore Scientific Evidence Regarding the Climate Impacts of Gas

The Commission's DEIS is also deficient because it fails to take into consideration important scientific evidence demonstrating the severity of the impact of methane on climate change. Although the Commission recognizes that methane is a far more potent GHG than carbon dioxide, it has chosen to ignore indisputably relevant and valuable scientific evidence showing just how potent a GHG methane truly is. To estimate the potency of GHGs, regulators and scholars consider each gas's "global warming potential" (GWP). The Commission asserts that "methane has a GWP of 25" over a 100-year time period. DEIS at 4-666. The Commission further asserts that it selected this GWP for methane "over other published GWPs for other timeframes because these are the GWPs the EPA has established for reporting of GHG emissions and air permitting requirements," and that "[t]his allows for a consistent comparison with these regulatory requirements." DEIS at 4-666 n. 186. None of these assertions is well-supported.

In addition to generally ignoring GHG impacts on the environment, the Commission provided a seriously distorted picture of potential emissions of a particularly potent GHG: methane. The Commission violated NEPA when it understated the foreseeable methane emissions resulting from its certificate approvals. The DEIS must provide a "full and fair discussion of significant environmental impacts." 40 C.F.R. § 1502.1. The environmental information made available to the public "must be of high quality." 40 C.F.R. § 1500.1(b).

"Accurate scientific analysis" proves "essential to implementing NEPA." *Id.* NEPA requires an

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CO26-59 Climate change is discussed in section 4.14 of the draft EIS.

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agency to ensure “scientific integrity” in its analyses. 40 C.F.R. § 1502.24. NEPA finds relevant “both short- and long-term effects.” 40 C.F.R. § 1508.27(a).

First, the Commission must not underestimate the climate impact of GHG emissions by using an outdated estimate of GWP, which is a measure of the amount of warming caused by the emission of one ton of a particular greenhouse gas relative to one ton of carbon dioxide.⁸³ The methane GWP estimates how many tons of carbon dioxide would need to be emitted to produce the same amount of global warming as a single ton of methane. This is important because methane is a much more potent GHG than carbon dioxide.⁸⁴ Relative to carbon dioxide, methane has much greater climate impacts in the near term than the long term, and, therefore, also including a short-term measure of climate impacts would be most effective in considering policies to avoid significant global warming within the near-term.

The Commission obscures the GWP of methane emissions by altogether omitting its impact over the short-term (20 years). Instead, the Commission intentionally only applied the 100-year estimated GWP of methane, which is much lower than the more immediately relevant 20-year GWP.

The Commission has failed to provide any science-based rationale for why it altogether omitted the 20-year GWP. This failure undermines the accuracy and integrity of the GWP analysis. See 40 C.F.R. §§ 1500.1(b), 1502.24. Thus, the Commission has failed to provide a “full and fair discussion” of the methane pollution resulting from its actions, as required by NEPA. See *id.* § 1502.1. A district court recently found BLM to have violated NEPA for failing

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CO26-60 The draft EIS appropriately selected the Intergovernmental Panel on Climate Change’s (IPCC) Fourth Assessment Report (AR4, 2007) global warming potential values for methane and nitrous oxide for the 100-year timescale because these are the values EPA established for reporting of greenhouse gas emissions, EPA’s methane reduction voluntary programs, and the EPA’s Inventory of U.S. Greenhouse Gas Emissions and Sinks. EPA acknowledged the Fifth Assessment Report could lead to more accurate assessments of climate impacts in the future. However, when balanced with the benefit of retaining consistency across agencies, and national and international programs, the potential gain in accuracy does not justify the loss of consistency in reporting and likely would cause stakeholder confusion among the various global warming potentials used in different programs. EPA identified that it may consider adoption of the Fifth Assessment Report global warming potentials in the future, at which time we would ensure that Commission staff use the revised global warming potential values for methane and nitrous oxide in its NEPA evaluations.

⁸³ See *id.* at 3; Gunnar Nyhre & Drew Shindell et al., *Anthropogenic and Natural Radiative Forcing in IPCC Climate Change 2013: The Physical Science Basis, Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, at 710-712 (2013), available at http://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf [hereinafter, *IPCC Physical Science Basis*].

⁸⁴ See *IPCC Physical Science Basis, supra* note 83, at 714.

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to justify its use of GWPs based on a 100-year time horizon rather than the 20-year time horizon of the RMPs, as is the case here. *W. Org. of Res. Councils*, 2018 WL 1475470, at *18.

Here, in order to disclose both the long- and short-term impacts of its decisions, as required by NEPA, the Commission must analyze the GWP of methane emissions using both the IPCC's current 100-year GWP for fossil methane of 36, and the IPCC's current 20-year GWP for fossil methane of 87.⁸⁵ Applying the current GWPs for fossil methane for both 20 and 100 years could substantially change the Commission's assumptions regarding the methane pollution's impacts.

Indeed, in contrast to the Commission's DEIS, based on the IPCC's 2014 estimates, EPA states that methane "is estimated to have a GWP of 28-36 over 100 years."⁸⁶ And although EPA's Greenhouse Gas Reporting Program uses an older estimate of methane's GWP, "[t]he EPA considers the GWP estimates presented in the most recent IPCC scientific assessment to reflect the state of the science."⁸⁷ Likewise, EPA recognizes that "the 20-year GWP," which "is based on the energy absorbed over 20 years," "is sometimes used as an alternative to the 100-year GWP."⁸⁸ As EPA states, this 20-year GWP is appropriate "for gases with shorter lifetimes," such as methane, which is far more potent a greenhouse gas than carbon dioxide, but which EPA recognizes "has a short lifetime."⁸⁹ EPA recognizes that, taking this into consideration, for methane, "the 100-year GWP of 28–36"—which itself is significantly greater than the GWP of

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⁸⁵ See *id.*

⁸⁶ Understanding Global Warming Potentials, EPA, <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials#Learn%20why> (accessed July 3, 2019).

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

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25 that the Commission recognizes—"is much less than the 20-year GWP of 84–87."⁹⁰ Indeed, this 20-year GWP of methane is more than *three times greater* than the GWP the Commission has elected to use.

The Commission's selection of a 100-year GWP of 25 is not accurate or based on current scientific information. Nor is the Commission's focus solely on the lower 100-year GWP, rather than the much higher 20-year GWP, rational given the fact that the contracts for procurement or sale of gas typically have a 20 year timeframe. In preparing the rigorous analysis of climate impacts that NEPA and the NGA require, the Commission should use the higher 100-year GWP of 28–36 as well as the far higher 20-year GWP of 84–87 to ensure that decisionmakers and the public have a full and accurate accounting of the climate impacts from this proposed project.

The Commission's ostensible rationale for selecting the low and outdated 100-year GWP of 25 lacks merit. The Commission asserts that "[t]his allows for a consistent comparison with these regulatory requirements." DEIS at 4-666 n. 186. However, the Commission can use the GWP of 25 in order to compare impacts with other regulatory requirements that use this figure, while also using more accurate figures for a broader and more accurate consideration of the project's climate impacts. In other words, while the Commission may use EPA's GWP levels as one basis of comparison with regulatory requirements set by EPA, it must also calculate climate impacts using the IPCC's 20-year and 100-year GWPs.

Because the Commission has failed to take a hard look at climate impacts associated with upstream production and downstream consumption of gas, it has also failed to adequately consider or solicit public comment on ways to mitigate those impacts. To satisfy NEPA's mandate of informed decision-making, the Commission must meaningfully consider and analyze

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CO26-61 "Life-cycle" emissions from upstream and downstream sources not regulated by the FERC are beyond the scope of this Project-specific analysis, because the sources of natural gas upstream and the customers for the LNG downstream are unknown.

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⁹⁰ *Id.*

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impacts from upstream production and downstream combustion—and assesses mitigation measures and alternatives accordingly.

IV. The Commission's DEIS Fails to Take a Hard Look at Wildlife Impacts

The Project will adversely affect a wide array of species, including species listed under the ESA. Although the Commission's DEIS offers some discussion of these impacts, it fails to take the hard look that NEPA requires. In particular, it fails to disclose data that is necessary for the public to understand and provide informed comments on the range and severity of impacts to wildlife, and fails to assure the public that the Commission will require compliance with federal laws designed to protect wildlife.

A. The Commission Has Failed to Disclose Relevant Information Regarding Impacts to Statutorily Protected Wildlife

The Commission has not provided the public with information necessary to understand and provide informed comment on the Project's impacts on wildlife that is protected under federal law. For example, with regard to species listed under the ESA, although the Commission's DEIS does provide a discussion of impacts, that discussion is legally inadequate because it is incomplete in significant ways. Thus, the DEIS notes that the Commission will initiate formal consultation with FWS and NMFS under the ESA, and will do so by transmitting a BA to those agencies. However, the Commission has not yet completed the BA.

As the DEIS recognizes, "FERC is required to prepare a biological assessment (BA) to identify the nature and extent of adverse effects, and to recommend measures that would avoid, reduce, or mitigate effects on habitats and/or species." DEIS at 1-26. A BA "refers to the information prepared by or under the direction of the Federal agency concerning listed and proposed species and designated and proposed critical habitat that may be present in the action area and the evaluation of potential effects of the action on such species and habitat." 50 C.F.R. §

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CO26-62 We disagree. The EIS provides an analysis adequate to meet the requirements of the NEPA.

CO26-63 We disagree. The EIS provides an analysis adequate to meet the requirements of the NEPA.

402.02. Moreover, to facilitate the informed public participation that NEPA is intended to promote, a BA should be included as part of the NEPA process, as the ESA's implementing regulations suggest. *See* 50 C.F.R. § 402.02(b) (requiring a BA for "major construction activities," which are defined in 50 C.F.R. § 402.02 as construction projects that require an EIS under NEPA). Because the information in the DEIS is not adequate for the purposes of the ESA—even by the Commission's own estimate—it is also not adequate to comply with NEPA.

Indeed, the DEIS makes clear that the Commission's as-yet-incomplete BA will provide information that is indisputably relevant to the Project's environmental impacts—information that NEPA requires to be included in the DEIS. The DEIS states that "[i]n the forthcoming [BA], we address cumulative effects on federally listed threatened and endangered species." DEIS at 1-21. Likewise, the DEIS directs readers to "[s]ee . . . the pending BA for further information regarding the Project's effects on federally listed species and protected habitats." *Id.* at 1-26. Accordingly, the BA will contain further information regarding the Project's impacts to listed species and habitat. To comply with NEPA's requirements, that information should be provided in the DEIS, and without it the DEIS fails to comply with the law.

Likewise, the Commission references, but does not include with the DEIS, an "Applicant-Prepared Draft Biological Assessment" (APDBA). Unlike the Commission's own as-yet-incomplete BA, the APDBA is complete and in the Commission's possession. *See* DEIS at 4-309 n. 133 ("[A]pplicants filed an applicant-prepared draft BA (APDBA) in December 2017, and a revised APDBA in September 2018"). Moreover, these APDBAs indisputably contain information relevant to the environmental impacts of the Project. *See, e.g.*, DEIS at 3-41 (directing readers to the APDBA regarding crossings of Northern spotted owl suitable habitat); DEIS at 4-244 ("Jordan Cove included a *Compensatory Wetland Mitigation Plan*, attached as

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CO26-64 The EIS provides an analysis adequate to meet the requirements of the NEPA. Note that additional details regarding ESA listed species (which included information beyond the scope of the NEPA document) are provided in the publicly available Biological Assessment.

CO26-65 The EIS provides an analysis adequate to meet the requirements of the NEPA. The Applicant-Prepared Draft Biological Assessment has been publicly available since it was filed on eLibrary in 2017 and 2018. We conducted our own analysis and prepared a federal BA that was submitted to the Services.

Appendix O of their *Draft Applicant-Prepared Biological Assessment*."); DEIS at 4-280 ("Stream-specific values [regarding sedimentation] are provided in Appendix X of the APDBA."); DEIS at 4-320 n. 137 ("data sources and analyses [regarding whale density estimates] are further described in the [APDBA], filed with the FERC September 14, 2018"). This is all information that should be included in the DEIS, and which should be available for public review and comment at the DEIS stage to comply with the Commission's NEPA obligations. Omitting this information from the DEIS fails to fulfill the requirements of NEPA.

B. The Commission Must Require the Project to Obtain a BGEPA Permit Before Construction

The Project will likely "take" bald or golden eagles within the meaning of BGEPA. As discussed, BGEPA broadly defines the term "take" to include "wound, kill . . . molest or disturb." 16 U.S.C. § 668c. The DEIS makes clear that bald eagles use the area around the proposed Jordan Cove terminal. See DEIS at 4-180 (describing open water and wetland habitats "on the LNG terminal site" and noting that "[r]aptors known to use open water and shoreline habitats include the bald eagle"); DEIS at 4-184 ("Raptors are abundant year-round residents in Coos bay," and recent surveys found "bald eagles near the Jordan Cove site"). Likewise, the Pacific Connector pipeline encroaches on habitat for both bald and golden eagles. See DEIS at 4-199 ("Several raptor species are known or suspected to nest, migrate, and seasonally reside in the general vicinity of the pipeline route," including bald and golden eagles). Bald eagles "have nest sites within 3 miles" of the pipeline route, with "some much closer to the Project." *Id.* at 4-200. The DEIS also notes that bald and golden eagles "have been reported during surveys in 2007 and 2008." *Id.* Although "nest sites were not included in the documentation" from those surveys, the DEIS acknowledges that "[s]ome of these raptor species have probably nested in the Project vicinity in the past." *Id.* Accordingly, because bald and golden eagles are likely to live, feed, and

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CO26-66 Please see the draft Migratory Bird Conservation Plan for avoidance and minimization measures applicable to eagles (as referenced in the EIS). Surveys were conducted for these two species to identify active nests that might be affected. No bald eagle nests were identified during surveys or during review of existing data that are close enough to project activities to be considered affected by the project. Pre-construction surveys would be performed to identify all eagle nests that might be affected during construction. If an eagle nest is identified the applicant has committed to applying temporal and spatial restrictions around the nest site that are adequate to avoid take.

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nest within the Project's area of effects, the Project is likely to impact these protected birds, triggering further detailed analysis of projected take. Because the DEIS does not contain a rigorous analysis of the likelihood of take of protected eagles, and instead defers such analysis for a later potential permitting process under BGEPA, it is incomplete and fails to take the hard look at impacts to these protected species that NEPA requires.

However, despite the likelihood of adverse impacts to bald and golden eagles that will be unlawful in the absence of a permit from FWS, the Commission does not propose to condition construction on the Applicants actually *obtaining* a BGEPA permit before beginning construction. Instead, the DEIS states only that “[t]he applicants will consult with the FWS regarding the project's requirements under the Eagle Act . . . [and] apply for an Eagle Act permit if needed.” DEIS at 1-21. This approach overlooks significant impacts to eagles and forgoes any opportunity to include siting conditions that would avoid or minimize such impacts.

FWS's general policy is that applicants should “coordinate with the Service as early as possible in the project planning process.” 81 Fed. Reg. 91,501. The purpose of early coordination and permitting is to implement FWS's hierarchy for mitigation measures. *See id.* at 91,504 (FWS “defines ‘mitigation’ to *sequentially* include: Avoidance, minimization, rectification, reduction over time, and compensation for negative impacts.” (emphasis added)). Siting decisions are the best means of avoiding or minimizing impacts to eagles. However, after siting is complete or construction has begun, it is no longer possible for FWS to include siting conditions in a BGEPA permit. As FWS has stated, where projects are built before a permit is in place “the opportunity to apply avoidance, minimization, and other mitigation measures is lost.” 81 Fed. Reg. at 91,500.

The Commission's inadequate approach to address impacts to eagles risks siting decisions being complete before FWS has conducted a BGEPA permitting process. Indeed, the

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CO26-67 See response to comment CO26-66.

Commission appears to already consider the pipeline route to be a settled matter, as it is not meaningfully considering alternatives (as discussed above). Consequently, the Commission's approach to BGEPA risks undermining FWS's ability to incorporate the best tools for avoiding or minimizing adverse impacts to bald and golden eagles. To correct this issue, the Commission should explicitly require that the Project obtain a BGEPA permit before siting is complete or construction commences, unless FWS first determines that no BGEPA permit will be necessary.

CO26-67
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C. The Commission Must Disclose and Analyze Impacts to Migratory Birds

The DEIS acknowledges, as it must, that the Project will likely harm migratory birds. For example, “[m]igratory bird species would likely experience disturbance due to the construction and operation of the Jordan Cove Project.” DEIS at 4-189. Likewise, “[t]he Project would alter and disturb breeding and non-breeding habitat and could affect prey populations.” *Id.* Nearby heron rookeries may be affected, and “birds would be at risk of colliding with terminal facilities, including the LNG storage tanks and meteorological station. *Id.* at 4-190. Additionally, “birds can be drawn to terminal flares,” as occurred when “some 7,500 songbirds were killed in September 2013 when they flew into the 30-meter-tall flare” at another LNG facility. *Id.*

However, despite acknowledging various adverse impacts to migratory birds, the DEIS nonetheless “conclude[s] that the Project would not significantly affect birds.” DEIS at 4-191. The ostensible basis for this conclusion is that Applicants “filed a draft *Migratory Bird Conservation Plan*” and “continue[s] to consult with the FWS to finalize the plan and to prioritize conservation of migratory birds during construction and operation of all facilities.” *Id.* The DEIS mentions “various measures to avoid, minimize, and in some instances mitigate, effects on birds and their local habitats,” but does not provide any comprehensive description of these measures. *Id.* Instead, the DEIS states that “[f]urther description of avoidance,

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CO26-68 Adverse impacts may occur to individual birds and their habitat, but these impacts do not rise to the level of significance as defined by CEQ.

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minimization, and mitigation measures is provided in the draft *Migratory Bird Conservation Plan* filed with FERC on August 31, 2018.” *Id.*

The DEIS’s conclusion that the Project will not significantly affect birds is legally defective for several reasons. First, it is not supported by facts or analysis. Instead, the DEIS’s conclusion relies on a draft Migratory Bird Conservation Plan that the Commission unquestionably possesses but failed to include with the DEIS. In order to provide a rational basis for the agency’s conclusion, and to provide for the informed public comment that NEPA requires, the Commission must include the Migratory Bird Conservation Plan in a new or supplemental DEIS. Likewise, the Commission’s conclusion is unreasonable because it is concededly based on incomplete information: the DEIS recognizes that the Project “continue[s] to consult with the FWS to finalize the [bird conservation] plan,” and that “any consultation exchange with the FWS would be provided to FERC.” *Id.* In the absence of a finalized bird conservation plan and any consultation with FWS, the Commission’s conclusion that the Project would not significantly affect birds is premature and irrational.

The Commission’s reliance on consultation with the FWS to support a conclusion that the Project will not significantly affect migratory birds is especially unreasonable in light of the FWS’s and DOI’s recent interpretation of the MBTA. Although the Commission’s DEIS fails to consider this issue at all, the FWS, as instructed by DOI, has fundamentally changed its legal position regarding the breadth of the MBTA. On December 22, 2017, the Solicitor of the Interior issued a binding legal Memorandum that reversed DOI/FWS’s longstanding position that the take prohibition in the MBTA encompasses foreseeable causes of migratory bird deaths and injuries, such as those caused by industrial transmission lines and industrial wind projects. See Solicitor’s Memorandum M-37050-*The Migratory Bird Treaty Act Does Not Prohibit Incidental*

CO26-68
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CO26-69 See response to comment CO26-68 in regards to comments on “significance.” The analysis tiers to the requirements of the MBTA and FWS jurisdiction to implement; however, as disclosed in section 4.5, the effects discussion goes beyond those as required in the MBTA (for example, effects to habitat are included in the analysis).

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Take. In turn, on April 11, 2018, the FWS issued “Guidance on the recent M-Opinion affecting the Migratory Bird Treaty Act,” which instructs all FWS personnel that “[w]e interpret the M-Opinion to mean that the MBTA’s prohibitions on take apply when the *purpose* of an action is to take migratory birds, their eggs, or their nests,” and that “[c]onversely, the take of birds, eggs or nests occurring as the result of an activity, the purpose of which is not to take birds, eggs or nests, is not prohibited by the MBTA.” *Id.*

In short, the FWS, under orders from DOI, has changed its interpretation of the MBTA in a manner that has an enormous bearing on the Project. Whereas FWS’s prior interpretation and longstanding practice was that activities like the Project were subject to coverage of the MBTA, the situation is now the opposite. The DEIS suggests that the Project may face “requirements under the MBTA.” DEIS at 1-21. Indeed, the DEIS suggests that the Commission “requires that all necessary permits be obtained prior to construction, including a Migratory Bird Special Use permit under 50 C.F.R. section 21.27 if needed.” DEIS at 4-191. However, the DEIS contains no analysis whatsoever of the impact of the drastic change in legal interpretation on the potential impacts of the Project on migratory birds. One such notable impact is that the Special Use Permit that the Commission suggests may be required will not likely even be available.

Simply put, DOI’s reversal on one of the basic legal underpinnings of the Commission’s consideration of wildlife impacts plainly comprises important information about the Project’s environmental impacts. At the very least, the Commission must account for and acknowledge how this evisceration of the agency’s longstanding interpretation of the MBTA—never subjected to any scrutiny in the DEIS—will affect migratory birds, especially given the agency’s concession that the Project will harm birds and its assertion that such harms will be mitigated by purported minimization and mitigation measures that are no longer required by DOI or FWS.

CO26-69
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Finally, as described above, the Commission's conclusion that the Project will not significantly affect birds is unsupportable under NEPA. Additionally, this conclusion is not germane to the provisions of the MBTA, because that statute does not permit take of migratory birds that an agency deems "insignificant." Instead, the MBTA strictly forbids *any* unpermitted take of migratory birds. The Commission must clarify its position on whether its finding regarding "significance" has any bearing on the applicability of the MBTA to this Project.

CO26-70

D. The Commission Must Disclose and Analyze Impacts to Whales

The Project would impact a number of highly vulnerable populations of marine mammals, including the Southern Resident orcas and California gray whale—two of the most iconic wildlife species on the planet. It is imperative that the Commission be rigorous, transparent, and conservative in assessing potential impacts on these populations. 40 C.F.R. §§ 1502.22, .24 (requiring agencies, *inter alia*, to obtain information essential to a reasoned choice among alternatives and to ensure the professional integrity of their analyses).

CO26-71

1. Southern Resident orcas

The Southern Resident orca (*Orcinus orca*) population of the Pacific Northwest is one of the most critically imperiled populations of marine mammals on the planet. With the death of the population's oldest matriarch (J2) and ten other individuals in the past three years, the population now stands near a 30-year low of 76 individual animals.⁹¹ The U.S. listed the whales as endangered under the ESA in 2005. *Endangered Status for Southern Resident Killer Whales*, 70 Fed. Reg. 69,903 (Nov. 18, 2005). Since reaching a peak of 98 whales in 1995—the highest recorded since the first population census in 1974, but still far below the estimated historic

⁹¹ *Southern Resident Orca Community Demographics, Composition of Pods, Births, and Deaths Since 1998*, ORCA NETWORK, available at https://www.orcanetwork.org/Main/index.php?categories_file=Births%20and%20Deaths (accessed June 9, 2019). See Attach. 5.

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CO26-70 See response to comments CO26-68 and CO26-69.

CO26-71 Potential effects on whales are discussed in section 4.6; these analyses were developed using best available science and in consultation with NMFS.

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abundance—the Southern Resident population has been in a general state of decline. In its 2016 Status Review, the National Oceanic and Atmospheric Administration (NOAA) projected an average decline of 0.65% per year if demographic rates (such as lower fecundity) remain as they have been during the 2011–2016 period, NMFS, *Southern Resident killer whales (Orcinus orca) 5-Year Review: Summary and Evaluation* (Dec. 2016) (SRKW Rep.), Attach. 6, resulting in an estimated extinction risk of 49% within the next 100 years.⁹² The whales have not had successful recruitment in three years, and one of the population’s three pods had not produced any surviving calves since 2011; in recent years, the calves that have been born have been disproportionately male. NMFS, SRKW Rep. The small size of the population puts them at increased risk of reduced resilience to disease or pollution, reduced population fitness, inbreeding, and extinction from a catastrophic event. *Id.* A recent genetic analysis found that only two adult males fathered 52% of the calves born since 1990.⁹³

The Southern Residents use the coastal waters of Oregon in the winter and spring months, and these waters will likely be designated as critical habitat for the whales. See 80 Fed. Reg. 9682 (Feb. 24, 2015). The whales are drawn to the region because these fish-eating predators feed almost exclusively on salmonids.⁹⁴ The DEIS concludes that the Project would have no effect on Southern Resident orcas because “none of the designated [Critical Habitat Units] occur within the marine analysis area off the Oregon coast.” DEIS at 4-320. However, that conclusion ignores the well-documented use of these waters by the orcas and the fact that NMFS is currently in the process of updating the critical habitat for these orcas to include Oregon

CO26-72

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CO26-72 The final EIS describes the referenced critical habitat; however, the analysis correctly focuses on currently designated critical habitat. The final EIS further describes the main salmon stocks that southern resident killer whales target.

⁹² L.A. Vélez-Espino, et al., *Comparative demography and viability of Northeastern Pacific resident killer whale populations at risk*, CANADIAN JOURNAL OF FISHERIES & AQUATIC SCIENCES 3084 (2014). See Attach. 7.

⁹³ See generally M.J. Ford, et al., *Inbreeding in an endangered killer whale population*, 21 ANIMAL CONSERVATION 423 (2018). See Attach. 8.

⁹⁴ M.J. Ford, et al., *Estimation of a killer whale (Orcinus orca) population’s diet using sequencing analysis of DNA from feces*, 11 PLoS ONE e0144956 (2016). See Attach. 9

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coastal waters. See 80 Fed. Reg. at 9682. That designation is imminent. In response to a petition to revise the critical habitat designation for Southern Resident orcas to include the Pacific Ocean region between Cape Flattery, WA, and Point Reyes, CA, extending approximately 47 miles (76 km) offshore—i.e. including the entire Oregon coast—the agency has committed to releasing its revised critical habitat designation no later than October 7, 2019.⁹⁵

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Southern Resident orcas have survived on the Pacific Northwest's abundant salmon for millennia, but over the past several decades salmon abundance in the region has dropped dramatically, and the whales regularly appear visibly thin with an emaciated, peanut-shaped head and ribs showing.⁹⁶ Several recent calf and adult-female Southern Resident orca mortalities have been attributed, at least in part, to poor body condition and starvation.⁹⁷ For example, reproductive-age female J28 was noted to be losing body condition in January 2016 after birthing a calf, and she died in the Strait of Juan de Fuca in October of 2016.⁹⁸ Shortly thereafter, her 10-month-old calf, J54, died as well.⁹⁹ Declines in body condition were documented in six reproductive females before their deaths between 2008 and 2016.¹⁰⁰ Oregon's coho and chum salmon are seasonally important to Southern Resident orcas, and their diet appears to diversify and include larger amounts of these types of salmon during offshore coastal foraging periods in

⁹⁵ See Stip. Settlement Agreement, *Ctr. for Biological Diversity v. NMFS*, No. 18-cv-01201-RSM (Apr. 12, 2019), available at https://www.biologicaldiversity.org/species/mammals/Puget_Sound_killer_whale/pdfs/Southern-Resident-Killer-Whale-Settlement.pdf. See Attach. 10.

⁹⁶ Holly Fearnbach, et al., *Using aerial photogrammetry to detect changes in body condition of endangered Southern Resident killer whales*, 35 ENDANGERED SPECIES RESEARCH 175 (2018). See Attach. 11.

⁹⁷ Craig O. Matkin, et al., *Review of recent research on Southern Resident killer whales (SRKW) to detect evidence of poor body condition in the population*, SEA DOC SOC'Y (2017). See Attach. 12.

⁹⁸ Kenneth Balcomb, *J28 Obituary*, available at <https://www.whalersearch.com/j28> (accessed June 9, 2019).

⁹⁹ *Id.*

¹⁰⁰ Craig O. Matkin, *supra* note 97.

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the winter and spring.¹⁰¹ Mortality and birth rates are correlated with coast-wide salmon abundance,¹⁰² and a high rate of pregnancy failure in the population has been linked to nutritional stress, with nearly 70% of detected pregnancies ultimately unsuccessful, severely impacting the Southern Resident orcas' ability to recover.

The development and alteration of salmon-supporting watersheds is one of the primary causes of declining salmon abundance, and efforts to restore habitat simply cannot keep pace with the impacts of urbanization and development in coastal and watershed areas. Remaining habitat must be protected if salmon—and the Southern Resident orca population, which depends on Oregon salmon—are to have any chance for recovery. The DEIS fails to take a hard look at the impact of the Project on the Southern Resident's prey, including *inter alia* the fact that the Project would require 300 waterway crossings; impact five major rivers including the Klamath, Rogue, Umpqua, Coos, and Coquille Rivers; and significantly harm the Coos Bay estuary, part of critical habitat for the ESA-listed Oregon Coast Coho salmon Evolutionarily Significant Unit.

Lack of adequate prey is directly exacerbated by physical and acoustic disturbance from vessels, which has long been recognized as one of three principal threats to the survival and recovery of the Southern Resident population.¹⁰³ Killer whales rely on sound for orientation and navigation, for communication vital to group cohesion, and for hunting of salmon.¹⁰⁴ The

CO26-73

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CO26-73 As discussed in section 4.5.2, effects to aquatic habitat and fish, including salmon, would not be substantial and would be short of population-level effects that could have food chain affects to other species relying on these resources as prey.

CO26-74 The EIS provides an analysis adequate to meet the requirements of the NEPA. The final EIS clarifies the (lack of) effect that the Project would have on prey availability. Potential effects on species from increased LNG carrier traffic are described in sections 4.5 and 4.6.

CO26-74

¹⁰¹ Presentation by Brad Hanson, NOAA Fisheries Nw. Fisheries Science Ctr., *Distribution and Diet of Southern Resident Killer Whales* (July 2015), see Attach 13; NMFS, *Southern Resident Killer Whales: 10 Years of Research & Conservation* (2014).

¹⁰² John K. B. Ford, et al., *Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (*Orcinus orca*) in British Columbia?* FISHERIES & OCEANS CAN. (2005); John K. B. Ford, et al., *Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator?*, 6 BIOLOGY LTRS. 139 (2010), see Attach 14; Eric J. Ward, et al., *Quantifying the effects of prey abundance on killer whale reproduction*, 46 J. OF APPLIED ECOLOGY 632 (2009).

¹⁰³ E.g., NMFS, *Recovery plan for Southern Resident killer whales (*Orcinus orca*)* (2008), see Attach. 15; FISHERIES & OCEANS CAN., *Action plan for the Northern and Southern Resident killer whales (*Orcinus orca*) in Canada* (2017).

¹⁰⁴ John K. B. Ford, et al., *Killer Whales: The Natural History and Genealogy of *Orcinus orca* in British Columbia and Washington*, 2nd ed. (2000).

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underwater noise produced by vessels and the vessels' physical presence mask the acoustic cues that the whales depend on and disrupt these vital behaviors. Notably, researchers have reported that, on exposure to vessel noise, the whales increase their swimming speeds, engage in evasive swimming patterns, increase their time spent traveling, alter their dive lengths, and significantly reduce their foraging time.¹⁰⁵ Reduction in foraging efficiency translates to lower intake of food energy, which in turn compromises fitness and survival, lowers birthrates, and increases mortality. An independent population viability analysis found that if it were possible to eliminate acoustic disturbance while maintaining current levels of Chinook abundance, annual population growth would increase to 1.7%.¹⁰⁶

The DEIS contemplates activities within the well-documented and regular range of the Southern Resident population, including pile driving and increased LNG carrier traffic. Yet, the DEIS does not meaningfully assess the impacts to the Southern Resident population from the Project's adverse effects on salmon. Nor does the DEIS assess the cumulative impacts to the population from the combined effects of the Project and other development and vessel traffic in the area. To the contrary, the DEIS's assessment is conclusory and incomplete, as Applicants have not yet completed the process of obtaining an Incidental Take Authorization from NMFS under the MMPA.

"Although the contours of the 'hard look' doctrine may be imprecise," the agency must at a minimum "adequately consider[] and disclose[] the environmental impact of its actions." *Gov't of the Province of Manitoba v. Salazar*, 691 F. Supp. 2d 37, 45 (D.D.C. 2010) (internal

CO26-74
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CO26-75 The EIS provides an analysis adequate to meet the requirements of the NEPA. The final EIS clarifies the (lack of) effect that the Project would have on prey availability.

CO26-75

¹⁰⁵ R. Williams, D. Lusseau, & P. S. Hammond, *Estimating relative energetic costs of human disturbance to killer whales (Orcinus orca)*, 133 BIOLOGICAL CONSERVATION 301 (2006); see Attach. 16; D. Lusseau, et al., *Vessel traffic disrupts the foraging behavior of Southern Resident killer whales Orcinus orca*, 6 ENDANGERED SPECIES RESEARCH 211 (2009).

¹⁰⁶ R. C. Lacy, et al., *Evaluating anthropogenic threats to endangered killer whales to inform effective recovery plans*, 7 SCIENTIFIC REPORTS art. 14119 (2017). See Attach. 17.

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quotations omitted). Applying those principles here, to comply with NEPA's hard look mandate, the Commission must disclose and rigorously examine the impacts of the Project on the Southern Resident killer whale population's prey availability and acoustic environment. Without such an analysis, the Commission cannot be said to have "considered every significant aspect of the environmental impact of the project." *Pub. Lmps. for Envil. Responsibility v. Hopper*, 827 F.3d 1077, 1083 (D.C. Cir. 2016) (internal quotations removed). The failure of the DEIS to adequately consider these impacts are particularly concerning given the plight of this endangered and declining population. See 40 C.F.R. § 1500.1(b).

CO26-75
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2. California gray whales

The California gray whale is presently experiencing a major die-off. As of June 6, 2019, the total number of strandings across the whales' range in 2019 exceeded 150 animals, a number that appears roughly comparable to the strandings experienced during the 1998-99 and 1999-2000 seasons, when 283 and 368 whales were reported stranded.¹⁰⁷ Indeed, strandings have exceeded the 1999 numbers during each of the past several months.¹⁰⁸ Many, if not all, of the necropsied whales were considered emaciated, and more than 50% of the animals observed this year in their calving lagoons in Baja California have shown signs of "skinniness,"¹⁰⁹ such as a post-cranial depression and protruding scapula. On May 31, NMFS deemed the die-off an "Unusual Mortality Event" pursuant to the MMPA, see 16 U.S.C. § 1421c, triggering an

¹⁰⁷ Compare 2019 gray whale Unusual Mortality Event along the west coast, NMFS, available at <https://www.fisheries.noaa.gov/national/marine-life-distress/2019-gray-whale-unusual-mortality-event-along-west-coast> (accessed June 10, 2019), see Attach 18, with F. M. D. Gulland, et al., *Eastern North Pacific gray whale (*Eschrichtius robustus*) Unusual Mortality Event, 1999-2000* (2005).

¹⁰⁸ 2019 gray whale Unusual Mortality Event, *supra* note 107.

¹⁰⁹ *Frequent question: 2019 gray whale Unusual Mortality Event along the west coast*, NMFS, available at <https://www.fisheries.noaa.gov/national/marine-life-distress/frequent-question-2019-gray-whale-unusual-mortality-event-along-west> (accessed June 10, 2019). See Attach. 19.

investigation. While the cause remains unknown, the skinniness and emaciation of the whales strongly suggests a fall in prey availability. The 1998-2000 die-off was associated with strong El Niño and La Niña events and a regime shift in the benthic prey base of the Bering Sea.¹¹⁰ For the scientific community, the present-day concern is that warming seas—caused by climate change—are reducing primary productivity in the whales' northern foraging range and that vanishing sea ice is constricting populations of ice-associated amphipods.¹¹¹ If so, the die-off may be a “ harbinger of things to come,” in the words of one NOAA ecologist,¹¹² a diminished, more tenuous future for the species rather than a one-or-two-year anomaly.

It is well established that animals already exposed to one stressor may be less capable of responding successfully to another, and that stressors can combine to produce adverse synergistic effects.¹¹³ Here, disruption in gray whale behavior can act adversely with the inanition caused by lack of food, increasing the risk of stranding and lowering the risk of survival in compromised animals. Grey whales regularly travel along the Oregon coast, and the DEIS anticipates a significant increase in LNG carrier traffic through the gray whale migration corridor. Given the alarming conservation status of the gray whale, it is imperative that the DEIS fully assess the direct, indirect, and cumulative impacts arising from the construction and operations of the Project on the species. Impacts that may result in serious injury and mortality (e.g., vessel

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CO26-76 The EIS provides an analysis adequate to meet the requirements of the NEPA. The Oregon Conservation Strategy does not describe the conservation status of gray whales as alarming: “Gray whales experienced historical population declines throughout their range but are currently in good standing.”

¹¹⁰ B. J. Le Boeuf, et al., *High gray whale mortality and low recruitment in 1999: Potential causes and implications*, 2 J. OF CETACEAN RESEARCH & MANAGEMENT 85 (2000); see Attach. 20; S. E. Moore, et al., *Are gray whales hitting “K” hard?*, 17 MARINE MAMMAL SCIENCE 954 (2001); S. E. Moore, et al., *Gray whale distribution relative to forage habitat in the northern Bering Sea: Current conditions and retrospective summary*, 81 CANADIAN J. OF ZOOLOGY 734 (2003).

¹¹¹ See L. V. Mapes, *Researchers seek answers to gray whale deaths after 57 are stranded this year*, SEATTLE TIMES (May 17, 2019), see Attach. 21; see also S. Swartz, *The sentinels of the sea: Gray whales respond to climate change* (undated presentation).

¹¹² L. V. Mapes, *supra* note 111.

¹¹³ A. J. Wright, et al., *Anthropogenic noise as a stressor in animals: a multidisciplinary perspective*, 20 INT'L J. OF COMPARATIVE PSYCHOLOGY 250 (2007). See Attach. 22.

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strikes) and impede feeding opportunities (e.g., acoustic masking, degradation of the prey base) should be afforded particular attention. As above, until the Commission has fully disclosed and considered these impacts, the DEIS cannot satisfy the agency's obligation to "take a 'hard look' at the environmental effects of [the Project] and consequences of th[e] [Project]." *Pub. Embs. for Envtl. Responsibility*, 827 F.3d at 1083 (emphasis added).

V. **BLM and the Forest Service Have Not Provided the Analysis Necessary to Justify Authorizing Rights of Way Across Lands they Manage**

BLM and the Forest Service are both cooperating agencies in the preparation of the DEIS. As cooperating agencies, BLM and the Forest Service each have "an independent legal obligation to comply with NEPA." *Forty Most Asked Questions Concerning CEQ's NEPA Regulations*, 46 Fed. Reg. 18,026, 18,035 (Mar. 23, 1981). A cooperating agency may only adopt a lead agency's EIS if that EIS "meets the standards for an adequate statement under [NEPA's implementing] regulations." 40 C.F.R. § 1506.3(c). Accordingly, for BLM and the Forest Service to rely on this DEIS for their amendments to land use plans, the DEIS must satisfy NEPA by taking a hard look at all the impacts associated with the actions of the BLM and the Forest Service. As described below, the DEIS does not take the hard look at impacts and alternatives that NEPA requires, and thus it does not provide a sufficient analytical basis for BLM's or the Forest Service's proposed land use plan amendments.

While BLM and the Forest Service have authority to amend land use plans to allow a non-compliant activity to proceed, this exceptional measure cannot not be undertaken without a hard look at the environmental consequences. Particularly where, as here, a proposed activity cannot meet land use planning standards that conserve important environmental resources, such as threatened and endangered species or old-growth forest, the agencies have a clear duty to carefully examine the impacts of any proposal to amend land use plans. In doing so, the agencies

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CO26-77 This portion of the comment is an introductory statement. See our responses below.

CO26-78 The environmental effects of the Project, in its entirety, are addressed within the draft EIS and appendices. The draft EIS has comprehensively noted the many approvals and authorizations required for this project (see table 1.5.1-5). Both the BLM and Forest Service have clearly outlined in the agency-specific Purpose and Need statements the jurisdictional need to consider the Application for Right-of-Way. The BLM, with the consent of other land-managing agencies, has the authority to grant, grant with conditions, or deny the right-of-way application. The BLM and Forest Service actively participated as cooperating agencies in the preparation of the EIS and have taken a hard look at the environmental impacts of amending land management plans (e.g., draft EIS section 4.7.3 and appendix F.2) and granting a right-of-way.

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must give serious consideration to simply declining to authorize an activity that cannot comply with important environmental protections in land use plans, and must document why it is not possible to amend the project to render it compliant. Moreover, the agencies must also provide a clear explanation for any departure from their previous practice, explaining why the agencies now believe that the protective land use plan requirements they previously found necessary should no longer apply, and carefully examining the impacts of this decision. The DEIS's analysis here falls short.

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A. **The DEIS Fails To Meaningfully Consider Rejecting the Project for Failing to Meet Binding Land Use Plan Provisions or Requiring Amendments to the Project to Comply with those Land Use Plan Provisions**

As described above, when BLM or the Forest Service is considering a proposed activity that cannot comply with existing land use plans, the agencies may either reject the proposal, amend it to make it consistent with the land use plans, or amend the land use plans to allow the project to proceed. Under NEPA, an EIS underlying a proposed land use plan amendment must give real consideration to the option of simply rejecting the proposed action. *See* 40 C.F.R. § 1502.14 (requiring agencies to “rigorously explore and objectively evaluate” alternatives including “the alternative of no action”).

Here, although the DEIS devotes nominal attention to a no action alternative under which BLM and the Forest Service would not amend their land use plans or grant rights of way across the lands they manage, the no action alternative does not comply with NEPA, as described above. Most notably, the no action alternative suggests that “it is reasonable to expect that if the Project is not constructed (the No Action Alternative), export of LNG from one or more other LNG export facilities could also be authorized by the DOE and eventually be constructed.” DEIS at 3-4. Accordingly, the DEIS asserts that even under the no action alternative, “equal or greater

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CO26-79 The no action alternative for the BLM and Forest Service would be to not amend land management plans and for the BLM would also include not granting a right-of-way (see sections 1.3.2 and 1.3.3 of the draft EIS). The FERC no action alternative is described in section 3.1.

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impacts could occur at other location(s) in the region,” and that the No Action alternative thus ostensibly “would require a similar footprint” and thus ostensibly “would not likely provide a significant environmental advantage over the proposed action.” *Id.* As described above, the assumption that even under the no action alternative the same or greater environmental impacts would occur—made even though “the resources that would be affected by an alternative project are not defined,” *id.*—does not comport with NEPA’s requirement that the agencies “rigorously explore and objectively evaluate” a no action alternative.

In addition, the DEIS’s overriding function for the BLM and Forest Service is to evaluate the proposals before those agencies by considering the proposal’s conformity in meeting established land use plans. BLM’s and the Forest Service’s charge is not to contemplate how the resources these agencies are tasked to manage will be impacted within an alternate universe, for impacts that might theoretically occur if the No Action Alternative is selected. This is further reinforced by the fact that the DEIS does not incorporate a Reasonably Foreseeable Development scenario (RFD) analysis, which is in contravention of agency regulations that encourage that the BLM adopt RFDs when there are complex economic and resource issues at stake that may impact land use planning outcomes. See BLM Information Bulletin 2018-061, at § III(B) (noting that site-specific decisions may “tier[] or incorporate[e] by reference to a field development programmatic EA(s), EIS(s), leasing NEPA document, or Resource Management Plan (RMP) [Land Use Plan (LUP)] with a Reasonably Foreseeable Development (RFD) scenario that analyzed effects of oil and gas development”).

In the absence of a meaningful no action alternative that complies with NEPA, the DEIS fails to provide legally adequate consideration to the option of not amending BLM or Forest Service land use plans to allow the Project to proceed. Indeed, the fact that the DEIS views land

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CO26-80 The BLM and Forest Service agency-specific Purpose and Need statements limit the jurisdictional need to the pending application. No other right-of-way application(s) for similar projects are pending or reasonably foreseeable.

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use plan amendments as a foregone conclusion is demonstrated by the mandatory language used to describe these proposed amendments. *See* DEIS at 3 (“BLM *must* amend the affected Resource Management Plans”); *id.* at 2-25 (“the Forest Service *must* amend affected LRMPs to make provisions for the Pacific Connector Project”) (emphases added). Accordingly, this DEIS does not provide a sufficient analytic basis for the agencies to undertake the proposed land use plan amendments.

Likewise, the DEIS fails to adequately explain why the Project cannot be amended to comply with the provisions in these RMPs and LRMPs. For example, the DEIS asserts that “Pacific Connector has cooperated with the BLM to make its proposal consistent with the BLM RMPs as much as is feasible, but even with route adjustments, modified project design features, and [best management practices], the proposed [right of way] for the Project on BLM-managed lands would not conform” to the agency’s RMPs. DEIS at 4-443. However, aside from generally pointing readers toward the Project’s Plan of Development, *id.*, the DEIS makes no effort to identify what particular mitigation measures in that Plan of Development are relevant to the RMP provisions that the Project cannot satisfy, to discuss the nature of the gap between these mitigation measures and the RMP requirements, or to explain why further mitigation is ostensibly not “feasible.” This sparse analysis does not comply with NEPA’s hard look requirement. In particular, the DEIS may not simply make an unsupported assertion that further mitigation is not “feasible” without providing some basis in fact.

This deficiency is particularly clear with regard to BLM’s proposal to exempt the Project from RMP conditions that aim to protect the federally listed marbled murrelet and Northern spotted owl. The DEIS recognizes that the Project will involve clearing and removal of vegetation within “approximately 116 acres of known or presumed occupied [marbled murrelet]

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CO26-81 Appendix F.1 contains a project consistency analysis with Resource Management Plan (RMP) and Land and Resource Management Plan (LRMP) standards and guidelines. The BLM and Forest Service worked with the applicant to identify routing and construction techniques to maximize plan consistency. This analysis is disclosed in sections 3.4.2.5 through 3.4.2.9 of the draft EIS. However, due to the linear nature of the project and engineering constraints of pipeline construction, some plan amendments are required to site the Project across BLM and NFS lands. As a consequence, the BLM and Forest Service considered Project design criteria to minimize impacts to BLM and NFS lands and resources. These measures are contained in appendix F.10. Additional measures were either not feasible or did not increase Project conformance with applicable plans.

CO26-82 The BLM worked with the applicant to avoid marbled murrelet and northern spotted owl habitat; however, due to the density of the habitat in the Project area, the linear nature of the pipeline, and the engineering constraints of construction, maintaining habitat conditions that support marbled murrelet and northern spotted owl nesting and roosting at the stand level was not feasible. The BLM Proposed Action incorporates the FERC-recommended Blue Ridge Variation and applies FERC-recommended daily and seasonal timing restrictions for northern spotted owls and marbled murrelets, reducing impacts to these species on BLM-managed land.

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and/or [Northern spotted owl] nesting-roosting habitat.” DEIS at 4-443. The relevant RMP provisions allow for linear rights of way so long as habitat continues to support spotted owl and marbled murrelet nesting and roosting at the stand level, as well as survival at the landscape level. *Id.* However, BLM has determined that the Project would, inconsistent with this requirement, “result in the loss of stand-level [Northern spotted owl] nesting and roosting habitat and [marbled murrelet] nesting habitat in the project corridor” and would “likely result in disruption of [marbled murrelet] nesting at some occupied sites.” *Id.* at 4-444.

In response to these findings that the Project will harm the marbled murrelet and Northern spotted owl in a manner not permitted by the relevant RMPs—and indeed “take” these species within the meaning of the ESA, as discussed above—BLM proposes not to require any additional protective measures to avoid, minimize, or mitigate these harms, but instead simply to amend the RMP to allow them to proceed. *Id.* In fact, the agency plans to amend its RMPs to create a special “District Designated Reserve” for the Project, in which the agency’s only apparent land use management obligation would be to “maintain the values and resources necessary for construction, operation, maintenance, and decommissioning of the proposed Pacific Connector project.” *Id.* Moreover, although the agency has found that the Project would violate the RMPs in “approximately 116 acres,” it proposes to set aside 885 acres in this District Designated Reserve solely for one private industrial project —i.e. roughly eight times the amount of land which the agency has found that the Project needs, without any explanation as to why one company should be allowed to impact more than 850 acres that are not needed for the pipeline. BLM’s proposal of a District Designated Reserve that allows this Project to proceed—and obligates BLM to maintain the conditions necessary for the Project—is not a rational response to a finding that the Project does not comply with the agency’s land use requirements.

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CO26-83 The BLM has developed a series of protection measures to avoid or reduce impacts in the Plan of Development (appendix F.10). The 885 acres in the proposed District Designated Reserve is based on the estimated acres needed to construct the pipeline (see draft EIS section 4.7.3.4). If the pipeline were certificated and constructed, the acres needed for the operation of the pipeline would reduce to the acres in the right-of-way (an approximately 50-foot-wide corridor). The pipeline would be managed, for purposes of the proposed pipeline, according to the terms and conditions of the right-of-way grant by the applicant. Other uses that do not conflict with objectives of the reserve may be authorized on a case-by-case basis.

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Moreover, the agency's proposal to set aside for the Project roughly eight times more land than the area on which the Project will harm listed species is not a rational way to avoid, minimize, or mitigate the identified harms; instead, by exempting far more land from RMP requirements that protect listed species, the agency makes it *more likely* that the Project may harm listed species or other protected environmental attributes. Indeed, rather than requiring any additional measures to protect these listed species, BLM apparently proposes to *reward* Applicants for harming these species by setting aside more land on which the only management provisions would benefit the Project—not the species. This is not a rational response to a Project failing to comply with RMP provisions that aim to protect the environment.

At the very least, the DEIS provides no documentation as to why these harms could not be further avoided, minimized, or mitigated—for example, by avoiding known or suspected habitat for these species, or through compensatory mitigation. Although Applicants may prefer not to route around such habitat because it could be more costly, NEPA requires the DEIS to give meaningful consideration to amending the Project to make it consistent with the agency's RMPs—which, in this context, requires a coherent explanation of why additional measures to avoid, minimize, or mitigate the harms (including through compensatory mitigation) to these listed species are ostensibly not possible. Accordingly, the DEIS must at a minimum provide a clear explanation to support the assertion that the currently proposed measures in the Plan of Development bring the Project as close to compliance with land use plan provisions as possible.

B. BLM May Not Lawfully Abandon the Compensatory Mitigation Measures that it Previously Found Were Necessary for this Project

The DEIS announces that BLM is abandoning a set of compensatory mitigation measures that it previously found were necessary for this Project. Although the DEIS acknowledges that “[i]n the 2015 EIS that evaluated the Pacific Connector Project, the BLM had required a

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CO26-84 The 116 acres is an estimate of the number of acres of known or presumed occupied marbled murrelet (MAMU) habitat and/or northern spotted owl (NSO) nesting-roosting habitat that would be impacted by construction of the pipeline. The BLM considered an alternative that would have amended the RMP guidelines for only these 116 acres but, for reasons detailed in the draft EIS in sections 2.1.3.1 and 4.7.3.4, it was rejected. District Designated Reserves are an existing land use in these RMPs and encompass a wide variety of uses including Areas of Critical Environmental Concern, constructed facilities and infrastructure, communication sites, roads, and seed orchards. Other uses that are compatible with the purpose of the District-Designated Reserve may be authorized by the BLM.

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CO26-85 The BLM worked with the applicant to avoid MAMU and NSO habitat, however due to the density of the habitat in the Project area, the linear nature of the pipeline, and the engineering constraints of construction, avoiding all habitats was not feasible. Cost was not a criterion the BLM considered. However, construction feasibility and impacts to other resources were factors that were considered. For example, in many situations, avoiding habitat would have resulted in impacts to other resource values of concern such as other special status species, riparian areas, sensitive soils, etc. The protection measures taken are described in the POD (appendix F.10).

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CO26-86 The mitigation policy that the BLM followed was discussed in sections 1.3.2 and 2.1.4 of the draft EIS. The BLM policy does not prohibit voluntary compensatory mitigation on the part of the applicant. The applicant, consistent with BLM mitigation policies, has proposed compensatory mitigation actions on BLM lands. Additional discussion of these proposals has been included in section 2.1.4 and appendix F.12 of the final EIS.

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compensatory mitigation plan to offset the unavoidable adverse impacts of the Project,” DEIS at 1-8, BLM now proposes to abandon its own compensatory mitigation plan because the Trump Administration has determined that BLM ostensibly may no longer require compensatory mitigation. BLM’s abandonment of its previously proposed compensatory mitigation plan is an unreasonable and unexplained departure from the agency’s previous practice and is not grounded in any coherent legal or factual reasoning.

BLM’s purported basis for abandoning its own compensatory mitigation plan derives from an Instruction Memorandum (IM) issued by the Trump Administration that disclaims BLM’s legal authority to require compensatory mitigation. DEIS at 1-8 (citing IM No. 2018-093). This ostensible justification is inadequate.¹¹⁴

BLM’s IM rescinds and disclaims any authority under FLPMA to require compensatory mitigation under any circumstances. However, like many other agencies, BLM has for decades required compensatory mitigation as a routine matter when granting rights of way for projects that take place on the lands it manages. Accordingly, by discarding this authority, BLM has radically changed the degree to which projects it authorizes will cause unmitigated environmental harms. In other words, the adoption of this IM was a major federal action with significant environmental effects—thus requiring an EIS in its own right. However, BLM did not provide any notice of its intent to promulgate this IM, did not solicit public comments, and did not prepare or disseminate any NEPA review. As such, the IM itself was not lawfully promulgated, and BLM may not rely on it now. *See W. Watersheds Proj. v. Zinke*, 336 F. Supp. 3d 1204, 1247 (D. Idaho 2018) (granting preliminary injunction of an IM that changed the

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CO26-87 The commenter is correct; IM 2018-93 has been superseded by IM 2019-018. The final EIS text has been updated to reflect this. The policy outlined in IM -2019-018 remains in effect until superseded or further clarified. Comments regarding the promulgation of the IM are beyond the scope of this EIS and are therefore not addressed.

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¹¹⁴ To begin with, the DEIS cites the wrong IM. By the time the Commission issued this DEIS, IM 2018-093 had been superseded by IM 2019-018. However, since the two IMs are largely identical and share common legal insufficiencies, this citation error does not affect the outcome.

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framework for oil and gas leasing because the IM was issued without public notice or involvement or environmental review).

BLM's IM is also not lawful because it fails to "show that there are good reasons for the new policy." *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009). For many years, BLM required compensatory mitigation as a routine and uncontroversial means to offset unavoidable impacts to federal lands. However, BLM's IM departs from this longstanding practice for no good (or even clearly articulated) reason. The entirety of BLM's sparse legal reasoning appears in a section of the IM misleadingly labeled "Background," in which BLM asserts that compensatory mitigation is "an unauthorized tax or an equally unauthorized attempt to augment BLM's existing appropriations," which the agency views as "little more than thinly veiled blackmail." BLM IM 2019-018. BLM now states that "[u]pon further reflection, the conclusion that FLPMA authorized BLM to impose mandatory compensatory mitigation to achieve a 'net conservation gain' was in error," and that FLPMA "cannot reasonably be read to allow BLM to require mandatory compensatory mitigation." *Id.* However, BLM's cursory statements are unmoored from any analysis of FLPMA's text, BLM's regulations, or the extensive history of BLM's actual use of compensatory mitigation. In addition, BLM devotes no attention whatsoever to the fact that other agencies, including agencies with similarly broad statutory mandates such as the Forest Service, routinely require compensatory mitigation—and are in fact requiring compensatory mitigation for this Project.

Finally, BLM's abandonment of the compensatory mitigation measures that it previously proposed lacks any analysis of those measures themselves or the net effect on the environment that results from their abandonment. At a minimum, BLM must identify what particular compensatory mitigation and other durable measures it previously required and examine the

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CO26-88 The applicant, consistent with BLM mitigation policies, has proposed compensatory mitigation actions on BLM lands. Additional discussion of these proposals has been included in section 2.1.4 and appendix F.12 of the final EIS.

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degree to which its abandonment of those mitigation measures will increase the harm to the environment from this Project.

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CONCLUSION

Because the DEIS suffers from the legal deficiencies described above, it fails to fulfill the requirements of NEPA. To correct these shortcomings, the Commission must either withdraw the existing DEIS and issue a revised DEIS for public comment, or prepare a supplemental DEIS to address the deficiencies identified herein and make it available for public comment.

Respectfully submitted this 5th day of July, 2019,

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CO26 continued, page 110 of 112**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at this 5th day of July, 2019

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- Attachment 1: Dr. Ryan E. Emanuel, *Environmental Justice and the Jordan Cove Energy Project*.
- Attachment 2: U.S. Dep't of Energy, National Energy Technology Laboratory, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States*
- Attachment 3: Leslie Abrahams et al., *Life Cycle Greenhouse Gas Emissions From U.S. Liquefied Natural Gas Exports: Implications for End Uses*
- Attachment 4: New York University School of Law, Institute for Policy Integrity, *Pipeline Approvals and Greenhouse Gas Emissions*
- Attachment 5: Orca Network, *Southern Resident Orca Community Demographics, Composition of Pods, Births and Deaths Since 1998*
- Attachment 6: National Marine Fisheries Service, *Southern Resident Killer Whales 5-Year Review: Summary and Evaluation*
- Attachment 7: Velez-Espino et al., *Comparative Demography and viability of Northeastern Pacific resident killer whale populations at risk*
- Attachment 8: Ford et al., *Inbreeding in an endangered killer whale population*
- Attachment 9: Ford et al., *Estimation of a killer whale population's diet using sequencing analysis of DNA from feces*
- Attachment 10: Stipulated Settlement Agreement, *Center for Biological Diversity v. NMFS*, No. 18-cv-01201
- Attachment 11: Fearnbach et al., *Using aerial photogrammetry to detect changes in body condition of endangered Southern Resident killer whales*
- Attachment 12: Matkin et al., *Review of recent research on Southern Resident killer whales to detect evidence of poor body condition in the population*
- Attachment 13: Hanson, NOAA Fisheries, *Distribution and Diet of Southern Resident Killer Whales*
- Attachment 14: Ford et al., *Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator?*

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- Attachment 15: National Marine Fisheries Service, *Recovery Plan for Southern Resident killer whales*
- Attachment 16: Williams et al., *Estimating relative energetic costs of human disturbance to killer whales*
- Attachment 17: Lacy et al., *Evaluating anthropogenic threats to endangered killer whales to inform effective recovery plans*
- Attachment 18: National Marine Fisheries Service, *2019 gray whale Unusual Mortality Event along the west coast*
- Attachment 19: National Marine Fisheries Service, *Frequent Question: 2019 gray whale unusual mortality event along the west coast*
- Attachment 20: LeBoeuf et al., *High gray whale mortality and low recruitment in 1999: Potential causes and implications*
- Attachment 21: L.V. Mapes, *Researchers seek answers to gray whale deaths after 57 are stranded this year.*
- Attachment 22: Wright et al., *Anthropogenic noise as a stressor in animals: a multidisciplinary perspective*

CO26 Natural Resources Defense Council, G. Giannetti, additional comments, page 1 of 12**Environmental Justice and the Jordan Cove Energy Project**
Ryan E. Emanuel, Ph.D.**Brief Summary**

The Environmental Justice analysis included in the Draft Environmental Impact Statement for the Jordan Cove Energy Project (Docket Nos. CP17-494-000, CP17-495-000) contains important information about demographic disparities in vulnerable populations of the study areas of the proposed liquefied natural gas facility and associated pipeline. However, key results from EPA EJSCREEN reports generated by the applicant were omitted from the agency's environmental justice analysis and discussion. This omission prevents the agency from understanding the co-location of vulnerable populations and existing environmental hazards, one of the main purposes of EJSCREEN. Moreover, none of the demographic results used in the environmental justice analysis have been weighted by the population size of the unit (block group, tract, county). This omission makes it impossible to draw conclusions about the extent to which vulnerable populations are disproportionately represented in the two study areas. Finally, given that tribal consultation is still ongoing, regulators do not yet have information on the unique environmental justice implications for Indigenous peoples needed to draw informed conclusions on this topic.

Background

Environmental justice (EJ) involves the fair treatment and meaningful involvement of all people in environmental decision making, and, as a policy concept, EJ is concerned with amplifying voices of communities and populations historically excluded from decision making.¹ Under 1994 Presidential Executive Order 12898, federal agencies are required to “identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.”² Federal advisory bodies issue guidance on implementing EJ policy in federal actions such as environmental permitting for infrastructure.³ The US Environmental Protection Agency (EPA) and individual states such as California, New Jersey, and Washington have created geographic screening tools as first steps in the evaluation of potential EJ concerns associated with actions involving governmental permitting, funding, or oversight.⁴ According to the EPA, use of environmental justice screening tools is a “useful first step in understanding or highlighting locations that may be candidates for further review.”⁵

The Jordan Cove Energy Project (JCEP) involves multiple federal authorizations. As the lead federal agency, the Federal Energy Regulatory Commission (FERC) is responsible for evaluating EJ concerns associated with the Jordan Cove liquefied natural gas (LNG) facility and the associated Pacific Connector Gas Pipeline (PCGP). As an independent regulatory agency, the FERC considers itself exempt from compliance with Executive Order 12898; nevertheless, the agency has conducted an EJ analysis of the JCEP “to determine whether the Projects would have disproportionate environmental impacts on minority and low-income populations.”⁶

Environmental justice analyses and discussions for the JCEP appear mainly in Sections 4 of the draft environmental impact statement⁷ (DEIS) prepared by FERC (Subsections 4.9, 4.11, 4.14). Discussions relevant to EJ are also included in Subsection 5.1 of the DEIS (Parts 5.1.9, 5.1.11,

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5.1.14) and in Appendices J, L, M, and N of the DEIS. The project applicant, Jordan Cove Energy Project, L. P., supplied regulators with output from EPA's environmental justice screening tool, EJSCREEN, for geographic areas associated with the LNG plant and the associated pipeline.⁸ This report synthesizes information from all of these sources.

Overview of Existing Environmental Justice Analyses

The DEIS describes FERC's methodology for evaluating EJ as a "three-step approach" requiring regulators to:

1. Determine the presence of minority and/or low-income populations.
2. Determine if the Project would result in high and adverse human health or environmental effects.
3. Determine if high and adverse human health or environmental effects would fall disproportionately on minority and/or low-income populations.

For Step 1, FERC relies on the EPA's preliminary screening tool, EJSCREEN, in combination with US Census data to identify the presence of vulnerable communities.⁹ For the LNG facility, the DEIS presents Census data extracted from EJSCREEN reports on various geographies, including the cities of North Bend and Coos Bay, a 3-mile radius surrounding the proposed LNG facility, Coos County, Oregon, and the United States. For the pipeline, the DEIS presents similar Census data extracted from EJSCREEN reports for counties crossed by the pipeline and for Oregon. In addition to this information, the DEIS reports race and ethnicity for counties crossed by the pipeline and for Oregon.

For Step 2, the DEIS concludes "that with two exception[s], the [LNG facility] would not significantly impact the environment or have high and adverse effects on human health or the environment." The exceptions are impacts to the "visual character" of Coos Bay and short-term impacts to housing in localities near the LNG facility and the pipeline. Concerning the pipeline, FERC concludes "Construction and operation of the pipeline are not expected to result in high and adverse human health or environmental effects on any nearby communities."

For Step 3, the DEIS concludes that "the potential for [low-income] populations to be disproportionately affected relative to other populations within 3 miles of the site is low." However, FERC also concludes that "tribal populations" have the "potential to be disproportionately affected by construction and operation of the terminal as a result of their unique relationship with the surrounding environment." For both the LNG facility and the pipeline, the DEIS notes that a "forthcoming ethnographic study" will provide additional information to assess the extent to which tribes would experience high and adverse impacts from the project due to their unique and longstanding connections to lands affected by the project.

The DEIS states that the purpose of the three-step approach is "to determine if resulting impacts would be disproportionately high and adverse for minority and low-income populations and appreciably exceed impacts on the general population or other comparison group."¹⁰

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CO26-89 Comment noted.

Weaknesses in Existing Environmental Justice Analyses

Incomplete Reporting of EJSCREEN Data

At the request of regulators and prior to issuance of the DEIS, the project applicant provided FERC with standard EJSCREEN reports for the county, cities, and census tracts surrounding the LNG facility¹¹ and for census tracts along the pipeline route.¹² However, the DEIS does not acknowledge or discuss relatively high values for some of the EJ indices, nor does it discuss the implications of these particular results for compliance with Executive Order 12898. Instead, the DEIS simply presents and discusses demographic data used to compute EJ indices in the EJSCREEN report.

EJSCREEN is more than a tool for gathering demographic data from the US Census. The 11 environmental justice indices are perhaps the most important results from an EJSCREEN report. They are given first priority among results found on a standard EJSCREEN report. The indices are important because they account for demographic variables as well as categories of environmental hazards or concerns.¹³ Combining two types of information - demographic and environmental - into aggregate metrics is a key function of EJSCREEN. The EJ indices are valuable for decision-making because they convert data on hazards (environmental indices) and exposure (demographic indices) into metrics that help decision makers understand environmental risks to vulnerable populations. Understanding whether these risks fall disproportionately on vulnerable populations is one of the primary aims of EJ.¹⁴ Even though EJSCREEN itself is not a risk assessment tool¹⁵, it highlights areas that may require further investigation during the environmental review process.

In a standard report, EJ indices are calculated for particular study areas and presented as rank percentiles for three different reference areas: the state, the EPA region, and the nation. High values indicate that a study area's population ranks high in vulnerability within a particular reference area. For example, a score of 90 at the state level means that a study population ranks in the top ten percent of vulnerability for a particular hazard within the state. Unless decision makers understand how vulnerable populations and environmental hazards are organized in a particular area (known in statistics as the "joint distribution" of multiple variables) they risk under- or over-estimating the importance of the results from either the demographic or the environmental variables alone.

By failing to consider the EJ indices provided in the EJSCREEN reports for the LNG facility and PCGP, regulators risk overlooking potential EJ issues related to the co-location of vulnerable populations and environmental factors related to criteria air pollutants (e.g., PM_{2.5}, ozone), respiratory hazards, and proximity to hazardous infrastructure. Presenting only demographic data from the EJSCREEN reports is therefore a weakness of the EJ section of the DEIS because it omits information about the intersection of vulnerable populations and environmental hazards necessary for informed decision making.

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Ambiguity in Comparisons of Study and Reference Areas

LNG Facility: Determining the extent to which poor or minority populations are disproportionately affected by a regulated activity (e.g., Step 3 in FERC's methodology) requires, among other things, quantifying demographic disparities that may exist between study and reference populations. For example, if a particular minority makes up 40% of a study area population but only 4% of the corresponding reference area population, a disproportionality of 10:1 exists between the study population and the reference population for that particular minority.¹⁶ Thus, it is critical to unambiguously define the study area and reference area for a project and to correctly identify demographic disproportionalities for Step 3 of the methodology. However, this is not how Step 3 appears to be addressed in the DEIS.

In the case of the LNG facility, census tracts, cities, and 3-mile buffer are all identified at various points as study areas. It is clear that these are study areas because EJSCREEN reports are generated for each area.¹⁷ Both Coos County and the state of Oregon are treated as reference areas in the accompanying discussion.¹⁸ The DEIS highlights examples of demographic disproportionalities related to various vulnerable populations (e.g., Native Americans, elderly, low income) during a discussion related to step one of the methodology. However, conclusions about EJ presented at the end of Section 4.9.1.9 do not take advantage of quantitative comparisons between the study area and reference area. For example, the conclusion statements refer, indirectly, to low income communities in Table 4.9.1.9-1 but do not put the comparison between study and reference areas in quantitative terms. This result appears to have implications for the conclusions but is not discussed.

Instead of discussing disproportionalities between the study area and the reference area (Coos County or Oregon), the DEIS concludes that “the potential for these populations to be disproportionately affected relative to other populations within 3 miles of the site is low.” This statement is ambiguous and does not appear to be the correct comparison for an EJ analysis. Disproportionate impacts do not mean that the low income population of the study area exceeds the wealthier population of the study area, as this statement seems to suggest. Instead, disproportionate impacts mean that a low income (or minority) population makes up a larger fraction of the study population than the reference population.¹⁹ Table 4.9.1.9-1 actually shows that the low income population of the study area (3-mile radius) is approximately 20% higher than elsewhere in Oregon. This simple statistic is an example of the type of quantitative comparison that is lacking from the EJ discussion. To the extent that Oregon is considered one of the reference areas for the LNG facility,²⁰ this statistic shows that the conclusion statement about low income populations is incorrect.

PCGP: In Section 4.9.2.9 of the DEIS, various geographic areas are used as study areas for the PCGP, including census block groups, tracts, and counties. The DEIS notes that EJSCREEN reports were run for all of these geographic areas, which confirms that they are considered study areas. Oregon is the reference area against which study areas are compared. One key weakness of the EJ analysis for the PCGP is a lack of quantitative comparison between study areas and reference areas. Similar to the discussion of the LNG facility above, there is no attempt to quantify disproportionalities between study areas and reference areas.

CO26-90

CO26-91

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CO26-90 This comment appears to conflate the process of identifying the potential presence of minority and low-income populations with the disproportionate high and adverse impact analysis. These assessments represent two separate steps in the analysis process. The reference (Interagency Working Group 2016, p. 25) the comment author cites to support their contention that “disproportionate impacts mean that a low income (or minority) population makes up a larger fraction of the study population than the reference population” is, in fact, specifically concerned with the process that should be used to identify whether minority and low-income populations are present. Later sections in Interagency Working Group (2016) discuss the disproportionate high and adverse impact analysis (starting on p. 38) and provide guiding principles and specific steps for agencies to consider.

As discussed in response to comment CO26-33, in accordance with the Federal Interagency Working Group (2016), the EIS analyses determined the potential for disproportionate high and adverse impacts based on the impacts in the resource topics analyzed elsewhere in the EIS. The discussion of the environmental justice analysis has been expanded in the final EIS to more fully explain the methodology used and the conclusions reported in the draft EIS.

CO26-91 The environmental justice analysis prepared for the EIS involved a quantitative comparison between study areas and reference area. The study area consisted of the census tracts crossed by the proposed pipeline route; the reference area was the state of Oregon. A quantitative comparison was prepared and summarized in the draft EIS. This analysis identified the potential presence of both low-income and minority populations along the proposed Pipeline route. The discussion of the environmental justice analysis has been expanded in the final EIS to more fully explain the methodology used and the conclusions reported in the draft EIS.

The DEIS does, however, provide a count of the number of census block groups containing larger vulnerable population fractions than Oregon as a whole. This attempt at a quantitative analysis is flawed, because it fails to account for differences in population size between block groups. As discussed elsewhere, tallying census units without accounting for potential differences in population size from one unit to the next can lead to masking of large low income or minority populations.²¹

Despite identifying instances in which vulnerable populations are over-represented in the study area, these instances appear to be treated anecdotally in the DEIS, and there are no summary statistics or calculations for overall disparities associated with the PCGP. The summary statements for step three of the methodology illustrate the failure of the DEIS to quantitatively summarize the results of the demographic comparisons:

Construction and operation of the pipeline are not expected to result in high and adverse human health or environmental effects on any nearby communities and the likelihood that these potential environmental justice and vulnerable populations will be disproportionately affected relative to other populations in the census tracts crossed by the pipeline is low.

This conclusion does not appear to be based on a quantitative analysis of the results presented earlier in Section 4.9.2.9 or the EJSCREEN results submitted by the applicant. Instead, the statements appear to dismiss demographic disparities without discussion.

Based on a brief analysis of the PCGP route as shown on the applicant's website, there appear to be census tracts impacted by the pipeline but omitted from the analysis. In particular, the PCGP appears to cross Coos County Census Tract 4 and Klamath County Census Tract 9708, but these were not included in the PCGP analysis (although Tract 4 EJSCREEN results were included in the applicant filings for the LNG facility).

The pipeline route also appears to come within one mile of three additional tracts, Coos County Tract 3, and Douglas County Tracts 1900 and 2000. FERC has used a one-mile buffer to define census tract study areas for other recent pipeline projects,²² and it is unclear why a similar buffer was not employed here. More precise GIS data would be necessary to confirm whether these census tracts should be included in the analysis. Figure 1 shows the general pipeline route (extracted manually from the applicant's website) with missing tracts outlined in yellow.

CO26-91
cont.

CO26-92

CO26-93

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CO26-92 See the response to comment CO26-91.

CO26-93 Section 4.9.2.9 has been expanded in the final EIS and now identifies the census tracts that were included in the environmental justice analysis for the Pipeline (see new table 4.9.2.9-3). Census tracts considered in this analysis are those that would either be crossed by or are within 1 mile of the proposed route.

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cont.

Figure 1: American Indian and Alaska Native population share for census tracts located in the project area. Tracts outlined in yellow appear to have been omitted from EJSCREEN and other analyses for the PCGP.

Incomplete Tribal Consultation

In addition to statutory requirements for government-to-government consultation with American Indian tribes under Section 106 of the National Historic Preservation Act, tribal consultation is necessary to identify specific “human health or environmental effects” mentioned in step two of FERC’s EJ methodology. American Indians are included in the count of vulnerable communities potentially affected by the project, both in terms of the population residing near the LNG facility and the PCGP, and in terms of the tribal nations whose citizens may or may not be counted in the demographic analysis but whose present-day and ancestral territories are nonetheless affected by the project. Until regulators have completed these consultations, it is not possible to draw informed conclusions about the “human health or environmental effects” of concern to tribes.

CO26-94

CO26-94 See the response to comment CO26-32. In addition, the EIS discusses potential impacts on Indian tribes and natural resources traditionally utilized by tribes within their ancestral ceded lands, in many different places, including sections 4.4, 4.5, and 4.11, and appendix L. Issues raised by the tribes are summarized in section 4.11.1.3 and explicitly recognized in the related environmental analysis sections of this document.

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In the interim, however, there are discussions of specific cultural and environmental concerns of several tribes in Section 4.11 which have yet to be summarized in the EJ section of the DEIS. The DEIS reports that the following tribes have all articulated specific concerns about connections to landscapes and waterways affected by the project:

- Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
- Coquille Indian Tribe
- Cow Creek Band of Umpqua Tribe of Indians
- Confederated Tribes of the Grand Ronde Community
- Karuk Tribe
- Klamath Tribes
- Tolowa Dee-Ni' Nation
- Yurok Tribe

The aggregate enrolled population of these tribal nations appears to exceed 16,000 people.²³ Regardless of whether or not these individuals live within the DEIS-defined study area, tribal citizens represent vulnerable populations who share EJ concerns of other communities but also have distinct EJ considerations that must be evaluated in light of the unique circumstances of Indigenous peoples.²⁴

The DEIS identifies demographic disparities in Native American populations and notes that tribal consultations are ongoing. Given the number and aggregate size of tribes involved in consultations with FERC, the EJ conclusions should be considered incomplete until these consultations have provided sufficient information to accurately capture the unique ways that various tribal nations may be disproportionately impacted by the project.

Recommendations for Improvement

Methodological Improvements

The EJ indices provided in EJSCREEN reports have major implications for vulnerable populations affected by the project and should be discussed. For the PCGP in particular, multiple EJ indices have population-weighted values across all census tracts that raise concerns. Weighted values for indices suggest that the population living along the proposed pipeline route is already among the more vulnerable populations in the state and EPA region in terms of exposure to respiratory hazards and proximity to other hazardous sites. Table 1 highlights population weighted EJ indices for PCGP-affected census tracts that exceed the median values (yellow) or the 60th percentile values (orange) for the state or region. At a minimum, the DEIS should include a discussion of the extent to which facilities associated with the project would add additional environmental and human health burdens to these communities. Regardless of whether the additional burdens are expected to be incremental or substantial, identifying the added burdens associated with the project falls squarely within the scope of Executive Order 12898. Moreover, Table 1 suggests there is a need for additional discussion on this topic.

CO26-94

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CO26-95 The EIS assesses the potential environmental impacts of the Project by resource in section 4, with a separate discussion of cumulative impacts provided as section 4.14. As discussed by NRDC in their Comment CO26-34 (see above), EJSCREEN is not intended to be an analysis tool or substitute for detailed Project and locally-specific analysis of the type conducted in the EIS. The environmental justice analysis used the results of these locally-specific analyses reported elsewhere in the EIS to assess the potential for disproportionate high and adverse impacts (see Federal Interagency Working Group 2016).

CO26-95

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CO26-96 See the response to comment CO26-91.

Table 1: Weighted Average EJ Indices for PCGP

EJ Index	Percentile		
	State	Region	USA
Wastewater Discharge Indicator	N/A	68	64
NATA Diesel PM	66	67	56
Hazardous Waste Proximity	64	67	56
NATA Respiratory Hazard Index	61	61	48
NATA Air Toxics Cancer Risk	59	61	51
Superfund Proximity	56	59	49
RMP Proximity	57	58	50
Particulate Matter (PM 2.5)	54	55	48
Traffic Proximity and Volume	56	55	45
Ozone	51	53	46
Lead Paint Indicator	44	41	37

Key >50 >60

CO26-95
cont.

In addition to incorporating EJSCREEN indices, the EJ analysis of the DEIS should include a more robust discussion of disproportionalities that includes disproportionality ratios (e.g., note 16) or other metrics that quantify demographic disparities. Metrics such as these are necessary to inform conclusions such as, “the likelihood that these potential environmental justice and vulnerable populations will be disproportionately affected relative to other populations in the census tracts crossed by the pipeline is low.”²² The accuracy of this particular conclusion is debatable, however, upon close scrutiny of the demographic data associated with census tracts associated with PCGP. Weighted average population data summarized in Table 2 suggest that American Indian and Alaska Native populations are much more likely to live in census tracts along the PCGP route than elsewhere in Oregon (the reference population used for the pipeline). 2010 census data suggest that this group is approximately 50% more likely to live in tracts crossed by the pipeline than elsewhere in Oregon (corresponding to the disproportionality ratio of 1.53 shown in Table 2). In fact, American Indians and Alaska Natives appear to have the largest demographic disparity of any group listed in Table 2.

Table 2: Weighted Average Disproportionality Ratios (County and State)

Race ¹	Tracts*	Counties	Oregon	D _{Counties}	D _{Oregon}
White	90.9%	89.3%	83.6%	1.02	1.09
Black or African American	0.3%	0.6%	1.8%	0.55	0.18
American Indian and Alaska Native	2.1%	2.0%	1.4%	1.07	1.53
Asian	0.7%	1.1%	3.7%	0.60	0.18
Native Hawaiian and Other Pacific Islander ²	0.1%	N/A	N/A	N/A	N/A
Some Other Race	2.2%	3.2%	5.3%	0.69	0.42
Two or More Races	3.7%	3.6%	3.8%	1.03	0.98

CO26-96

^{*}2010 Census¹Hispanic population data unavailable²Insufficient data

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An improved EJ analysis should discuss the high and adverse impacts in light of the disproportionality ratio or some other disparity metric. The analysis should also incorporate any census tracts omitted from the original list of those used by the agency or applicant (e.g. Figure 1).

Demographic analyses, whether summarized by EJSCREEN or other methods, should be considered first steps in a complete EJ analysis. For example, EJSCREEN was developed to “highlight places that may be candidates for further review, analysis or outreach”²⁶ for regulators and decision makers. As such, summaries of EJSCREEN results or demographic data do not constitute complete EJ analyses in and of themselves. In much the same way that regulators require field-based evidence to support conclusions surrounding impacts to jurisdictional waters and endangered species, they should consider similar standards of evidence for EJ. Such attention to vulnerable communities would be consistent with the aims of Executive Order 12898, which include both identifying and addressing impacts of agency actions and decisions on low income and minority communities.²⁷ Such attention would also be consistent with the Federal Interagency Working Group on Environmental Justice & NEPA Committee’s specific recommendation:

The identification of a disproportionately high and adverse impact to a minority population or low-income population can heighten agencies’ attention to identifying reasonable alternatives that could mitigate the adverse impact, and using community input into agencies’ development of mitigation measures.²⁸

With this in mind, the results of demographic analyses and EJSCREEN reports should be considered an overview of issues that warrant further investigation in a more complete EJ section.

Integration of Tribal Consultation Outcomes and Environmental Justice Analyses

Given the comparatively large American Indian and Alaska Native population in the project study area (Figure 1, Table 2) and the number of tribal nations whose present-day or ancestral territories potentially impacted by the project, it is unlikely that meaningful EJ conclusions can be reached without incorporating Indigenous perspectives gained through meaningful tribal consultation. Genuine tribal consultation has the potential to provide agencies with deep insight for informed decision making,²⁹ and regulators should be commended for including statements about ongoing tribal consultations in the DEIS. Until tribes and regulators agree that consultations have been completed successfully, there is no way to get a complete view of potential environmental justice issues associated with LNG terminal or the Pacific Connector Gas Pipeline.

About the Author

Ryan E. Emanuel is a scientist and scholar who holds a Ph.D. in Environmental Sciences from the University of Virginia. His areas of research expertise include hydrology, ecology, environmental justice, and Indigenous studies. Emanuel has authored or co-authored more than 40 peer-reviewed publications. Bibliographies of Emanuel’s work can be found online³⁰. Emanuel is a tenured university professor and an enrolled member of the Lumbee Tribe. The

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CO26-97

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CO26-97 The results of the demographic analyses and EJSCREEN reports are used in the EIS to identify potential minority and low-income populations. These sources of data are used for the first step of the assessment and do not constitute the complete environmental justice analysis. The disproportionately high and adverse impacts analysis is based on a detailed assessment of the Project in accordance with applicable guidelines. The discussion of the environmental justice analysis has been expanded in the final EIS to more fully explain the methodology used and the conclusions reported in the draft EIS.

CO26-98 Comment noted. See also the response to comment CO26-94.

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views expressed in this report do not necessarily reflect the views of his employer, North Carolina State University, or the Lumbee Tribe of North Carolina.

Appendix (attached)

Table A1: Tribal Nations and Estimated Populations Associated with the Jordan Cove Energy Project

Notes and References

¹ Several scholarly reviews cover environmental justice research on public health (e.g., Brulle, R.J. and Pellow, D.N., 2006. Environmental justice: human health and environmental inequalities. *Annu. Rev. Public Health*, 27, pp.103-124), environmental law (e.g., Outka, U., 2006. NEPA and environmental justice: Integration, implementation, and judicial review. *Boston Coll. Envtl. Aff. L. Rev.*, 33, p.601), recreation (e.g., Floyd, M.F. and Johnson, C.Y., 2002. Coming to terms with environmental justice in outdoor recreation: A conceptual discussion with research implications. *Leisure Sciences*, 24(1), pp.59-77) and other topics. Reviews generally point out the importance of engaging historically marginalized communities and populations.

² US Environmental Protection Agency, "Summary of Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" <https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>, accessed June 19, 2019.

³ Federal Interagency Working Group on Environmental Justice & NEPA Committee, "Promising Practices FOR EJ Methodologies IN NEPA Reviews" (2016). https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf. accessed June 19, 2019.

⁴ US Environmental Protection Agency, "Purposes and Uses of EJSCREEN" <https://www.epa.gov/cjscreen/purposes-and-uscs-ejscreen>, accessed June 19, 2019.

⁵ Ibid.

⁶ Federal Energy Regulatory Commission, "Draft Environmental Impact Statement for the Jordan Cove Energy Project" Docket Nos. CP17-494-000 and CP17-495-000, March 2019, p. 4-643.

⁷ Federal Energy Regulatory Commission, "Draft Environmental Impact Statement for the Jordan Cove Energy Project" Docket Nos. CP17-494-000 and CP17-495-000, March 2019 (DEIS).

⁸ Applicant filing FERC-JCEP-RR5-6.

⁹ DEIS p. 4-600.

¹⁰ DEIS p. 4-599.

¹¹ Applicant filing FERC-JCEP-RR5-6.

¹² Applicant filing FERC-PCGP-RR5-2-A and B.

¹³ US Environmental Protection Agency, "Environmental Justice Indexes in EJSCREEN" <https://www.epa.gov/cjscreen/environmental-justice-indexes-ejscreen>. Accessed June 24, 2019.

¹⁴ Scholarly research defines risk as a key component of EJ (e.g., Cutter, S.L., 2012. Hazards vulnerability and environmental justice. Routledge; Holifield, R., 2001. Defining environmental justice and environmental racism. *Urban geography*, 22(1), pp.78-90; Menis, J., 2002. Using geographic information systems to create and analyze statistical surfaces of population and risk for environmental justice analysis. *Social science quarterly*, 83(1), pp.281-297)

¹⁵ US Environmental Protection Agency, "What is EJSCREEN" <https://www.epa.gov/cjscreen/what-ejscreen>. Accessed June 26, 2019.

¹⁶ Social science research has long used ratios of study and reference populations to quantify disproportionality (e.g., R. J. Skiba, R. S. Michael, A. C. Nardo, R. L. Peterson, 2002. The Color of Discipline: Sources of Racial and Gender Disproportionality in School Punishment. *The Urban Review*, 34, 317-342. D. L. MacMillan, D. J. Reschly, 1998. Overrepresentation of minority students: The case

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for greater specificity or reconsideration of the variables examined. *The Journal of Special Education*, 32, 15–24).

¹⁷ Table 4.9.1.9-1; DEIS p. 4-600.

¹⁸ “Benchmark areas”; DEIS p. 4-601.

¹⁹ Federal Interagency Working Group on Environmental Justice & NEPA Committee, p. 25.

²⁰ DEIS, p. 4-599.

²¹ Emanuel, R.E., 2017. Flawed environmental justice analyses. *Science*, 357(6348), p.260. See also “Comments of Ryan E. Emanuel, Ph.D. on the Atlantic Coast Pipeline” Submitted to NC Department of Environmental Quality, August 17, 2017, <https://files.nc.gov/nedcog/Energy%20Minerals%20and%20Land%20Resources/DEMLR/Atlantic-Coast-Pipeline/Dr%20Ryan%20E.%20Emanuel%20ACP%20Comments%20112817.pdf> Accessed June 27, 2019.

²² Federal Energy Regulatory Commission “Final Environmental Impact Statement on Southeast Market Pipelines Project” (Docket Nos. CP14-554-000, CP15-16-000, and CP15-17-000) and “Final Environmental Impact Statement for the Atlantic Coast Pipeline and Supply Header Project (CP15-554-000,-001; CP 15-555-000; and CP 15-556-000).

²³ Appendix A of this report.

²⁴ Ranco, D.J., O’Neill, C.A., Donatuto, J. and Harper, B.L., 2011. Environmental justice, American Indians and the cultural dilemma: developing environmental management for tribal health and well-being. *Environmental Justice*, 4(4), pp.221-230.

²⁵ DEIS p. 4-619.

²⁶ US Environmental Protection Agency, “Limitations and Caveats in Using EJSCREEN” <https://www.epa.gov/ejscreen/limitations-and-caveats-using-ejscreen#app-uses> Accessed June 27, 2019.

²⁷ US Environmental Protection Agency, “Summary of Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” <https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice> Accessed June 27, 2019.

²⁸ Federal Interagency Working Group on Environmental Justice & NEPA Committee, p. 19.

²⁹ Routel, C. and Holth, J., 2012. Toward genuine tribal consultation in the 21st century. *U. Mich. JL Reform*, 46, p.417.

³⁰ See <https://scholar.google.com/citations?user=NVp83n8AAAAJ> and <https://orcid.org/0000-0002-2166-1698>.

CO26 continued, page 12 of 12**Appendix to Environmental Justice and the Jordan Cove Energy Project**
Ryan E. Emanuel, Ph.D.

Table A1: Tribal Nations and Estimated Populations Associated with the Jordan Cove Energy Project

Tribal Nation	Est. Pop.	Date and Source of Estimate
Confederated Tribes of Coos, Lower Umpqua, & Siuslaw	717	2010 (clcb.org/assets/73/1c/53262e9fb92a78e98.pdf)
Cow Creek Band of Umpqua Tribe of Indians	545	2017 (www.cowcreek.gov/DOE/DOETPS/11/Plan/Submissions/Plan_Cowcreek_Indian_Tribe_CUSPP.pdf)
Karuk Tribe	1,553	2011 (www.cowcreek.com/wp-content/uploads/2010/07/cow_creek_band_of_umpqua.pdf)
Confederated Tribes of the Grand Ronde Community	5,206	2016 (www.cowcreek.com/government/Documents-2015-17%200014R.pdf)
Klamath Tribes	3,700	2015 (www.klamathtribes.org/documents/2015%20FINAL%20BIA%20BIA%20Letter.pdf)
Tolowa Dcu-Ni' Nation	2,734	2017 (tolowadcu-ni.org/administrator/wp-content/uploads/2012/04/15/ABD-MHT-KGA-10-ON-10-0.pdf)
Yurok Tribe	1,692	2017 (www.yuroktribe.org/documents/DRAFT_CEDS_WEB.pdf)
Total	16,843	