

CO26 – Earth Justice

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**EARTHJUSTICE—CHICKALOON VILLAGE TRADITIONAL COUNCIL
SIERRA CLUB—NORTHERN ALASKA ENVIRONMENTAL CENTER
DEFENDERS OF WILDLIFE—COOK INLETKEEPER
THE WILDERNESS SOCIETY**

October 3, 2019

VIA FERC eFILING PORTAL

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Re: Comments on Alaska LNG Project Draft Environmental Impact Statement,
Docket No. CP17-178-000

Dear Ms. Bose,

Earthjustice, Chickaloon Village Traditional Council, Sierra Club, Northern Alaska Environmental Center, Defenders of Wildlife, Cook Inletkeeper, and The Wilderness Society submit these comments on the draft environmental impact statement (DEIS) prepared by the Federal Energy Regulatory Commission (FERC) for the Alaska Gas LNG Project (“the Project”) in June 2019. Earthjustice is the nation’s premier nonprofit environmental law firm, whose mission is to protect healthy communities, defend wildlife and wild places, and fight for our climate future.

Chickaloon Village Traditional Council (CVTC) is the governing body of the federally-recognized Chickaloon Native Village (“the Tribe”), with all of the inherent powers of a sovereign Dene’Athabaskan Nation. CVTC acts and governs on behalf of all Chickaloon Tribal citizens. The Project as proposed would overlap with the Tribe’s traditional and customary use area and could directly affect salmon habitats (marine and fresh water), cultural resources, and other resources that are important to the Tribe’s identity and traditions, including but not limited to impacts in the Montana Creek area and Upper Cook Inlet.

The Sierra Club is a national nonprofit organization with 64 chapters and over 625,000 members, including nearly 1,500 members in Alaska, dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth’s ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives.

Northern Alaska Environmental Center (“Northern Center”) is a nonprofit organization that has employed grassroots activism, legislative advocacy, legal intervention, and public education to protect the ecological integrity of public lands in

CO26-1

CO26-1 Comment noted.

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Northern Alaska. The Northern Center advocates for a more responsible approach to resource development on subarctic and arctic wildlands and the surrounding areas, and addresses environmental issues that affect Alaskans' quality of life.

Defenders of Wildlife ("Defenders") is a non-profit organization with its principal office in Washington, D.C. and field offices throughout the country. Defenders has approximately 1.8 million members and supporters, including over 6,000 in Alaska. Defenders' primary mission is to further the protection of native wildlife and plants in their natural communities.

Cook Inletkeeper is a private community-based nonprofit organization dedicated to protecting the vast Cook Inlet watershed and the life it sustains. Since its inception in 1995, Cook Inletkeeper has relied on research, education, and advocacy to become a leader in watershed-based protections in the rich but threatened streams, lakes, and estuaries of the Cook Inlet watershed. Cook Inletkeeper has thousands of members in the Cook Inlet region who depend on healthy fisheries and tourism businesses in Cook Inlet.

The Wilderness Society (TWS) is a nonprofit organization founded in 1935 with offices throughout the country, including a six-person staff in Alaska. Its overall mission is to protect wilderness and inspire Americans to care for our wild places. TWS has more than one million members and supporters. The goal of its Alaska program is to permanently protect special places in America's Arctic and sub-Arctic. Among other areas of focus, TWS staff work to advance scientific understanding and conservation policy for highly migratory caribou and fish resources that utilize much of the landscape to complete their life cycles.

This letter is in addition to any separate comment letters these groups may submit.

We appreciate the opportunity to comment on the DEIS. The comments also pertain to all forthcoming permitting processes for the Project that are relevant to the subjects this letter addresses.

The proposed Project includes:

A new Gas Treatment Plant (GTP); a 1.0-mile-long, 60-inch-diameter Prudhoe Bay Unit Gas Transmission Line (PBTL); a 62.5-mile-long, 32-inch-diameter Point Thomson Unit Gas Transmission Line (PTTL); a 806.6-mile-long, 42-inch-diameter natural gas pipeline (Mainline Pipeline) and associated aboveground facilities, including eight compressor stations and a heater station; and a 20 million metric-ton per annum liquefaction facility (Liquefaction Facilities), including an LNG Plant and Marine Terminal.¹

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¹ DEIS at ES-1.

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The Project is unprecedented in scale. It would have significant impacts on wildlife, wildlife habitat, subsistence uses, and air quality, as well as many other natural values. Yet, the DEIS dismisses most of these impacts as insignificant based on unspecified, unproven, or unenforceable mitigation measures.

CO26-2

The DEIS and supporting information are woefully incomplete. There remain crucial data gaps, unresolved key questions, and uncertain designs. On this inadequate record it is not possible for FERC to initiate meaningful public participation, take the “hard look” required by the National Environmental Policy Act (NEPA), or reach any conclusion that the project will comply with the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the Clean Water Act (CWA), and other federal and state laws. Nor does the DEIS support the required finding under the Natural Gas Act that the Project is in the public interest and “is or will be required by the present or future public convenience and necessity.”²

At a minimum, FERC should suspend the permitting process until the Alaska Gasline Development Corporation (AGDC) submits the necessary information to allow sufficient review of the Project. Should FERC decide to continue the permitting process, however, the only lawful choice is the no action alternative. In these comments, we address several issues that warrant additional study, revision, and/or discussion under NEPA, MMPA, ESA, CWA, and other statutes. These issues include:

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- *Inadequate analysis of alternatives.* FERC must identify and thoroughly analyze additional alternatives.
- *Inadequate analysis of impacts to wildlife and habitat.* FERC must take a hard look at the impacts to wildlife and habitat, including marine mammals, especially the critically endangered Cook Inlet beluga whale; fish resources; terrestrial wildlife; wetlands; permafrost; soils; and vegetation.
- *Inadequate analysis of impacts on subsistence.* FERC must produce a meaningful estimate of the magnitude of subsistence impacts that does not depend on vague and unenforceable mitigation.
- *Air pollution.* FERC must quantitatively analyze the air pollution impacts associated with each alternative considered in the EIS, ensure prevention of significant deterioration of air quality, and fully analyze a suite of enforceable mitigation measures.
- *Cumulative impacts of induced development and other reasonably foreseeable activities.* FERC must assess the cumulative impacts from all reasonably foreseeable activities.
- *Mitigation.* FERC must identify additional mitigation and describe the measures with sufficient detail.
- *Missing information.* FERC must either require AGDC to provide the numerous categories of information missing from the DEIS or address the regulatory criteria in explaining why that information need not be included.

² 15 U.S.C. §§ 717(a), 717f(c)(1), (e); 18 C.F.R. § 153.7(c).

CO26-2

As discussed in section 1.2.9 of the final EIS, the DOE under its obligation under Section 3 of the NGA determines whether the proposed import or export of natural gas would be consistent with the public interest. On May 28, 2015, the DOE issued its *Order Conditionally Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Alaska LNG Terminal in Nikiski, Alaska, to Non-Free Trade Agreement Nations* (DOE/FE Order No. 3643). DOE/FE Order 3643 would allow AGDC to export about 20 MMTPA—a volume equivalent to about 929 billion cubic feet per year—of natural gas for a term of 30 years. The 30-year term commences on the earlier of the date of first commercial export or 12 years from the date of the Order (May 28, 2027). The LNG may be exported to any country with which the United States does not have an FTA, which currently has, or in the future could develop, the capacity to import LNG, and with whom trade is not prohibited. The authorization is conditioned on the completion of the environmental review process to comply with NEPA. We prepared the EIS in compliance with NEPA to assess the anticipated environmental impacts from Project construction and operation. The Commission will consider the findings in the EIS during its review of AGDC’s overall application to determine if the Project can be constructed and operated under the authority of Section 3 of the NGA. The Commission would issue its decision in an Order. See also the responses to comments CM4-19 and CM6-4.

CO26-3

See the response to comment CM3-1, CM3-7, and CM6-4.

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- *Climate change.* FERC should fully and fairly discuss all of the alternatives' contributions to climate change and explain how climate change could alter the Project's environmental impacts.

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Each of these topics requires substantial additional analysis. If FERC continues with the permitting process, the agency must prepare a supplemental draft environmental impact statement, allow public comment on the supplemental draft, and fully disclose the environmental consequences of all reasonable alternatives in a final environmental impact statement (FEIS).

ALTERNATIVES

NEPA requires an environmental impact statement (EIS) to "[r]igorously explore and objectively evaluate all reasonable alternatives" to a proposed action.³ This is the "heart" of an EIS.⁴ In addition, the CWA Guidelines for Specification of Disposal Sites for Dredged or Fill Material ("404(b)(1) Guidelines") prohibit filling of wetlands and other aquatic ecosystems "if there is a practicable alternative to the proposed discharge which would have less adverse impact."⁵ An alternative is practicable if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."⁶ Where the activity in question does not require access or proximity to special aquatic sites such as wetlands, practicable alternatives that would not affect such sites—and therefore would be less harmful—"are presumed to be available, unless clearly demonstrated otherwise."⁷

CO26-4

CO26-4

Comment noted.

The DEIS's conclusions about the impacts of the no action alternative and its decision to dismiss the alternative from further consideration are arbitrary. FERC assumes that if the no action alternative is selected, "AGDC or other applicants would likely develop a new project to transport gas from the North Slope for export and in-state delivery," for which the "environmental impacts would likely be comparable," and therefore, "the no action alternative provides no significant environmental advantage over the Project."⁸ This reasoning assumes that a future proposal would be approved, and the

³ 40 C.F.R. § 1502.14(a). See *Bob Marshall All. v. Hodel*, 852 F.2d 1223, 1229 (9th Cir. 1988) ("NEPA . . . requires that alternatives . . . be given full and meaningful consideration.")

⁴ 40 C.F.R. § 1502.14.

⁵ 40 C.F.R. § 230.10(a). See *Hoosier Envtl. Council v. U.S. Army Corps of Eng'rs*, 722 F.3d 1053, 1061 (7th Cir. 2013) ("The duty of the Corps is 'to determine the feasibility of the least environmentally damaging alternatives that serve the basic project purpose.'" (quoting *Utahns for Better Transp. v. U.S. Dep't of Transp.*, 305 F.3d 1152, 1189 (10th Cir. 2002))).

⁶ 40 C.F.R. § 230.10(a)(2).

⁷ See *id.* § 230.10(a)(3).

⁸ DEIS at ES-5 to ES-6; see also *id.* at 3-2 to 3-3 (describing the no action alternative and dismissal conclusion).

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agency provides no justification for that assumption.⁹ The DEIS thus fails to take a hard look at the no action alternative as NEPA requires. Given the various failed attempts to develop an Alaska gas pipeline in the past and the ongoing technical and economic challenges that such a project would entail, it is not reasonable to assume that such a project would be viable even if its approval was guaranteed. The assertion that the no action alternative provides no environmental benefits is also undermined by the agency’s statement that,

CO26-4

If the No Action Alternative is selected by [FERC], the proposed facilities would not be constructed and the associated environmental impacts from the Project would not occur. Additionally, the opportunity to commercialize North Slope natural gas would not be realized and in-state deliveries of natural gas through interconnections would not be achieved.¹⁰

The DEIS fails to consider an adequate range of alternatives and improperly dismisses a number of alternatives. For example, the DEIS states that the use of one of the proposed LNG terminals in British Columbia would require 400 additional miles of pipeline, which would add about 6,452 acres of land disturbance.¹¹ Without any detailed analysis, the DEIS simply concludes that neither this nor any of the other existing or proposed west coast LNG export facilities “would offer a significant environmental advantage.”¹² FERC must support this conclusion by assessing the impacts of those alternatives and weigh them against the environmental advantages of avoiding the construction of a new export terminal in Cook Inlet. The analysis of pipeline route alternatives is also inadequate. For example, the DEIS concludes that the additional 37.5 miles of Mainline Pipeline required for the Fairbanks Alternative would not be outweighed by the benefits of avoiding Minto Flats State Game Refuge, yet the agency provides no analysis to support this assumption.¹³

CO26-5

CO26-5 Comment noted.

The DEIS also fails to directly assess the practicability of the proposed action and therefore cannot support any decision by the Army Corps of Engineers (Corps) to issue a

CO26-6

CO26-6 The COE would determine the LEDPA for the Project.

⁹ Even if it were reasonable to assume that some LNG export proposal will be approved, LNG export from Alaska’s North Slope by ship is an example of a non-pipeline alternative that would have very different environmental impacts. A. DeMarban, *Alaska pipeline backers reject idea of North Slope LNG exports by tanker*, ANCHORAGE DAILY NEWS (Jan. 24, 2018). The documents cited in these comments are attached for inclusion in the Project record.

¹⁰ *Id.* at 3-2.

¹¹ *Id.* at 3-4.

¹² *Id.*

¹³ *Id.* at 3-27; *id.* at 4-241 (“While the Fairbanks Alternative would avoid the sensitive Minto Flats SGR, this would be offset by the impacts on land, water, and other resources that would result from the much longer Fairbanks Alternative. For these reasons, we concluded that the Fairbanks Alternative does not provide a significant environmental advantage over the proposed route.”).

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permit under CWA section 404. If the DEIS is to serve that purpose, FERC must assess whether the proposed project, and each of the alternatives, are reasonable and practicable.¹⁴ “The term practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics, considering the overall purpose of the Project.”¹⁵ Given the many failed attempts to build a gas pipeline in the past due to the economic constraints, and the project’s reliance on the development of offshore gas fields to generate sufficient quantities of gas over the 30-year period, the practicability of the project is dubious.

CO26-6

Requesting public comment on the DEIS at a time when the Project’s practicability is so questionable also undermines the public process. Aside from the long history of failures to build a gas pipeline in Alaska, this particular project has lost investors, failed to secure customers, and suffered the layoff of more than half the AGDC staff.¹⁶ Under the circumstances, many organizations and members of the public may not devote time to analyzing and commenting on the DEIS or may not do so in detail, as they would if the project appeared realistic.

CO26-7

CO26-7

Comment noted. See the response to comment CO1-1.

WILDLIFE AND HABITAT

NEPA requires that an EIS discuss, in detail, the environmental impacts of both the proposed action and its alternatives.¹⁷ The description of environmental consequences “forms the scientific and analytic basis for the comparisons” of alternatives,¹⁸ and an agency decision may be ruled invalid where the EIS supporting it does not present a sufficiently detailed statement of environmental impacts and alternatives.¹⁹ The agency must take a “hard look” at the environmental consequences of its decision.²⁰ The DEIS’s analysis of the Project’s impacts on marine mammals, wetlands, fish, terrestrial wildlife and habitat, subsistence, air pollution, mitigation measures, and the impacts of climate change falls short of NEPA’s requirements in several regards. In addition, the analysis in the DEIS is insufficient to support the required determinations under the MMPA, ESA, and other federal statutes.

CO26-8

CO26-8

Comment noted.

¹⁴ 40 C.F.R. § 230.10(a).

¹⁵ DEIS at 1-6.

¹⁶ T. Daiss, *\$65 Billion Alaska LNG Project Crashes and Burns*, FORBES (Sept. 16, 2016); E. Brehmer, *AGDC president outlines path forward; China deal is dead*, ALASKA JOURNAL OF COMMERCE (July 24, 2019); E. Brehmer, *Gasline agency laying off 60 percent of staff*, ALASKA JOURNAL OF COMMERCE (July 10, 2019); B. Mazurek, *LNG Project is MIA*, PENINSULA CLARION (Mar. 30, 2019).

¹⁷ 42 U.S.C. § 4332(2)(C)(i), (iii); 40 C.F.R. § 1502.16(d).

¹⁸ 40 C.F.R. § 1502.16.

¹⁹ See *Lands Council v. Powell*, 395 F.3d 1019, 1027-28 (9th Cir. 2005).

²⁰ *Conner v. Burford*, 848 F.2d 1441, 1446 (9th Cir. 1988) (citing *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976); *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982)).

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1. Marine mammals

The Project’s impacts on marine mammals would extend throughout Alaska waters and across the Pacific Ocean.²¹ The pipeline’s construction and operation would impact marine mammals in the Beaufort Sea, Cook Inlet, Gulf of Alaska, Bering and Chukchi Seas, affecting foraging, mating, and migration behaviors.²² Construction noise and disturbance would be significant. In particular, “pile driving, trenching, dredging, and anchor handling could exceed Level A and/or Level B thresholds established by [National Marine Fisheries Service (NMFS)] for marine mammal habitats.”²³ In the Beaufort Sea, the expansion of West Dock at Prudhoe Bay would require pile driving for 112 days,²⁴ potentially causing Level A take in an area of nearly half a square mile (for vibratory pipe pile)²⁵ and Level B take in an area over six square miles (for vibratory sheet pile).²⁶

CO26-9

CO26-9 Comment noted.

In Cook Inlet, continuous pile driving would occur between May and October during over a five-year period,²⁷ potentially causing Level A take for up to 2.8 miles away (48- and 60- inch impact pile)²⁸ and Level B take as far as 13.4 miles away (vibratory pile).²⁹

Anchor handling for pipeline construction in Cook Inlet could generate Level B harassment within 1.3 miles of the source³⁰ and this activity cannot be stopped once it has started (regardless of presence of marine mammals in the area) due to safety concerns.³¹ In addition, anchor handling, dredging, and screeding “could occur during dark hours when marine mammal observation would not be possible.”³²

CO26-10

CO26-10 Comment noted.

The DEIS provides an incomplete analysis of these and other impacts to marine mammals, lacking in meaningful conclusions about the magnitude of those impacts and an analysis of how impacts would vary by alternative. The Biological Assessment (BA) appended to the DEIS does not provide this missing analysis, either. For federally protected species, instead of conducting a thorough analysis, the DEIS simply concludes that construction should not begin until formal ESA consultations with the U.S. Fish and

CO26-11

CO26-11 Alternatives are addressed in section 3 of the final EIS and in sections 6 and 7 of the Biological Assessment, which is provided as appendix O of the final EIS. Because walrus is not currently listed under the Endangered Species Act, a determination of effect for this species is not warranted. Our analyses for other species are compliant with federal guidance regarding impact assessments and determinations of effect. We note that Staff Recommendation No.1 (see section 5.2 of the final EIS) requires AGDC to follow the construction procedures and mitigation measures described in its application and supplements and as identified in the EIS. AGDC additionally would be required to comply with measures identified in the Biological Opinion as well as any Marine Mammal Incidental Take Authorizations issued for the Project. Our compliance monitoring program is discussed in section 2.4.2 of the final EIS.

²¹ 4-346 to 4-367.

²² DEIS at 4-366.

²³ *Id.* at 4-370 (referencing Tables 4.6.3-3 and 4.6.3-4).

²⁴ *Id.* at 4-371.

²⁵ *Id.* at 4-370, Tbl. 4.6.3-3.

²⁶ *Id.* at 4-371, Tbl. 4.6.3-4.

²⁷ *Id.* at 4-372.

²⁸ *Id.* at 4-370, Tbl. 4.6.3-3.

²⁹ *Id.* at 4-371, Tbl. 4.6.3-4.

³⁰ *Id.* at 4-374.

³¹ *Id.* at 4-376.

³² DEIS, App. O at O-12.

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Wildlife Service (FWS) and NMFS are complete.³³ The BA presents recommended mitigation measures and outlines some potential effects on federally protected species, providing conclusions as to whether the project may affect and is likely to adversely affect, or is not likely to adversely affect listed species and their habitat.³⁴ However, the BA's analysis focuses solely on the binary determination of whether the Project could and is likely to affect a species or its habitat, *not* the magnitude of or context for those effects. It does not fulfill the agencies' obligation to take a hard look at the environmental impacts of the proposed action with respect to these species. In fact, in most cases, the BA provides only the barest justification for the may affect/likely to adversely affect determinations. For walrus, the discussion entirely omits any summary or "determination of effects" from the project.³⁵

CO26-11

The BA concludes that among the 31 federally listed species,³⁶ 25 species are not likely to be adversely affected.³⁷ For the adversely affected species, which include polar bear, Cook Inlet beluga whale, humpback whale, bearded seal, and ringed seal, the BA merely states that,

[b]ased on the current Project design and avoidance, minimization, and mitigation measures, we conclude that the Project is compliant with the requirements of the ESA and is not likely to jeopardize the continued existence of a listed species or result in adverse modification of designated critical habitat.³⁸

The analysis underpinning those conclusions is similarly inadequate. In most cases, the BA provides only brief justifications for its conclusions and does not analyze the significance of these impacts nor the effectiveness and enforceability of mitigation measures. For example, for polar bears, the BA concludes that the Project is

likely to adversely affect polar bears because: the proposed action would disturb denning polar bears on land; construction and operational activities would cause polar bear-human interactions which could lead to harassment or fatalities of polar bears for protection of human life; and the Project would cause permanent loss of denning habitat.³⁹

³³ DEIS at 4-468.

³⁴ See DEIS, App. O at O-30 to O-82 (FWS species), O-83 to O-144 (NMFS species).

³⁵ Compare *id.* at O-65 to O-70 (discussing effects to walrus with no conclusion) *with id.* at O-70 to O-80 (discussing effects to polar bears and concluding with a "determination of effect").

³⁶ This includes species, distinct population segments, and evolutionarily significant units. *Id.* at O-1.

³⁷ *Id.* at O-145.

³⁸ *Id.*

³⁹ *Id.* at O-80 (emphasis and formatting omitted).

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For the humpback whale, the BA simply concludes that adverse effects are likely because “there is a high risk of multiple vessel strikes on humpback whales from Project vessel traffic.”⁴⁰ Additionally, the BA finds likely adverse effects to ringed seals due to the Level A and Level B harassment from underwater noise and due to vessel traffic, which could cause injury to denning seals.⁴¹ Similarly, likely adverse affects to bearded seals are likely because “the Project would cause Level A and Level B harassment to bearded seals from underwater noise; and vessel traffic could cause injury to adult seals and pups.”⁴² These brief justifications provide inadequate descriptions and analyses of the significance of the impacts to these important species.

CO26-11

The BA’s conclusions about which species and habitats the Project may affect are also inadequate because they rely on a long list of largely unenforceable conservation measures whose efficacy the BA does not establish.⁴³ The BA further suggests these measures should be considered part of the proposed action under consideration in the ESA consultation process.⁴⁴ To the contrary, neither the BA nor the consultation process should account for the effects of conservation measures that FERC cannot enforce. The conservation measures incorporated into the BA analysis were primarily developed by AGDC,⁴⁵ and there is no indication anywhere in the DEIS or BA that they are enforceable against AGDC or any future project proponent who may take over from AGDC. Therefore, FERC may not consider them in the analysis. At places in the DEIS, FERC recommended some additional conservation measures, and the BA notes that such recommendations are “[t]ypically . . . incorporated as conditions into a FERC authorization.”⁴⁶ These recommendations should only factor into the effects analysis for purposes of NEPA and the ESA if they *will* be incorporated as conditions on approval. Finally, even if all the conservation measures factored into the BA’s effects analysis were enforceable, the agencies may not rely on them without some analysis of whether and to what extent those measures are effective at mitigating impacts. That analysis is lacking in both the BA and DEIS.

CO26-12

CO26-12

See the response to comment CO26-11. Our staff recommendations in the final EIS identify measures staff recommends that the Commission include as conditions in any authorization issued for the Project.

It is especially crucial that the agencies take a hard look at impacts to the Cook Inlet beluga whale (*Delphinapterus leucas*) because its population has declined precipitously over the last 30 years. In 1979, the estimated population of Cook Inlet beluga whales was 1,300.⁴⁷ At present, scientists estimate the population consists of only

CO26-13

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June and July are the periods of highest concentration for Cook Inlet beluga whales in this area. Based on our discussions with NMFS, our recommendation to restrict activities during these months would minimize impacts on Cook Inlet beluga whales. Additionally, the measures described in section 4.6.3.2 of the final EIS for shut down and harassment zones would minimize impacts on Cook Inlet beluga whales if present in these zones during construction.

⁴⁰ *Id.* at O-120.

⁴¹ *Id.* at O-129.

⁴² *Id.* at O-88.

⁴³ *Id.* at O-7 (noting that AGDC’s proposed conservation measures “have been taken into consideration” in the BA’s effects determinations).

⁴⁴ *Id.*

⁴⁵ *See id.*

⁴⁶ *Id.*

⁴⁷ NMFS, Conservation Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*) at 1 (Oct. 2008) (Beluga Whale Conservation Plan).

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328 individuals—a 75% drop.⁴⁸ The recovery plan for Cook Inlet beluga whale lists three significant threats (“Threats of High Relative Concern”) to beluga whale recovery: catastrophic events, cumulative effects of multiple stressors, and noise⁴⁹—each of which is a threat posed by this project. Catastrophic events include natural disasters, spills, and mass strandings.⁵⁰

CO26-13

FERC’s analysis of impacts to beluga whales in both the DEIS and BA is incomplete. The Mainline, Mainline material offloading facility (MOF), Marine Terminal, product loading facility, Marine Terminal MOF, dredging for the Marine Terminal, and dredged material disposal sites are in Cook Inlet beluga whale critical habitat.⁵¹ The offshore habitat from the Beluga River to the Little Susitna River is home to nearly the entire population of Cook Inlet beluga whales in June and July, is a vital area for the whales “to give birth, nurse, and rear their young, as well as a significant area for feeding on eulachon and salmon runs during the summer months.”⁵² NMFS has recommended that any activities in Cook Inlet within the Susitna Delta Exclusion Zone be avoided from April 15 through October 15.⁵³ However, FERC notes that “AGDC can only complete in-water marine construction when the area is free of sea ice” and recommends that “AGDC not conduct pile driving activities for construction of the Mainline MOF during June and July.”⁵⁴ The DEIS fails to explain the degree to which this restriction would minimize impacts to this critically endangered population and to describe the significance of the impacts that would take place notwithstanding this limited shutdown period for pile driving.

As the DEIS recognizes, AGDC’s proposed shutdown and harassment zones are inadequate to protect marine mammals, do not apply to all activities, and do not comport with FERC’s own noise calculations.⁵⁵ FERC’s request for revised shutdown and harassment guidelines prior to construction⁵⁶ is insufficient to meet the requirements of NEPA because it does not inform the agency or the public within the relevant decision period. In addition, AGDC’s plans for monitoring the shutdown and harassment zones are inadequate because they rely on the use of land-based protected species observers (PSO), who will be unable to identify the presence of marine mammals adequately for some of

CO26-14

CO26-14

A discussion of noise impacts on marine mammals is provided in section 4.6.3.2 of the final EIS. We developed recommendations that AGDC provide updated information on shutdown and harassment zones and commit to providing additional PSOs, which would minimize impacts on Cook Inlet beluga whales and other species (see section 4.6.3.2). Also see the responses to CO11-26 and CO11-27.

⁴⁸ See Owl Ridge Natural Resource Consultants, Inc., Draft National Marine Fisheries Service Biological Assessment—Section 7 for Pebble Mine DEIS at 10 (Sept. 2018) (Pebble Mine BA-NMFS).

⁴⁹ NMFS, Recovery Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*) at xiii (Dec. 2016) (Beluga Whale Recovery Plan).

⁵⁰ *Id.* at xiii.

⁵¹ DEIS, App. O at O-22; *id.* at O-97, Fig. 7.4.1-1; *id.* at O-98, Fig. 7.4.1-2.

⁵² DEIS, App. O at O-100.

⁵³ *Id.* at O-22.

⁵⁴ DEIS, App. O at O-22. See also DEIS at 4-379 (similar).

⁵⁵ DEIS at 4-377, 5-22.

⁵⁶ *Id.* at 4-377 to 4-378.

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the harassment zones.⁵⁷

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The agency must provide a robust analysis of acoustic impacts on beluga whales, including providing estimates of the numbers of potentially affected individuals, on which the public can comment. This is particularly important in light of the Marine Mammal Commission's strong stance that NMFS "defer issuance" of any take "authorizations until it has better information on the cause or causes of the ongoing decline and has a reasonable basis for determining that authorizing additional takes by harassment would not contribute to or exacerbate that decline."⁵⁸

FERC assumes that AGDC will increase the number of PSOs, provide PSOs for dredging and screening activities, and establish appropriate shutdown or harassment zones to conclude that "impacts on marine mammals from underwater noise would be minimized."⁵⁹ This conclusion, however, fails to describe the significance of impacts to marine mammals from construction.

⁵⁷ DEIS at 4-378, 4-377 n.68.

⁵⁸ R. Lent, Marine Mammal Commission (MMC), Comment Letter to J. Harrison, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Seismic Surveys in Cook Inlet at 1 (Sept. 4, 2014); *see also* R. Lent, MMC, Comment Letter to P. M. Payne, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Apache Alaska Corp. Seismic Survey (Oct. 21, 2011); R. Lent, MMC, Comment Letter to P. M. Payne, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Apache Alaska Corp. Seismic Survey (Jan. 9, 2013); R. Lent, MMC, Comment Letter to P. M. Payne, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Apache Alaska Corp. Seismic Survey (Jan. 31, 2014); R. Lent, MMC, Comment Letter to J. Harrison, Supervisor, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Furie Operating Alaska LLC Seismic Survey (Apr. 4, 2014); R. Lent, MMC, Comment Letter to J. Harrison, Supervisor, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Buccaneer Alaska Operation, LLC Seismic Survey (May 9, 2014); R. Lent, MMC, Comment Letter to J. Harrison, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: SAExploration, Inc. Seismic Survey (Apr. 20, 2015); R. Lent, MMC, Comment Letter to J. Harrison, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Annual Incidental Take Authorizations (Sept. 11, 2015); R. Lent, MMC, Comment Letter to J. Harrison, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: ExxonMobil Alaska LNG LLC Seismic Survey (Mar. 7, 2016); R. Lent, MMC, Comment Letter to J. Harrison, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: BlueCrest Alaska Operating, LLC (July 13, 2016); R. Lent, MMC, Comment Letter to J. Harrison, Chief, Permits and Conservation Division, NMFS Office of Protected Resources, Re: Annual Incidental Take Authorizations Environmental Assessment (Oct. 5, 2017). Those letters are hereby incorporated by reference.

⁵⁹ DEIS at 4-388.

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In addition to construction and operations, vessel traffic associated with the pipeline would affect marine mammals. During construction in the Beaufort Sea, vessels would transit during periods of open water in the summer months to the West Dock Causeway and “would generate noise that could disturb marine mammals along vessel transit routes.”⁶⁰ Nine to twelve barges per season would deliver materials for a period of six years.⁶¹

CO26-15

In Cook Inlet, vessel traffic would be a major source of marine noise during construction and operation. This noise would be additive to the currently existing noise sources from vessels, oil platform activities, and aircraft overflights.⁶² During summer, “[c]onstruction of the Liquefaction Facilities would require material and module deliveries via heavy lift vessel (HLV), module carriers, and barges.”⁶³ During operations, LNG carriers would operate at the terminal year-round in Cook Inlet, about 204 to 360 port calls per year, for “an increase of 42 to 74 percent over existing traffic levels.”⁶⁴ FERC notes that the noise levels associated with LNG carrier docking could exceed threshold values for Level B harassment of marine mammals,⁶⁵ but fails to provide an analysis of the significance of these impacts.

The DEIS concludes that “[d]ue to the ephemeral nature of vessels in transit, vessel noise impacts would be expected to be minor from vessels transiting to and from and docking at Project facilities in Cook Inlet and Prudhoe Bay during construction and operation.”⁶⁶ This conclusion is arbitrary because it ignores entirely the cumulative effects of additional anthropogenic noise in an estuary that already experiences noise disturbances from many other anthropogenic sources noises from vessels, oil platforms, and aircraft.⁶⁷

FERC must also assess the impacts of contaminants on Cook Inlet beluga whales. Scientists have posited that exposure to polycyclic aromatic hydrocarbons (PAHs) in particular—compounds carcinogenic to belugas and found in fossil fuel compounds like diesel—might be hindering the Cook Inlet population’s recovery.⁶⁸ Beluga whales accumulate high concentrations of lipophilic contaminants like PAHs because they are

CO26-16

⁶⁰ DEIS at 4-373.

⁶¹ DEIS at 2-45 & Tbl. 2.2.1-1.

⁶² DEIS at 4-373.

⁶³ DEIS at 4-381.

⁶⁴ *Id.*

⁶⁵ DEIS at 4-373.

⁶⁶ DEIS at 4-374.

⁶⁷ See DEIS, App. O at O-59.

⁶⁸ J. Reynolds & D. Wetzel, Presentation, *Polycyclic Aromatic Hydrocarbon (PAH) Contamination in Cook Inlet Belugas* (undated) (Reynolds & Wetzel).

CO26-15

The noise expected to be generated from Project vessel traffic is discussed in section 4.6.3.2 of the final EIS in the context of existing Cook Inlet anthropogenic noise. A description of Level B harassment is provided in section 4.6.3.2 of the final EIS. Also see the responses to comments CO26-12 and CO26-14.

CO26-16

Impacts from spills on Cook Inlet beluga whales are discussed in section 7.4.2.5 of the Biological Assessment, which is provided as appendix O of the final EIS. As described in section 4.7.1.7 of the final EIS, sediment samples collected in Cook Inlet in the general Project area did not contain high levels of contaminants. Therefore, release of contaminants, and their potential impacts on Cook Inlet beluga whales or their prey species due to dredging and other bottom disturbing activities, would not be expected. In the event of a spill, the Project would implement its SPCC Plan and other measures as described in section 2.3.1 of the Biological Assessment to minimize impacts on marine mammals, including Cook Inlet beluga whales.

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long-lived, have a high body lipid content, and sit at the top of the food chain.⁶⁹ Beluga whales may be exposed to such compounds through ingestion of contaminated prey, inhalation, or direct contact. The agency must discuss in detail what additional contaminants Cook Inlet belugas might be exposed to as a result of the project, both as the result of routine and catastrophic events, and how those contaminant exposures might affect this endangered whale population and its prey species.

CO26-16

Cumulative impacts from multiple stressors can threaten Cook Inlet belugas at both the individual and population level. NMFS has acknowledged the importance of cumulative stressors to Cook Inlet beluga whales; it even proposed issuing a programmatic environmental impact statement to analyze the effects of myriad anthropogenic activities on the population, expressing concern about the whales’ lack of recovery.⁷⁰

CO26-17

The DEIS concludes that increased noise and disturbance from vessels (including a 74% increase in vessel traffic in Cook Inlet), aircraft overflights, underwater activities, seismic testing, and pile driving, combined with the cumulative effects of existing activities “could have a significant impact on Cook Inlet beluga whales if these activities occur concurrently and repeatedly over multiple seasons.”⁷¹ The BA concludes that the Project is “likely to adversely affect critical habitat because: permanent loss of critical habitat would occur; and Project activities in Cook Inlet and anadromous streams could negatively affect beluga whales and their prey.”⁷²

CO26-17

See the response to comment CO24-2.

Particularly in light of these conclusions, the DEIS provides an inadequate analysis

⁶⁹ D. Martineau, Contaminants and Health of Beluga Whales of the Saint Lawrence Estuary, Ch. 17 at 139-41, in L. Norrgren & J. M. Levenson (eds.), ECOSYSTEM HEALTH AND SUSTAINABLE AGRICULTURE 2 (2012); Reynolds & Wetzel; P. H. Albers & T. R. Loughlin, Effects of PAHs on Marine Birds, Mammals and Reptiles, Ch. 13 at 249, in P.E.T. Douben (ed.), PAHS: AN ECOTOXICOLOGICAL PERSPECTIVE (2003); P. Albers, Petroleum and Individual Polycyclic Aromatic Hydrocarbons, Ch. 14 at 257, in D. J. Hoffman *et al.* (eds.), HANDBOOK OF ECOTOXICOLOGY (2d ed. 2002).

⁷⁰ 79 Fed. Reg. 61,616, 61,617 (Oct. 14, 2014).

⁷¹ DEIS, App. O at O-109.

⁷² *Id.* at O-110 (emphasis and formatting omitted).

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upon which a determination of compliance with NEPA, the MMPA,⁷³ and the ESA⁷⁴ cannot be based.

In addition, the cumulative impacts analysis is uninformative and arbitrary. For example, the cumulative impacts analysis to marine mammals concludes, “cumulative impacts on marine mammal species would be minor.”⁷⁵ This statement in the DEIS obscures the variation in impacts to different marine mammal species, and is at odds with other conclusions about marine mammals, such as the conclusion that the Project is likely to adversely affect the small population of Cook Inlet beluga whales by permanently altering their habitat, including critical habitat, and potentially causing the death of individual whales.⁷⁶

The DEIS assumes that the Hilcorp Liberty Development Project in the Beaufort Sea would likely have no cumulative impacts to marine water resources because the project is 25 miles away.⁷⁷ Similarly, FERC assumes that because dredging in the Beaufort Sea for the Point Thomson Unit (PTU) Expansion Project would occur 55 miles to the east, “no cumulative impacts on marine mammals would result from these activities.”⁷⁸ These conclusions conflict with FERC’s acknowledgement that

If dredging or pile driving activities for the Alaska LNG Project occur concurrently and within proximity of any of the applicable projects listed in appendix W-1, impacts on marine mammals would likely be exacerbated as a direct result of each projects’ activities. Additionally, noise generated by pile driving in multiple locations could make it difficult for marine mammals to avoid these disturbances. Concurrent project activities could decrease availability of suitable habitat for marine mammals to move away

⁷³ To receive a “small take” authorization under the MMPA, an activity must: (i) be limited to a “specified geographical region,” (ii) result in the incidental take of only “small numbers of marine mammals of a species or population stock,” (iii) have no more than a “negligible impact” on species or stocks; (iv) “will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses and in issuing such authorization”; and the Secretary must: (v) provide for the monitoring and reporting of such takings, and (vi) prescribe methods and means of effecting the “least practicable adverse impact” on species or stock and its habitat. 16 U.S.C. § 1371(a)(5)(A)(i).

⁷⁴ Section 7(a)(2) of the ESA requires each federal agency, in consultation with the FWS and/or NMFS, to “insure that any action authorized, funded, or carried out by [the action] agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [the critical] habitat of such species.” 16 U.S.C. § 1536(a)(2).

⁷⁵ DEIS at 4-1137.

⁷⁶ DEIS, App. O at O-109 to O-110.

⁷⁷ DEIS at 4-1125.

⁷⁸ *Id.* at 4-1136.

CO26-18

CO26-18

The geographic scopes by resource type for the cumulative impacts analysis are provided in Table 4.19.1-1 of the final EIS. Cumulative impacts on Cook Inlet beluga whales are addressed in 4.19.4.8 of the final EIS and in the Biological Assessment (provided as appendix O of the final EIS).

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to avoid the activity.⁷⁹

CO26-18

As the DEIS recognizes, “[c]umulative impacts on marine mammals could occur even at relatively distant projects, because vessel traffic associated with some of these projects, as well as the Alaska LNG Project, would range across wide areas of Alaska’s marine environment.”⁸⁰

The DEIS also fails to analyze cumulative impacts from oil and gas activities in the Beaufort and Chukchi seas, claiming that those impacts are unknown.⁸¹ Similarly, for cumulative effects analysis to wildlife resources, the DEIS claims,

As noted above, many of the projects included in the geographic scope of the cumulative impacts analysis are operating facilities with no known expansion plans, oil and gas leases that have not reached the development stage, or projects are on hold for various reasons; no cumulative impacts from these projects would be anticipated.⁸²

This is inadequate; the agency must assess the potential cumulative impacts of reasonably foreseeable activities, even if they have not yet reached the development stage. The 2017-2022 OCS Oil and Gas Leasing Program Final Programmatic EIS provides hypothetical exploration and development scenarios for the Beaufort Sea, Chukchi Sea, and Cook Inlet, and FERC could base its assessment of cumulative impacts on these scenarios.⁸³

FERC asserts that mitigation measures “would minimize cumulative impacts on marine mammals due to Project construction and operation”⁸⁴ but does not explain the extent to which these measures would be successful or analyze the significance of the impacts that would not be mitigated.

2. Wetlands

Wetlands provide a number of important ecological functions and values.⁸⁵ These functions and values include fish and wildlife habitat, water quality improvement, flood

CO26-19

CO26-19 Comment noted.

⁷⁹ *Id.* at 4-1136.

⁸⁰ *Id.* at 4-1135.

⁸¹ *Id.* at 4-1125.

⁸² *Id.* at 4-1131.

⁸³ Bureau of Ocean Energy Management, Final Programmatic Environmental Impact Statement, Outer Continental Shelf Oil and Gas Leasing Program: 2017-2022, OCS EIS/EA BOEM 2016-60 at 3-8 to 3-17 (Nov. 2016).

⁸⁴ DEIS at 4-1135.

⁸⁵ See generally Environmental Protection Agency (EPA), Wetland Functions and Values, <https://www.epa.gov/sites/production/files/2016-02/documents/wetlandfunctionsvalues.pdf>.

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storage, and many other benefits.⁸⁶ It is therefore critical that the DEIS presents a full picture of the Project’s potential adverse impacts on wetlands and related aquatic ecosystems, one which will enable the Corps to fulfill its obligations under NEPA and Section 404 of the CWA. For the reasons discussed below, the DEIS fails to do so.

CO26-19

Guidelines published under CWA section 404(b)(1) prohibit discharging fill material into wetlands when the proposed filling would significantly degrade the aquatic ecosystem. Under these Guidelines, “degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts.”⁸⁷ Examples of effects contributing to significant degradation include loss of fish and wildlife habitat or loss of wetlands’ capacity to purify water.⁸⁸ “Fundamental to [the 404(b)(1)] Guidelines is the precept that . . . fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact.”⁸⁹

The Project’s wetland impacts (11,810 acres, 8,270 acres of which would be permanent) “would lead to fragmentation of wetlands and the loss of wetland functions such as water storage, groundwater recharge, fish and wildlife habitat, shoreline stabilization, and nutrient production.”⁹⁰ The DEIS concludes that the large area of wetland conversion to upland, loss of wetland function, and long timeframe for restoration “would result in a significant adverse impact.”⁹¹

While the conclusion that the Project will result in a significant adverse impact is correct, the analysis of wetland impacts in the DEIS is still inadequate. The DEIS fails to discuss the impacts within the context of each watershed. It also fails to provide any discussion or analysis of the relative functions the wetlands provide.

CO26-20

In addition, the DEIS is based on incomplete and incorrect wetlands data.⁹² Such information is not sufficient for a complete and accurate assessment of the impacts to wetlands. Although FERC recommends that AGDC provide final wetland delineation reports on an annual basis during construction (which would also state whether fill was placed in the wetlands),⁹³ the lack of accurate data in the DEIS and the piecemeal approach to collecting it prevents the agency from adequately assessing the impacts to wetlands before approving the Project. It also deprives the public of a meaningful opportunity to comment on the analysis and the Project’s impacts. Finally, the lack of accurate wetlands data prevents the Corps from basing its determination under the CWA

CO26-20

Table 4.4.2-2 of the final EIS describes the affected wetlands by sub-watershed (HUC8). See section 4.4.1.2 of the final EIS for an assessment of the wetland determination methodology, including the wetland validation study, which we found to be adequate for the purposes of this EIS. See the response to comments FA1-48 and FA2-43 and the updates to section 4.4.5 of the final EIS. The COE permitting process includes a public comment period.

⁸⁶ *Id.* at 2.

⁸⁷ 40 C.F.R. § 230.1(d).

⁸⁸ *See id.* § 230.10(c)(3).

⁸⁹ *Id.* § 230.1(c).

⁹⁰ DEIS at 4-226.

⁹¹ *Id.* at 4-226, 4-243.

⁹² *Id.* at 5-14.

⁹³ *Id.* at 4-223 (noting that report should indicate if fill was placed in the wetland).

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on the analysis contained in this DEIS.

As the DEIS acknowledges, implementing mitigation measures through the Corps’ section 404 permitting process “would minimize some impacts on wetlands during construction and operation of the Alaska LNG Project and other actions.”⁹⁴ However, the DEIS concludes, “[t]hese measures notwithstanding, the Project and other actions would result in significant cumulative impacts due to the permanent loss of wetlands.”⁹⁵ Additionally, the DEIS does not address the “significant degradation” finding that the Corps must make under the 404(b)(1) Guidelines, providing no support for the decision that must be made under the Guidelines but calling into serious doubt whether the Corps can conclude that significant degradation will be avoided.

CO26-21

CO26-21

The COE requirements under the CWA Section 404(b)(1) are discussed in section 1.2.4 and table 1.6-1 of the final EIS. The COE’s 401(b) analysis will be included with its record of decision for the Project.

3. Fisheries resources

FERC notes that information about fish is lacking for over half of the waterbodies that the Mainline Pipeline would cross and for 69 percent of the waterbodies that the P TTL would cross.⁹⁶ In addition to impacts from pipeline crossings, fish and fish habitat would be adversely affected by a host of other project-related activities, including the construction and use of 29 permanent access roads and withdrawal of over three billion gallons of water for ice roads, various facilities, and hydrostatic testing.⁹⁷

CO26-22

CO26-22

See the response to comment SA2-195. Our conclusions regarding impacts on fisheries are based on AGDC’s commitments and our recommendations.

FERC recommends a material site restoration plan in sensitive fish habitat⁹⁸ and that, prior to construction, AGDC should develop a Fisheries Conservation Plan that includes measures limiting withdrawals from waterbodies with salmonids and follows culvert design and maintenance guidelines.⁹⁹ However, as FERC recognizes, the mitigation measures to protect fish “may not be accurately applied” due to the lack of information about fish use and habitat in many of the affected waterbodies.¹⁰⁰ The lack of adequate information about fish use in the majority of the Project area precludes FERC from conducting any meaningful analysis of the impacts to these resources. Yet, every indication is that these impacts could be significant.

CO26-23

CO26-23

See the response to comment CO26-12. Impacts on Cook Inlet beluga prey are discussed in section 7.4.2.4 of the Biological Assessment, which is provided as appendix O of the final EIS.

FERC notes that AGDC has refused to commit to stream crossing construction windows provided by the Alaska Department of Fish & Game, and recommends that AGDC comply with these seasonal restrictions.¹⁰¹

Despite the lack of information about fish use and habitat in affected waterbodies

⁹⁴ *Id.* at 4-1128.

⁹⁵ *Id.*

⁹⁶ *Id.* at 4-389.

⁹⁷ *Id.* at 4-404, 4-406 to 4-410.

⁹⁸ *Id.* at 4-246.

⁹⁹ *Id.* at 4-407, 4-409.

¹⁰⁰ *Id.* at 4-389, 5-23.

¹⁰¹ *Id.* at 4-423.

CO26 – Earth Justice (cont’d)

and AGDC’s refusal to commit to stream crossing construction windows, the DEIS arbitrarily concludes that cumulative impacts on fisheries would be “less than significant.”¹⁰² This conclusion is particularly confusing in light of the fact that the agency found that the Cook Inlet beluga whale is likely to be adversely affected in part because activities in Cook Inlet and anadromous streams could negatively affect beluga whale prey.¹⁰³ The DEIS must provide a more thorough analysis of direct and cumulative impacts to fisheries resources, including a clearer explanation of potential impacts to beluga prey and how these impacts could adversely affect the beluga whale and other species.

CO26-23

4. Permafrost, soil, vegetation, forests, birds, and terrestrial wildlife

Constructing the Project would require the use of about 35,548 acres of land, with 16,479 acres of land permanently affected by the Project.¹⁰⁴ This habitat destruction would affect a range of terrestrial and avian resources.

CO26-24

CO26-24 Comment noted.

The FEIS must provide a more thorough analysis of the impacts to permafrost and soil. For example, FERC notes that AGDC’s plans to remove vegetation three years before construction will result in permanent impacts to permafrost.¹⁰⁵ Yet, AGDC’s Revegetation Plan is only available in draft form and is incomplete with respect to the information necessary to analyze impacts to soil.¹⁰⁶ In light of the importance of soil to revegetation success¹⁰⁷ and carbon sequestration,¹⁰⁸ the FEIS must be based on adequate information and fully disclose these impacts.

CO26-25

CO26-25 Section 4.2.5.2 of the final EIS has been updated to address this comment.

The FEIS must also include a more thorough analysis of impacts to vegetation and forests. The DEIS notes that the Project Revegetation Plan underestimates the amount of time revegetation would require, fails to include monitoring until the final restoration performance standards are met, and includes seeds for revegetation that “could permanently reduce both species and functional group diversity.”¹⁰⁹ However, the DEIS does not address the significant impacts that will result to particularly sensitive vegetation, such as tundra. Studies have indicated that natural recovery of tundra vegetation may occur on a timeframe of millennia or may never occur.¹¹⁰ There is not a single tundra rehabilitation site that has returned to its original state in thirty-plus years of

CO26-26

CO26-26 As discussed in section 4.5.2.3 of the final EIS, AGDC would preclude the use of red fescue from the seed mix except in high-erosion risk areas; update the final performance standard to include a higher percentage of native non-seeded plant species than in the interim performance standard, and monitor the Project area until final performance standards are met. Project impacts on sensitive plant communities are discussed in sections 4.5.2 through 4.5.8 of the final EIS. Our determinations regarding the significance of vegetation impacts are based on impact intensity (affected acreage and duration) and context (affected acreage relative to the HUC12 watersheds).

¹⁰² *Id.* at 4-1139.

¹⁰³ DEIS, App. O at O-110.

¹⁰⁴ DEIS at 2-1.

¹⁰⁵ *Id.* at 4-94.

¹⁰⁶ *Id.* at 4-95.

¹⁰⁷ *Id.* at 4-255.

¹⁰⁸ *Id.* at 4-104.

¹⁰⁹ *Id.* at 4-252.

¹¹⁰ B. Sullender, Audubon Alaska, *Ecological Impacts of Road and Aircraft-Based Access to Oil Infrastructure* 16–17 (2017), https://ak.audubon.org/sites/g/files/amh551/f/road_aircraft_access_report_final.pdf.

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tundra rehabilitation. Even with intensive rehabilitation efforts, the recovery process takes at least decades.¹¹¹ For areas where there has been thermal slumping or subsidence, rehabilitation is very expensive and likely impossible.¹¹²

CO26-26

Appendix B of the Project Restoration Plan describes the procedures, performance standards, and performance goals for restoring construction areas. The Plan’s primary objective is to ensure stabilization.¹¹³ Ecosystem functions should be maintained “where practicable.”¹¹⁴ The quantitative standards are based entirely on vegetation cover and not on biodiversity or native species re-introduction. Thus, the Restoration Plan does not seek to ensure restoration of ecosystem functions, and FERC cannot rely on this plan to mitigate impacts to vegetation and cumulative impacts that result from this damage.

CO26-27

CO26-27

AGDC would primarily rely on natural recruitment for restoration, which would allow for the reestablishment of pre-existing plant communities without introducing non-local seed or plant species. In addition, AGDC has committed to a number of mitigation measures to increase the likelihood that temporary Project workspaces would return more closely to native plant communities with a diverse assemblage of species, as discussed in section 4.5 of the final EIS. Also see the response to comment CO26-26.

The DEIS relies on adaptive management, stating, “After construction, FERC, cooperating agencies, and/or other agencies would continue to conduct oversight inspection and monitoring to assess restoration success. If it is determined that the success of any restoration activity is inadequate, AGDC would use an adaptive management approach. . . .”¹¹⁵ However, relying on such a wait-and-see approach is unreasonable here because the available information does not suggest restoration will succeed in the first place. And it is particularly unreasonable because ADEC’s description of adaptive management for revegetation is entirely devoid of meaningful information. It simply states that adaptive management allows for “flexibility in addressing site conditions or circumstances to facilitate an acceptable alternative success standard tailored for the site,” that it is “based on existing conditions and circumstances,” that it “may be recommended on a case-by-case basis where feasible,” and that monitoring would “assist in identifying deficiencies.”¹¹⁶ The brief passage concludes, “AGDC would describe the specific location or area, the situation including environmental conditions, the adaptation proposed, and the anticipated result. Proper documentation of the approved approach and site-specific monitoring and standards would be followed to measure progress.”¹¹⁷ These vague assurances cannot make up for the lack of impacts analysis.

CO26-28

CO26-28

Successful restoration of temporary Project workspaces would be based on meeting the performance standards described in the Project Revegetation Plan and section 4.5 of the final EIS. If performance standards are not met, AGDC would consult with FERC, land managing and other agencies, and landowners to identify additional measures for restoration. Any adaptive measures would need to be approved by FERC. Instructions for accessing the Project Revegetation Plan were provided in table 2.2-1 of the draft EIS and likewise are provided in table 2.2-1 of the final EIS.

Despite the thousands of acres of disturbance to native plant communities from construction of the proposed project and the likelihood that sensitive areas will be permanently affected, the DEIS concludes that with the use of mitigation measures, “the loss and alteration of native scrub and herbaceous plant communities from vegetation

CO26-29

CO26-29

See the response to comment CO26-26.

¹¹¹ *Id.* at 17.

¹¹² *Id.*

¹¹³ AKLNG-6010-ENV-PLN-DOC-00035 (rev. 1, 11/19/2018) at 53, 110.

¹¹⁴ *Id.* at 53.

¹¹⁵ DEIS at 2-82.

¹¹⁶ AKLNG-6010-ENV-PLN-DOC-00035 at 121.

¹¹⁷ *Id.*

CO26 – Earth Justice (cont’d)

clearing for Project construction would be reduced to less than significant levels.”¹¹⁸ The available information does not support this conclusion.

CO26-29

The DEIS notes that the periods during which the company clears vegetation must avoid migratory bird nesting season, and that the company has failed to indicate it will comply with this requirement.¹¹⁹ The conclusion that there will be no population-level impacts because the company will avoid land disturbance during nesting season is therefore arbitrary.¹²⁰ In addition, the agency’s recommendation that AGDC request a written exception prior to clearing during the nesting season does not serve NEPA’s purpose of ensuring that the impacts of such clearing are analyzed and understood in the context of the project’s other environmental impacts now, before the agencies authorize the project. FERC must analyze the impacts to migratory birds in light of the company’s refusal to comply with nesting season protections.¹²¹

CO26-30

CO26-30 See the updates to sections 4.6.2.3 and 4.6.2.5 of the final EIS.

The DEIS concludes that impacts on forest communities “would be significant given the greater acreages affected and the longer recovery period for areas that would be allowed to revegetate” and given that the potential introduction of invasive species “could have a significant impact on native plant communities.”¹²² Forests and vegetation are essential to ecosystem diversity, and the FEIS must more fully analyze the impacts of the project on these resources.

CO26-31

CO26-31 Impacts on forest and vegetation are discussed in sections 4.2.4 and 4.2.5 of the final EIS. Also see the responses to comment CO26-26.

The FEIS must also provide a more thorough analysis of the impacts to terrestrial wildlife. The project would affect over 25,000 acres of terrestrial wildlife habitat, including sensitive caribou habitat.¹²³ Seventeen construction camps would be within one mile of sensitive caribou winter habitat.¹²⁴ The DEIS acknowledges that impacts from construction and operation to the Central Arctic caribou herd, Teshekpuk caribou herd, and Porcupine caribou herd would be significant.¹²⁵

CO26-32

CO26-32 Comment noted. See the updates to section 4.6 of the final EIS.

Although the agency discusses some studies about the effect of pipeline height on caribou movement,¹²⁶ it provides no analysis about the implications of these studies for the potential impacts of the proposed project. Instead, the agency simply states that it does “not know if the impact would be temporary or long term, or to what extent, if any,

CO26-33

CO26-33 Comment noted.

¹¹⁸ DEIS at 4-256.

¹¹⁹ *Id.* at 4-326.

¹²⁰ *Id.* at 4-328.

¹²¹ *Id.* at 4-326.

¹²² *Id.* at 4-274.

¹²³ *Id.* at 4-280.

¹²⁴ *Id.* at 4-297.

¹²⁵ *Id.* at 4-302. The DEIS appears to refer to these collectively as the “Central Arctic caribou herds.” *Id.* This terminology is confusing and should be corrected to simply “Arctic herds” to avoid confusion with the individual Central Arctic caribou herd.

¹²⁶ *Id.* at 4-297.

CO26 – Earth Justice (cont’d)

the GTP and PTTL would affect caribou herd movements.¹²⁷ Although the agency may be unable to determine the impacts to caribou definitively, it must do more to analyze the potential impacts, given the project’s proposed pipeline height and siting. NEPA requires reasonable forecasting.

CO26-33

Instead, FERC suggests that that AGDC should determine whether the pipelines are creating a barrier to caribou movement after they have been constructed, and if so, submit a plan to minimize or mitigate any identified issues with caribou movement.¹²⁸ Especially in light of the fact that the caribou face significant impacts, such measures are inadequate, as it is unclear whether mitigation is possible after the pipelines have been constructed and the DEIS provides no examples of mitigation that could be imposed after the fact to minimize their impacts to caribou movement.¹²⁹

The FEIS must provide a more coherent analysis of the impacts of noise from the project on wildlife. For example, although the DEIS notes that “noise from the GTP, LNG Plant, compressor stations, and the heater station would be above background noise levels and would operate continuously for the life of the Project” and that as a result, “habitat surrounding aboveground facilities could become uninhabitable by birds, as they would avoid these areas,” the analysis incomprehensibly concludes that “ Due to the short duration of construction noise and low levels of operational noise, impacts on birds from Project-related noise would not be significant.”¹³⁰

CO26-34

CO26-34 Comment noted.

SUBSISTENCE

The analysis of impacts to subsistence in the DEIS does not satisfy NEPA. While acknowledging that the project will have numerous impacts on subsistence users all along its footprint stretching across the state of Alaska, the DEIS lacks almost any meaningful information about the magnitude of or context for those impacts. The DEIS summarizes, “[p]roject construction and operation would result in a variety of impacts on subsistence users [but] the magnitude, if not the duration, of the impact is difficult to define . . . primarily due to the complexity of predicting the numerous interactions between human behavior and physical resources.”¹³¹ This approach is not sufficient because it does not address NEPA’s criteria for information that must be included in an EIS. If the missing information about the magnitude of subsistence impacts is (1) “relevant to reasonably foreseeable significant adverse impacts;” (2) “essential to a reasoned choice among alternatives;” and (3) “the overall costs of obtaining it are not exorbitant,” it must be included.¹³² If not, FERC must note that the information is incomplete or unavailable, explain its relevance, summarize existing credible scientific

CO26-35

CO26-35 Comment noted.

¹²⁷ *Id.* at 4-302.
¹²⁸ *Id.* at 4-302.
¹²⁹ *Id.* at 4-302.
¹³⁰ *Id.* at 4-330.
¹³¹ *Id.* at 4-715.
¹³² 40 C.F.R. § 1502.22(a).

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evidence, and evaluate impacts based on theoretical approaches or research methods generally accepted in the scientific community.¹³³ Here, information about the magnitude of impacts to subsistence users is undeniably relevant to reasonably foreseeable significant adverse impacts, as even the DEIS acknowledges the project’s cumulative impacts on subsistence could be significant.¹³⁴ It is also essential to a reasoned choice between alternatives, especially the proposed alternative and the no action alternative. There has been no showing that it would be exorbitantly costly to estimate the magnitude of these impacts. Thus, the magnitude of impacts should be estimated and included in the EIS.

CO26-35

Rather than estimate the magnitude of impacts or explain why such an estimate is not possible, the DEIS emphasizes repeatedly that certain mitigation measures could “lessen” or “minimize” the impacts on subsistence users. NEPA analysis may account for the documented effects of required mitigation measures in estimating a project’s impacts. However, mitigation measures cannot excuse an agency from making any attempt to estimate impacts.

Moreover, it was inappropriate for the DEIS to rely on the potential mitigation measures listed in its analysis of subsistence impacts for three reasons. First and most importantly, the potential mitigation measures discussed in the DEIS are not enforceable. For example, the DEIS states “AGDC has committed to implement the measures described.”¹³⁵ That statement is misleading, because there is no way for FERC to enforce any such commitment by AGDC. For that matter, AGDC may not even be the project proponent in the future. Only if FERC’s approval was expressly conditioned on these mitigation measures should their effects be considered in the NEPA analysis. Second, many of the noted mitigation measures are so poorly defined that it is impossible to comment on how effective they may or may not be. For example, one of AGDC’s commitments is to “[c]oordinate with local communities, including tribal councils, to identify locations and times where subsistence activities occur, and modify schedules to minimize work . . . to the extent practicable, in those locations and times.”¹³⁶ This measure says nothing about how early, how frequently, and in what manner coordination is to occur. It says nothing about what factors should be considered in determining what is practicable. And again, it provides no independent check on AGDC to ensure that coordination and minimization are occurring in a satisfactory manner. It is arbitrary to rely on such vague mitigation measures to conclude that subsistence impacts would, in fact, be minimized. Third, the DEIS does not provide any analysis of how effective the potential mitigation measures may be. Summarily asserting that they will minimize subsistence impacts is not the hard look NEPA requires.

CO26-36

CO26-36

Staff Recommendation No.1 (see section 5.2 of the final EIS) requires AGDC to follow the construction procedures and mitigation measures described in its application and supplements and as identified in the EIS.

¹³³ *Id.* § 1502.22(b).

¹³⁴ DEIS, App. U at U-14.

¹³⁵ DEIS at 4-716.

¹³⁶ *Id.*

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The preliminary evaluation under Alaska National Interest Lands Conservation Act (ANILCA) section 810 is inadequate for the same reasons as the analysis of subsistence impacts in the DEIS. While acknowledging that the Project could cause subsistence impacts, even potentially “major” impacts, the evaluation asserts without support that those impacts would be “effectively mitigated” by vague and unenforceable mitigation measures.¹³⁷ It is on this flawed basis that the evaluation concludes the project may significantly restrict subsistence uses only in Nuiqsut, Kaktovik, Utqiagvik, and Anaktuvuk Pass due to potential decline in the availability of caribou for subsistence use.¹³⁸ The section 810 evaluation should exclude all unenforceable and unproven mitigation measures from its conclusions about the significance of restrictions on subsistence uses. When those are properly excluded, the agencies will be compelled to conclude there is a broader potential for significant restriction of subsistence uses both within the four communities already identified and within other communities whose subsistence use areas interact with the Project’s impacts. Accordingly, notice and hearings beyond those the preliminary evaluation lists will be required.

CO26-37

CO26-37

The BLM guidance on the ANILCA 810 process is given in Instruction Memorandum (IM) AK-2011-008.¹ This IM requires the BLM to evaluate the potential impacts to subsistence resources and uses from a proposed action. The policy further states that the evaluation must apply to each alternative analyzed in the EIS, including the cumulative analysis.

The effective mitigation measures cited in the draft EIS and preliminary evaluation include design features within the Plan of Development (POD) and best management practices within the Project resource plans proposed by the applicant. The POD and resource plans would become the reference documents in a Federal grant of right-of-way and compliance with the required mitigation measures is fully enforceable under the Mineral Leasing Act regulations in 43 CFR 2880.

¹ BLM, 2011, Instruction Memorandum No. AK-2011- 008: Instructions and policy for compliance with Section 810 the Alaska National Interest Lands Conservation Act (ANILCA).

AIR POLLUTION

An adequate NEPA analysis and compliance with the Clean Air Act requires the agencies to quantitatively analyze the air pollution impacts associated with each alternative considered in the EIS, ensure prevention of significant deterioration of air quality, and fully analyze a suite of enforceable mitigation measures.

CO26-38

CO26-38

Section 4.15.5 of the final EIS analyzes the impacts associated with operation of the Project including the modeled exceedances of screening-level thresholds for acid deposition and visibility in Class I and Class II nationally designated protected areas.

The DEIS fails to adequately analyze the impacts of air pollution from the proposed project, particularly in nationally designated protected areas. Air emissions from the GTP,¹³⁹ compression stations,¹⁴⁰ and the LNG facility¹⁴¹ would exceed

¹³⁷ DEIS, App. U at U-4 to U-9, U-11, U-13.

¹³⁸ *Id.* at U-14.

¹³⁹ *Id.* at 4-909 (nitrogen deposition impacts from GTP would exceed deposition thresholds for the Arctic National Wildlife Refuge).

¹⁴⁰ *Id.* at 4-916 (sulfur deposition thresholds could be exceeded by air emissions from the Galbraith Lake Compressor Station at the Arctic National Wildlife Refuge); *see also id.* at 4-923, Tbl. 4.15.5-19; 4-922 (“compressor station and heater station operation could have significant impacts on ecosystems from nitrogen deposition in Class I and Class II nationally designated protected areas”); *id.* at 5-38 (“the FLM-established visibility threshold and sulfur deposition threshold at the ANWR could be exceeded by emissions from the Galbraith Lake Compressor Station. FLM-established nitrogen deposition thresholds at multiple Class I and II areas—including ANWR, Gates of the Arctic NPP, Gates of the Arctic Preserve, Yukon Flats NWR, Kanuti NWR, DNPP, and Kenai NWR—could also be exceeded by operation of the stations”).

¹⁴¹ *Id.* at 4-938 (LNG emissions “could have a long-term significant impact on acid deposition at the Tuxedni NWR, DNRR, Kenai NWR, and Lake Clark NPP”); *see also id.* at 5-38.

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threshold levels of sulfur and acid deposition,¹⁴² causing significant impacts in nationally designated protected areas. Such emissions would also harm visibility in these areas, degrading the quality of recreation.¹⁴³ Finally, construction and operations of the LNG facilities could also result in exceedances of the NAAQS/AAAQS, leading to potentially significant impacts on air quality.¹⁴⁴

CO26-38

Sulfur and nitrogen emissions react with water, oxygen, and other chemicals to form sulfuric and/or nitric acids, causing acid rain. Nitrogen deposition can also disrupt nutrient cycling in the ecosystem and create competitive advantages for some species at the expense of others, leading to shifts in species composition and declines in biodiversity and increases in disease and insect outbreaks.¹⁴⁵

CO26-39

CO26-39 See the response to comment FA3-78.

The DEIS acknowledges that in cases where the deposition analysis threshold is exceeded, additional information is required, including ecosystem sensitivity in the affected areas, to determine whether adverse deposition effects would occur.¹⁴⁶ Yet the DEIS fails to present any additional information about the sensitivity of affected ecosystems to sulfur and nitrogen deposition and fails to analyze the potential impact of acid rain and nitrogen deposition on the protected areas. Certain ecosystems are particularly sensitive to increased nitrogen, including alpine, arctic, and meadow ecosystems and wetlands. As the National Park Service explains, “These systems generally evolved under low nitrogen conditions and are often nitrogen-limited. Very small nitrogen increases can alter nutrient cycling and plant species interactions in these areas.”¹⁴⁷ The DEIS must analyze the impacts of sulfur and nitrogen deposition on these

¹⁴² See Federal Land Managers’ Air Quality Related Values Work Group (FLAG), *Phase I Report—Revised (2010)*, Natural Resource Report NPS/NRPC/NRR—2010/232. <https://www.rosemonteis.us/sites/default/files/references/016592.pdf>.

¹⁴³ DEIS at 4-908 (visibility impacts from the GTP could exceed threshold at the Arctic National Wildlife Refuge); *id.* at 4-909 (identifying cumulative impacts to visibility in the Arctic National Wildlife Refuge and Gates of the Arctic National Park and Preserve); *id.* at 4-911 (GTP emissions would exceed the visibility change threshold at the Arctic National Wildlife Refuge and “could have a long-term significant impact on regional haze at ANWR”); *id.* at 4-938 (LNG emissions could have a significant impact on regional haze at the Kenai NWR); *id.* at 4-916 (visibility plume perceptibility thresholds could be exceeded by the Galbraith Lake Compressor Station at the Arctic National Wildlife Refuge and by the Healy and Honolulu Creek Compressor Stations at the Denali National Park and Preserve).

¹⁴⁴ *Id.* at 4-938.

¹⁴⁵ *Id.* at 4-909.

¹⁴⁶ *Id.* at 4-909.

¹⁴⁷ National Park Service (NPS), Nitrogen Deposition Risk, <https://www.nps.gov/maps/air/nitrogen-risk-assessment/?ecosystem-sensitivity> (under background tab); see also NPS, Nitrogen Risk Assessment; NPS, Evaluation of the Sensitivity of Inventory and Monitoring National Parks to Nutrient Enrichment Effects from Atmospheric Nitrogen Deposition Main Report, Natural Resource Report

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protected areas, including the impacts on the environmental resources that are threatened by acid and nutrient enrichment. | CO26-39

The DEIS also fails to analyze the potential impacts on visibility in these protected areas. For example, after noting that GTP operations would exceed visibility thresholds, the DEIS simply concludes that visual impacts would be “moderate” to the Gates of the Arctic National Park and Preserve and that emissions could have a long-term significant impact on regional haze in the Arctic National Wildlife Refuge.¹⁴⁸ | CO26-40

The DEIS therefore provides an inadequate basis for FERC and federal land managers to determine whether the proposed project would have an adverse impact on air quality related values of federally designed protected areas.¹⁴⁹ If the proposed action will likely cause or contribute to an adverse effect to air quality related values (AQRVs), the federal land manager (FWS or NPS) may recommend permit conditions that ensure mitigation, including stricter emissions controls and effective emissions offsets. If no mitigation is possible, the NPS or FWS may recommend denial of the permit.¹⁵⁰ | CO26-41

Instead of assessing the potential impacts of air pollution on federally protected areas, FERC simply recommends that AGDC “prepare a plan that would ensure that the predicted visibility impacts and deposition impacts are below their associated NPS thresholds.”¹⁵¹ This plan would not be required until sometime prior to construction. ¹⁵² FERC’s failure to include specific, enforceable mitigation measures makes it unclear how the agency will ensure there will be no significant impacts to air quality – i.e., that development will not adversely impact human health and the natural environment and will not result in significant deterioration of air quality as required by the Clean Air Act. | CO26-42

The failure to sufficiently analyze mitigation measures also violates NEPA, which requires FERC to consider reasonable alternatives to eliminate or mitigate adverse impacts to air quality. | CO26-43

NPS/NRPC/ARD/NRR—2011/313 at 9-17 (identifying nutrient enrichment effects of nitrogen deposition).

¹⁴⁸ DEIS at 4-911.

¹⁴⁹ See U.S. Forest Service *et al.*, Federal Land Managers’ Air Quality Related Values Work Group (FLAG), *Phase I Report—Revised (2010)* at 66 (“In cases where a source’s impact equals or exceeds the DAT, the NPS/FWS will make a project specific assessment of whether the projected increase in deposition would likely result in an ‘adverse impact’ on resources, considering existing AQRV conditions, the magnitude of the expected increase, and other factors.”).

¹⁵⁰ *Id.* at 66-67.

¹⁵¹ DEIS at 4-939; see also *id.* at 4-909 (recommending that AGDC “mitigate emissions associated with the GTP to reduce predicted visibility impacts and deposition impacts to below their associated thresholds.”).

¹⁵² *Id.* at 5-59

CO26-40 See the response to comment CO26-38.

CO26-41 The final EIS provides information regarding potential impacts associated with the Project's air quality emissions. The air quality permitting process, currently being completed by ADEC, provides additional opportunity to incorporate enforceable mitigation measures, if needed, based on input from FLMs. See the response to comment FA3-78.

CO26-42 Comment noted.

CO26-43 Comment noted.

CC-659

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Finally, the analysis of cumulative impacts from air emissions is arbitrary. The analysis assumes that impacts would be cumulative where other actions are within 31 miles of the GTP, compressor stations, heater station, and Liquefaction Facilities.¹⁵³ Given the fact that the DEIS analyzes direct impacts from nitrogen and sulfur to nationally designated protected areas as far as 300 km away,¹⁵⁴ it is arbitrary for the agency to limit its cumulative impacts analysis to projects within 31 miles, particularly with respect to these protected areas.

CO26-44

CO26-44

The geographic scopes for each resource type in the cumulative impacts analysis encompassed a reasonable area of influence relative to the likelihood of impact. For air quality cumulative impacts during Project operations, we defined this as the area within 31 miles of the GTP facilities, Liquefaction Facilities, and Mainline Compressor Stations (see section 4.19.1 of the final EIS). The scope of the air quality analysis for Class I and Class II nationally designated protected areas as discussed in section 4.15.5 of the final EIS is based on comments from the cooperating agencies.

CUMULATIVE IMPACTS

FERC must consider the cumulative impacts of the proposed action along with all other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.¹⁵⁵ “To ‘consider’ cumulative effects, some quantified or detailed information is required.”¹⁵⁶

CO26-45

CO26-45

Comment noted.

The cumulative impacts analysis is incomplete and arbitrary. Overall, and as explained in greater detail above for specific resources, FERC’s cumulative impacts analysis fails to contain the “quantified or detailed information” required. Instead, it largely consists of general statements regarding potential effects and contains very little substantive information. In large part, FERC’s presentation of past, present, and reasonably foreseeable future actions consists of a table generally describing categories of activities and actions and a bulleted list of reasonably foreseeable future projects. It also includes a list of identified projects, but again with an inadequate analysis of the actual cumulative impacts from the identified project and the proposed project. Instead, in some resource sections, FERC avoids discussing the cumulative impacts associated with reasonably foreseeable post-lease oil and gas activity by suggesting those would be discussed in later NEPA analyses. In others, it avoids the discussion by making bald conclusory statements about the cumulative impacts. These statements acknowledge the potential for cumulative impacts, but fail to provide any explanation or analysis of what they would be.

CO26-46

CO26-46

Impacts from the PTU Expansion and PBU MGS Projects are included in the cumulative impacts analysis provided in section 4.19.4 of the final EIS. Descriptions of these projects are provided in sections 4.19.2.1 and 4.19.2.2 of the final EIS.

The scope of activities considered by FERC is incomplete. For example, the agency must consider the cumulative effects of producing the gas from Prudhoe Bay and Point Thomson. This is true not only because the produced gas is the essential resource for which the pipeline is to be built, but also because if the pipeline is not built, the gas will not be produced.¹⁵⁷ The DEIS acknowledges that the PTU expansion and PBU major gas sale projects are “integral” to the proposed project,¹⁵⁸ but it does not fully assess the

¹⁵³ *Id.* at 4-1156

¹⁵⁴ *Id.* at 4-904

¹⁵⁵ 40 C.F.R. §§ 1508.7, 1508.25(c).

¹⁵⁶ *Neighbors of Cuddy Mt. v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998).

¹⁵⁷ DEIS at 3-2 (noting that if no action alternative is selected, “the opportunity to commercialize North Slope natural gas would not be realized.”).

¹⁵⁸ *See id.* at 4-1108 (explaining that PBU and PTU expansions are “integral to the need

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cumulative impacts of these related projects. For example, although expansion at PBU would require 10 new production and injection wells¹⁵⁹ and expansion of PTU would require three new production wells,¹⁶⁰ the cumulative impacts analysis fails to address the impacts of these new wells.

CO26-46

In addition, the cumulative impacts analysis arbitrarily omits any assessment of the impacts of induced development of gas beyond that which has been proven at the Prudhoe Bay and Point Thomson fields, claiming that such development is “speculative,” even though such development is necessary and even assumed here because the gas supply from existing developments will only last for 20 years and the proposed project has an estimated life of at least 30 years.¹⁶¹ In the expected demand scenario, the project would need to produce approximately 47.5 trillion cubic feet (Tcf) of natural gas supply to meet the estimated gas requirements.¹⁶² Alaska has an estimated total 63.5 Tcf of combined natural gas reserves and probable and possible natural gas resources, 45.2 Tcf of which is on the North Slope.¹⁶³ Because there is no access to the market for North Slope gas, none of the 45.2 Tcf of gas on the North Slope is classified as reserves.¹⁶⁴ Only 34.8 Tcf of the North Slope gas is already discovered and delineated at existing oil fields such that it might be reclassified as reserves once access and a viable market are established.¹⁶⁵ Thus, the discovered gas on the North Slope will not be enough to meet the proposed project requirements; at a minimum, AGDC will need an additional 12.7 Tcf of gas to meet the estimated demand for the full 30 years. Making up this deficit would require additional drilling on the North Slope, Beaufort Sea, or Cook Inlet.¹⁶⁶ In the high demand scenario, the deficit would increase by an additional 20.1 Tcf.¹⁶⁷

CO26-47

If more gas is not discovered at existing oil fields, therefore, the Project would trigger substantial additional gas exploration and development. FERC acknowledges “It is likely that additional wells would be drilled at some point in the future” but declines to analyze the potential impacts because the timing of such drilling “would be market driven and not reasonably foreseeable.”¹⁶⁸ Given the fact that additional gas will be necessary to

CO26-47

As noted in section 4.19.2 of the final EIS, future oil and gas drilling, if it is necessary, could contribute a cumulative impact, but such activity is at least 20 years after the Project begins exporting gas and its timing, scale, and scope is unknown.

for a project and/or are minor components that would be built as a result.”).

¹⁵⁹ *Id.* at 4-1111.

¹⁶⁰ *Id.* at 4-1109.

¹⁶¹ *Id.* at 2-1; *see also id.* at 1109 (stating “any analysis beyond this 20-year time frame would be speculative.”).

¹⁶² NERA Economic Consulting, “Socio-Economic Impact Analysis of Alaska LNG Project” at 4, Fig. 3 (June 19, 2014) (“Socio-Economic Report”).

¹⁶³ DeGolyer & MacNaughton, Report on a Study of Alaska Gas Reserves and Resources for Certain Gas Supply Scenarios as of December 31, 2012 at 11 (in Application for Long-Term Authorization to Export Liquefied Natural Gas, June 18, 2014, Appendix E).

¹⁶⁴ *Id.* at 11-12.

¹⁶⁵ *Id.* at 11.

¹⁶⁶ *Id.* at 12, Fig. 5.

¹⁶⁷ Socio-Economic Report at 4, Fig. 4.

¹⁶⁸ DEIS at 4-1109.

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meet the market demand identified for the proposed project, this justification is incoherent. FERC must analyze the cumulative impacts of exploration and development in the Beaufort Sea and elsewhere on the North Slope.

CO26-47

The FEIS must analyze not only the cumulative impacts of development necessary to the proposed project, but of all reasonably foreseeable development in the Arctic. For example, the DEIS notes, “[o]il and gas leasing projects such as those in the Beaufort Sea and Chukchi Sea area are nearer to the Project, but have no specific drilling plans as of yet; therefore, the potential scope of cumulative effects from these projects is unknown.”¹⁶⁹ The FEIS must thoroughly assess the cumulative impacts of this development and can refer to oil and gas leasing plans to assist in this analysis.¹⁷⁰ Similarly, the DEIS omits any discussion of the process underway to develop a new Integrated Activity Plan for the National Petroleum Reserve-Alaska and the decision to lease in the Arctic National Wildlife Refuge.

CO26-48

In identifying the cumulative impacts of additional leasing in state and federal waters, the DEIS only mentions that this would involve the “use of the same marine transportation corridors as Project construction.”¹⁷¹ In addition to cumulative impacts from vessel traffic, seismic activity associated with the leasing would also result in cumulative impacts, and any drilling on these leases would cause noise and disturbance that would have cumulative effects as well.

CO26-49

The DEIS fails to identify and analyze all of the reasonably foreseeable future actions. For example, although the DEIS notes as part of its mention of Yukon Flats, that “Congress opened up an additional 1.5 million acres for drilling in the Arctic National Wildlife Refuge,” the table fails to acknowledge the NEPA process that has already been completed for leasing in the area.¹⁷²

CO26-50

The cumulative effects analysis with respect to vessel traffic in Cook Inlet is particularly lacking. The increase in vessel traffic in Cook Inlet from the gas pipeline alone would be significant. During operation of the proposed project, AGDC expects that between 204 and 360 LNG carriers would call at the Marine Terminal each year.¹⁷³ In addition, FERC neglects to mention the proposed Pebble Mine, even though it and the proposed project will result in significant increases in vessel traffic and noise in Cook Inlet. The DEIS notes that “[s]everal marine projects in the vicinity of the Alaska LNG Project could contribute to cumulative impacts on marine species.”¹⁷⁴ However, the DEIS

CO26-51

¹⁶⁹ *Id.* at 4-1125.

¹⁷⁰ *See, e.g.* 2017–2022 OCS Oil and Gas Leasing Program Final Programmatic EIS at 4-113 (Nov. 2016) for exploration and development scenario for the Beaufort Sea; *see also id.* at 4-195 to 4-214 (discussing cumulative impacts).

¹⁷¹ DEIS, App. W at W-4, Tbl. W-1.

¹⁷² *Id.* at W-11.

¹⁷³ DEIS at ES-2.

¹⁷⁴ *Id.* at 4-1131.

CO26-48 Comment noted.

CO26-49 The oil and gas projects included in our analysis of cumulative impacts are identified in appendix W of the final EIS; projects that are not included (e.g., the potential reversal of protections in the Integrated Activity Plan for Special Areas in the National Petroleum Reserve) are speculative or poorly defined.

CO26-50 Oil and gas leasing and development within the Refuge are certainly possible, but the timing, location, and scope of development relative to the Project, if any, cannot be determined.

CO26-51 Section 4.19.4 and appendices W-1 and W-2 of the final EIS have been updated to address this comment.

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claims that because all projects would be required to comply with the MMPA, “cumulative impacts on marine mammal species would be minor.”¹⁷⁵ FERC cannot defer an analysis of cumulative impacts to marine mammals under the assumption that those impacts will be permitted under the MMPA and therefore be minor. In addition, the DEIS asserts that, “Data regarding vessel traffic for most of the projects listed in appendix W-1 is not available,” and it quantifies only the expected increase in cargo volume for the Port of Alaska.¹⁷⁶ This is inadequate and FERC must do more to quantify the cumulative impacts of vessel traffic. Various resources are available to help the agency better assess these cumulative impacts. For example, the Cook Inlet Lease Sale 244 EIS quantifies vessel traffic from exploration and development resulting from that lease sale.¹⁷⁷ Other studies quantify the current vessel traffic and provide estimates of future traffic in Cook Inlet. For example, in 2012 the ADEC commissioned a Cook Inlet Vessel Traffic Study Report, describing a baseline for all major vessel activity in Cook Inlet in 2010.¹⁷⁸ The agency must assess the cumulative impacts to marine mammals in light of this information.

CO26-51

The DEIS also incorrectly discounts impacts that will not occur at the same time and place as impacts from the pipeline. For example, when assessing the potential impacts to marine resources from oil spills, the DEIS states “Given that the vessel traffic associated with the Project and other projects is subject to numerous regulatory requirements intended to prevent spills, and with the implementation of SPCC plans, it is unlikely that spills would occur at the same time and in the same location. Therefore, the overall cumulative impacts of spills on the physical marine water environment would be minimal.”¹⁷⁹ Similarly, the DEIS states, “the Hilcorp Liberty Development Project is 25 miles east of the Project, so cumulative impacts associated with this project would not likely occur.”¹⁸⁰ This reasoning is irrational, especially with respect to species that travel through and occupy all of the areas where these activities will take place.

CO26-52

MITIGATION

The DEIS must “consider appropriate mitigation measures that would reduce the environmental impact of the proposed action.”¹⁸¹ A reasonably complete discussion of mitigation is necessary for the public to properly evaluate the severity of the impacts.¹⁸²

CO26-53

¹⁷⁵ *Id.* at 4-1137.

¹⁷⁶ *Id.* at 4-1135.

¹⁷⁷ BOEM, Cook Inlet Planning Area Oil and Gas Lease Sale 244, Final EIS at 4-15 (Dec. 2016).

¹⁷⁸ Cape International Inc., Cook Inlet Vessel Traffic Study, Report to Cook Inlet Risk Assessment Advisory Panel (Jan. 2012).

¹⁷⁹ DEIS at 4-1126.

¹⁸⁰ *Id.* at 4-1125.

¹⁸¹ *Great Basin Res. Watch v. Bureau of Land Mgmt.*, 844 F.3d 1095, 1106 (9th Cir. 2016) (quoting *Protect Our Cmty. Found. v. Jewell*, 825 F.3d 571, 581 (9th Cir. 2016)).

¹⁸² *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989). In addition,

CO26-52

Given the low probability of spills occurring at the same time and the measures proposed for spill response and recovery, we conclude that cumulative impacts due to spills on mobile species such as marine mammals, is unlikely.

CO26-53

Mitigation measures are identified, discussed, and evaluated throughout the final EIS. Staff Recommendation No. 1 requires AGDC to follow and implement the construction procedures and mitigation measures described in its application and supplements and as identified in the final EIS. Other staff recommendations (see section 5.2 of the final EIS) identify additional measures to mitigate the environmental impacts associated with the Project. We have recommended that these measures be included as conditions in the Commission's Order if the Commission authorizes the Project. With regard to compensatory mitigation, section 4.4.4 of the final EIS states that compensatory mitigation would be required to offset the loss of wetland and aquatic resource functions for any unavoidable impacts on wetlands or aquatic resources. AGDC is consulting with the COE and other resource management agencies to determine the appropriate form of mitigation offsets. Mitigation would be determined by the COE and other agencies through their respective permitting processes.

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In addition, an adequate analysis of mitigation is necessary to support a permit conditioned on minimization of, or compensation for, unavoidable impacts.¹⁸³

CO26-53

As an initial matter, because the DEIS fails to properly characterize the nature and extent of the direct and indirect effects of the proposed project, the agency is unable to determine whether mitigation is reasonable and appropriate.

The DEIS also fails to adequately assess mitigation options and fails to describe how mitigation would be effective. For example, as discussed above, FERC proposes that AGDC not conduct pile driving activities for construction of the Mainline MOF during June and July.¹⁸⁴ Yet the agency fails to assess the degree to which this measure would be effective in avoiding impacts to marine mammals. The DEIS also fails to assess the effectiveness of monitoring shutdown zones with PSOs, in particular when the limits of those zones are far from the PSO.

Throughout the DEIS, FERC relies on mitigation it recommends, in place of or in addition to mitigation AGDC has proposed, to support its conclusions about the environmental impacts of the proposed project.¹⁸⁵ Because it is unclear whether these recommendations will be adopted as conditions to the final permit approval, it is important for the agency to fully assess the potential impacts without these recommendations. The agency's assumption that AGDC will adopt the measures is particularly unfounded in the numerous cases where AGDC has already refused to incorporate the recommendations.¹⁸⁶

FERC also relies on mitigation measures that have not yet been designed to

the CWA 404(b)(1) Guidelines prohibit issuance of a permit "unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem." 40 C.F.R. § 230.10(d).

¹⁸³ See *City of Olmstead Falls, Ohio v. EPA*, 435 F.3d 632, 637-38 (6th Cir. 2006); *Ohio Valley Envtl. Coal. v. U.S. Army Corps of Eng'rs*, 674 F. Supp. 2d 783, 790 (S.D. W. Va. 2009).

¹⁸⁴ DEIS at 4-379; DEIS, App. O at 0-22.

¹⁸⁵ See, e.g., DEIS at 4-410 (noting that with implementation of the recommended mitigation measures, impacts on fish from water withdrawals and discharges would be minor); *id.* at 4-256 (FERC recommended measures for revegetation would reduce impacts to less than significant levels); *id.* at 4-464 (Noting that with FERC recommendations, impacts on fishery resources would be reduced and AGDC would not significantly affect Pacific salmon or other anadromous fish species).

¹⁸⁶ *Id.* at 4-407 (AGDC has not committed to implementing culvert design measures); *id.* at 4-409 (AGDC has not committed to water withdrawal mitigation measures); *id.* at 4-423 (noting AGDC refusal to commit to stream crossing construction windows); *id.* at 4-326 (AGDC refuses to abide by seasonal vegetation clearing schedule).

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support its analysis.¹⁸⁷ The agency’s conclusions about impacts that are based on such hypothetical mitigation measures are arbitrary.

CO26-53

Finally, the DEIS entirely defers any analysis of compensatory mitigation. The DEIS explains only that “AGDC is consulting with the [Corps] and other resource management agencies to determine the appropriate form of mitigation offsets for unavoidable impacts on waters of the United States.”¹⁸⁸

A compensatory mitigation plan (CMP) must clearly identify the extent and magnitude of impacts that will be subject to compensatory mitigation, including the indirect, secondary, and cumulative impacts. Because compensatory mitigation is designed to offset lost aquatic resource functions, the CMP should also describe the type and magnitude of aquatic resource functions that will be lost or degraded and assess whether the compensatory mitigation provides the same functions, including the lost wetland function of carbon sequestration. Without a functional assessment, the CMP must use a minimum one-to-one acreage or linear foot compensation ratio, and the Corps must require an even greater ratio if necessary.¹⁸⁹ The CMP must also explain, in the absence of a functional assessment, the rationale behind any determination that the proposed compensatory mitigation would provide sufficient offset for the lost aquatic functions.¹⁹⁰

MISSING INFORMATION

NEPA requires FERC to address missing information. When the agency confronts incomplete or unavailable information as part of the environmental review process, NEPA regulations dictate how the agency must address that information.¹⁹¹ “[T]he agency shall include the information in the environmental impact statement,”¹⁹² if the missing information is: (1) “relevant to reasonably foreseeable significant adverse impacts;” (2) “essential to a reasoned choice among alternatives;” and (3) “the overall costs of obtaining [which] are not exorbitant.”¹⁹³ The Council on Environmental Quality (CEQ) has explained that “[t]he evaluation of impacts under § 1502.22 is an integral part of an EIS and should be treated in the same manner as those impacts normally analyzed in an EIS.”¹⁹³ If the information cannot be obtained, agencies must note that the information is incomplete or unavailable, explain its relevance, summarize existing credible scientific evidence, and evaluate impacts based on theoretical approaches or

CO26-54

CO26-54 See the response to comment CM6-4.

¹⁸⁷ See, e.g., *id.* at 4-101 (site specific mitigation measures would be designed at later phase of project), *id.* at 4-51 (mitigation for trenchless crossings) *id.* at 4-154 (mitigation for waterbody crossings).

¹⁸⁸ *Id.* at 4-242.

¹⁸⁹ 33 C.F.R. § 332.3(f).

¹⁹⁰ *Id.*

¹⁹¹ See *Mont. Wilderness Ass’n v. McAllister*, 666 F.3d 549, 559-561 (9th Cir. 2011).

¹⁹² 40 C.F.R. § 1502.22(a).

¹⁹³ 51 Fed. Reg. 15,618, 15,621 (Apr. 25, 1986).

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research methods generally accepted in the scientific community.¹⁹⁴

The DEIS lacks important information necessary to conduct an adequate NEPA analysis. These information gaps include, but are not limited to:

- Feasibility and potential impacts and mitigation for trenchless crossings¹⁹⁵
- Potential hydrologic hazards at Suneva Lake¹⁹⁶
- Engineering and construction information about the Mainline Pipeline¹⁹⁷
- Accurate construction schedule (and construction emission calculations that reflect the revised construction schedule)¹⁹⁸
- A comprehensive table of waterbodies that would be crossed or affected by all of the Project components¹⁹⁹
- Fish surveys for waterbodies where fish survey data are not available within 290 feet of pipeline crossing locations and documenting Anadromous Waters Catalogue streams, essential fish habitat, and waterbodies with anadromous fish, including Pacific salmon species²⁰⁰
- site-specific waterbody crossing plans and proposed mitigation measures that address, as applicable, channel diversion and aerial span crossings as well as navigational issues for major waterbody crossings²⁰¹
- Acreages of designated critical habitat for polar bears that would be affected by Project facilities²⁰²
- Annual emission calculations for operation of the Liquefaction Facilities to reflect the anticipated maximum (360) and average (252) number of LNG carriers and support vessels²⁰³
- Essential fish habitat, and waterbodies with Pacific salmon species identified during the fish surveys.
- An analysis of the potential hydrologic hazards and how the Mainline Pipeline would be engineered and constructed (i.e., using deep burial, channel protection, heavy wall pipe, etc.) in the area through Suneva Canyon²⁰⁴
- A revised directional micro-tunneling (DMT) plan that addresses potential impacts and mitigation specific to each DMT crossing²⁰⁵

CO25-54

¹⁹⁴ 40 C.F.R. § 1502.22(b).

¹⁹⁵ DEIS at 5-51.

¹⁹⁶ *Id.* at 5-50.

¹⁹⁷ *See, e.g., id.* at 5-11 (AGDC must provide a complete technical analysis of pipeline integrity threats).

¹⁹⁸ *Id.* at 5-37.

¹⁹⁹ *Id.* at 5-7.

²⁰⁰ *Id.* at 5-23.

²⁰¹ *Id.* at 5-8.

²⁰² *Id.* at 4-473.

²⁰³ *Id.* at 5-23.

²⁰⁴ *Id.* at 5-3.

²⁰⁵ *Id.* at 5-3.

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- A final Revegetation Plan²⁰⁶
- Accurate wetlands data²⁰⁷
- Accurate shutdown zones for levels A and B harassment²⁰⁸
- The magnitude of subsistence impacts²⁰⁹

CO26-54

Without this information, it is impossible for the public to provide adequate comments on the DEIS. In addition, FERC is unable to adequately analyze the impacts of the proposed project, weigh the alternatives, and assess the degree to which mitigation measures would reduce impacts. In short, the DEIS fails to make the required findings that would justify proceeding without the missing information under NEPA, the ESA, the MMPA, CWA, CAA and other federal requirements. FERC must either require this information be provided or address the regulatory criteria in explaining why the information need not be included.

CLIMATE CHANGE

Global warming is the most pressing environmental problems of our time, and nowhere are its effects more visible than in Alaska. Every year, the project would emit more than 2 million metric tons of CO₂ equivalent during construction and 16 million metric tons of CO₂ equivalent during operations.²¹⁰ It will also enable production of substantial additional CO₂ equivalent gas that would otherwise stay in the ground, resulting in extensive indirect emissions. Its design will have to anticipate—and its effects would likely be exacerbated by—a shifting climate. It is therefore imperative that the FEIS thoroughly discuss both (I) the project’s contribution to climate change, including the downstream emissions from combustion of gas transported by the pipeline, and (II) the ways in which climate change could alter the project’s other impacts.

CO26-55

CO26-55 See the response to comment CO24-2.

NEPA requires agencies to discuss cumulative impacts, i.e., “the incremental impact[s] of the action when added to other past, present, and reasonably foreseeable future actions.”²¹¹ “Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”²¹² Climate impacts fit this description well because they are caused by the incremental additions of greenhouse gases to the atmosphere from numerous sources.²¹³ An EIS must therefore address the

²⁰⁶ See, e.g., DEIS, Appendix D for FERC requirements regarding revegetation plan.

²⁰⁷ DEIS at 5-14.

²⁰⁸ *Id.* at 5-54 to 55.

²⁰⁹ *Id.* at 4-715.

²¹⁰ *Id.* at 4-897 to 4-903.

²¹¹ 40 C.F.R. § 1508.7.

²¹² *Id.*

²¹³ See *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216-17 (9th Cir. 2008) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”).

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proposed action’s and alternatives’ contribution to climate change.²¹⁴ Rather than predicting particular effects, however, an agency may use projected greenhouse gas emissions as a proxy. Doing so allows agencies to present a meaningful evaluation of impacts and to facilitate a reasoned choice among alternatives, including no action.

CO26-55

1. The DEIS does not fully assess the proposed action’s contribution to climate change.

a. The project’s emissions

CO26-56

NEPA requires that agencies discuss not only a proposed action’s environmental effects, but also their significance.²¹⁵ FERC declines to address the significance of the project’s effects on climate change, explaining “there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to the Project’s incremental contribution to GHGs” and without such a method, the agency is “not able to assess potential GHG-related impacts attributable to this Project.”²¹⁶ FERC also asserts that it was not “able to find any GHG emission reduction goals established either at the federal level or by the State of Alaska.”²¹⁷ Without either of these points of comparison, the Commission claims that it is “unable to determine the significance of the Project’s contribution to climate change.”²¹⁸ The DEIS also concludes, “because we cannot assess the Project’s incremental physical impacts due to climate change, we cannot determine whether the Project’s contribution to cumulative impacts on climate change would be significant.”²¹⁹

Based on the information that AGDC has provided so far, the project will result in more than 2 million metric tons of CO₂ equivalent per year during construction and 16 million metric tons of CO₂ equivalent per year during operations.²²⁰ FERC may use applicable federal, state, tribal, or local goals for greenhouse gas emissions reductions as a frame of reference to assess the significance of these emissions. For example, the Climate Action for Alaska Leadership Team recommends that the state reduce oil, gas, and mining industry greenhouse gas emissions in Alaska by 30% (over 2005 levels) by 2030.²²¹ Alternatively, the Mitigation Advisory Group of the Governor’s Climate Change Sub-Cabinet developed a series of recommendations, which, if implemented, would

CO26-56

See the response to comment CO24-2.

²¹⁴ *Id.* at 1217.

²¹⁵ *See* 40 C.F.R. § 1502.16(a), (b).

²¹⁶ DEIS at 4-1162.

²¹⁷ *Id.*

²¹⁸ *Id.* at 4-1162.

²¹⁹ *Id.* at 5-43.

²²⁰ *See* DEIS, Sec. 4.15 & 4-897 to 4-903.

²²¹ Climate Action for Alaska Leadership Team, *Alaska Climate Change Action Plan Recommendations to the Governor* at 20 (Sept. 2018), https://inletkeeper.org/wp-content/uploads/2019/01/Ak_Climate_Action_Plan_brochure_final_web.pdf.

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reduce statewide emissions of greenhouse gases by 11.7 million metric tons in 2025.²²² The FEIS should use a benchmark such as one of these to put the GHG impacts of the project in context.²²³

CO26-56

Another approach to assessing the significance of climate impacts is using the social cost of carbon. Developed by a federal interagency working group, the social cost of carbon is an estimate of the monetized damages from an incremental increase in carbon emissions in a given year, which includes—but is not limited to—climate-related changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services.²²⁴

CO26-57

CO26-57 See the response to comment CO24-3.

Because the DEIS considers the economic benefits of the proposed action, it must also consider the social costs of its carbon emissions. Although NEPA does not require a cost-benefit analysis, where an agency chooses to quantify the economic advantages of the proposed action, it is arbitrary to ignore the social cost of carbon emissions.²²⁵ The DEIS notes that “In total, AGDC expects to make about \$7.1 billion of materials and services purchases in the state throughout the entire construction period,” and states that these funds “would generate additional positive indirect and induced economic benefits.”²²⁶ The DEIS also provides estimated annual payroll expenses for building the proposed project.²²⁷ The DEIS also asserts, “The Project would result in positive impacts on the state and local economies.”²²⁸ Given that expected damages from each ton of carbon dioxide emitted are available in the form of the social cost of carbon, and that the

²²² See Alaska Climate Change Strategy’s Mitigation Advisory Group, *Final Report: Greenhouse Gas Inventory and Forecast and Policy Recommendations Addressing Greenhouse Gas Reduction in Alaska* at 1-9 to 1-10, Tbl. 1-1 (Aug. 2009).

²²³ See *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 77 (D.D.C. 2019) (stating that agency must place those emissions in the context of local and regional oil and gas consumption). Although Exec. Order. No. 13,783 § 5(b), 82 Fed. Reg. 16,093 (Mar. 28, 2017), withdrew the support documents, the social cost of carbon remains the best available generally accepted method for assessing these impacts, pursuant to 40 C.F.R. 1502.22(b). See concurrently filed comments of the Institute for Policy Integrity *et al.*

²²⁴ Interagency Working Group on Social Cost of Greenhouse Gases, U.S. Government, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 at 3 (Aug. 2016);

²²⁵ *Mont. Envtl. Info. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1097-99 (D. Mont. 2017); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014) (noting that the agency had estimated the revenues, royalties, payroll, and local payment for goods and services that would be forgone under the no-action alternative but failed to account for the costs of carbon emissions).

²²⁶ DEIS at 4-602.

²²⁷ *Id.* at 4-607. See also *id.* at 4-609 for wage and salary costs; *id.* at 4-611 (noting “Year 4 would create about 2,580 positions and generate about \$716 million in annual wages and salaries”).

²²⁸ *Id.* at ES-7.

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operations could emit 16 million metric tons of CO₂ equivalent annually, the FEIS should monetize the project’s potential climate-related harms. CO26-57

The DEIS’s quantification of annual GHG emissions are incorrect. The DEIS quantifies annual GHG emissions for the construction of the GTP,²²⁹ the PTTL,²³⁰ the PBTL,²³¹ the mainline pipe and associated facilities,²³² and the LNG facilities.²³³ Yet, as FERC acknowledges, these estimates are not consistent with the information in the revised project schedule submitted by AGDC on November 6, 2018.²³⁴ It is arbitrary and misleading for FERC to provide these incorrect estimates, and the FEIS must provide complete and accurate estimates for all GHG emissions associated with construction of the pipeline. CO26-58

The DEIS also quantifies annual GHGs during operations for the GTP,²³⁵ the PTTL,²³⁶ and the PBTL.²³⁷ In addition, for the mainline and facilities, the DEIS calculates the GHGs for the compressor²³⁸ and heater stations,²³⁹ the main gas pipeline,²⁴⁰ and LNG operations.²⁴¹ However, with respect to LNG operations, the estimated GHGs (and other air pollutants) are based on the minimum estimate of 204 LNG carriers per year.²⁴² These estimates are therefore inaccurate, and it is misleading for FERC to include these estimates in the DEIS. Although FERC reports the GHG emissions for these individual components, the agency fails to add them together to provide a total for GHG construction or operations emissions. Without this simple tally, the piece-meal estimates fail to provide an informative assessment of the climate impacts of the proposed project.

²²⁹ *Id.* at 4-897 (372,015 metric tons co2e).

²³⁰ *Id.* at 4-898 (30,426 metric tons co2e).

²³¹ *Id.* at 4-899 (951 metric tons co2e).

²³² *Id.* at 4-900 (1,167,437 metric tons co2e).

²³³ *Id.* at 4-901 (621,925 metric tons co2e).

²³⁴ *Id.* at 4-898 (GTP); *id.* at 4-898 (PTTL); *id.* at 4-899 (PBTL); *id.* at 4-899 (mainline pipe and facilities); *id.* at 4-901 (LNG facilities), *see also* 5-37 (conclusions and recommendations).

²³⁵ *Id.* at 4-903 (4,201,862 - 6,607,655 metric tons co2e).

²³⁶ *Id.* at 4-912 (46 metric tons co2e).

²³⁷ *Id.* at 4-912 (29 metric tons co2e).

²³⁸ *Id.* at 4-913 (Sagwon compressor (233,785 metric tons co2e)); *id.* at 4-913 (Galbraith Lake, Coldfoot, Ray River, Minto, and Healy Compressors (206,381 metric tons co2e each)); *id.* at 4-914 (Honolulu: 166,013 metric tons co2e and Rabideux Creek 191,658 metric tons co2e).

²³⁹ *Id.* at 4-915 (Theodore: 125,201 metric tons co2e).

²⁴⁰ *Id.* at 4-915 (272 metric tons co2e).

²⁴¹ *Id.* at 4-925 (3,924,351-7,863,113 metric tons co2e).

²⁴² *Id.* at 4-925, Tbl. 4.15.5-20 FN d. *See also id.* at 4-926 (recommending that ADEC provide calculations for the maximum (360) and average (252) number of LNG carriers).

CO26-58 Section 4.15.5.3 of the final EIS has been updated to address this comment.

CC-670

CO26 – Earth Justice (cont’d)

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Additionally, the DEIS disregards potential emissions from a major pipeline rupture or well blowout, or an ongoing leak,²⁴³ even though recent experience shows that natural-gas releases are not uncommon and can have major climate impacts.²⁴⁴ The FEIS should fully discuss these foreseeable emissions.

CO26-59

CO26-59

Section 4.15.5 of the final EIS provides blowdown emissions for each compressor station and the heater station. The maximum flare emissions associated with operation of the GTP and Liquefaction Facilities include annual emissions associated with facility upsets, which would be sent to flares at the GTP and Liquefaction Facilities.

FERC must also consider additional GHGs and their effects, as discussed below.

b. Indirect emissions

In addition to estimating a proposed action’s direct contributions to climate change, agencies must analyze its indirect effects.²⁴⁵ These effects include emissions that may occur as a predicate for the proposal (“upstream emissions”) or as a consequence of the proposal (“downstream emissions”).²⁴⁶ Agencies must also assess the emissions of connected actions.²⁴⁷

CO26-60

CO26-60

See the response to comment CO24-2.

“Indirect effects for the gas pipeline project include the climate consequences of both the upstream greenhouse gases emitted by the extraction and processing of the natural gas before it enters the pipeline system, and downstream greenhouse gases emitted by the combustion of the natural gas in power plants, industrial facilities, heating and cooking appliances, and other end uses.”²⁴⁸ Indeed, that gas transported in a pipeline will ultimately be burned is not merely reasonably foreseeable, it is the entire purpose of

²⁴³ *Id.* at 4-384.

²⁴⁴ E. Ponsot, *California Natural Gas Leak Just One of Thousands Across Country*, PBS (Jan. 18, 2016), <http://www.pbs.org/newshour/updates/california-natural-gas-leak-just-one-of-thousands-across-country/>; J. Warrick, *California Gas Leak Was the Worst Man-Made Greenhouse-Gas Disaster in U.S. History, Study Says*, WASH. POST (Feb. 25, 2016), <https://www.washingtonpost.com/news/energy-environment/wp/2016/02/25/california-gas-leak-was-the-worst-man-made-greenhouse-gas-disaster-in-u-s-history-study-says/>.

²⁴⁵ See 40 C.F.R. § 1508.8(b) (defining indirect effects as those that are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable”).

²⁴⁶ See e.g. *Sierra Club v. Fed. Energy Regulatory Comm’n*, 867 F.3d 1357, 1372 (D.C. Cir. 2017); *WildEarth Guardians v. BLM*, 870 F.3d 1222, 1237-38 (10th Cir. 2017); *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549-50 (8th Cir. 2003) (“Mid States”); *Montana Envt. Info. Cir.*, 274 F. Supp. 3d at 1094-99; *San Juan Citizens Alliance et al v. BLM*, 326 F.Supp.3d 1227, at 1243-44 (D. N.M. 2018); *W. Org. of Res. Councils v. BLM*, No. CV-16-21-GF-BMM, 2018 WL 1475470 at *13 (D. Mont. 2018); *Wildearth Guardians*, 368 F. Supp. 3d at 77.

²⁴⁷ See 40 C.F.R. § 1508.25 (defining connected actions as those that are “closely related and therefore should be discussed in the same impact statement”).

²⁴⁸ Institute for Policy Integrity, *Pipeline Approvals and Greenhouse Gas Emissions* at 12 (Apr. 2019).

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a gas pipeline to facilitate that outcome.²⁴⁹

CO26-60

To guide its cumulative impacts analysis, the DEIS lists projects that would be built as a result of the gas pipeline, including modification and expansion of PBU and PTU, relocation of the Kenai Spur Highway, in-state gas interconnections, and LNG carrier transits.²⁵⁰ Although the construction and operation of all of these associated projects would result in GHG emissions, FERC only acknowledges that emissions would result from the construction at PBU.²⁵¹ The FEIS must acknowledge and account for the additional GHGs from construction and operation of all of the projects that are integral to the gas pipeline.

The gas pipeline will require not only the gas that is currently produced and re-injected, but also new production at these fields and/or elsewhere,²⁵² and FERC must account for the GHGs resulting from this additional production. More significantly, the gas pipeline will also require additional development offshore, and the FEIS must quantify the GHGs from such development, as well.²⁵³ Because the agency considers access to new supply sources to be a benefit of the project, it would be arbitrary for FERC to disregard the GHG costs of the extraction of that gas.

CO26-61

CO26-61 See the response to comment CO24-2.

FERC also fails to account for downstream GHG emissions. As an initial matter, the DEIS fails to calculate the estimated GHGs emissions that will result from combustion of the natural gas that will be transported by the pipeline. As the D.C. Circuit held in *Sierra Club v. FERC*, the “reasonably foreseeable” effects of authorizing a pipeline that will transport natural gas to power plants are that: (1) natural gas will be burned in those power plants, and (2) greenhouse gas emissions will be emitted as a result of burning the gas.²⁵⁴ Indeed, these effects are not only “reasonably foreseeable,” but transporting and burning natural gas is generally the entire purpose of pipeline construction or expansion.²⁵⁵ Moreover, in this case, as the DEIS acknowledges,²⁵⁶ much of the gas transported by the proposed pipeline will not be commercialized and sold

CO26-62

CO26-62 See the response to comment CO24-2.

²⁴⁹ See *Sierra Club v. Fed. Energy Regulatory Comm’n*, 867 F.3d 1357, 1372 (D.C. Circ. 2017).

²⁵⁰ DEIS at 4-1108.

²⁵¹ *Id.* at 4-1111.

²⁵² *Id.* at 4-1109 (three new production wells and one injection well at PTU); *id.* at 4-1111 (ten new production and injection wells at PBU).

²⁵³ See *supra* p. 27.

²⁵⁴ *Sierra Club*, 867 F.3d at 1371–74.

²⁵⁵ *Id.* at 1372. It is unnecessary for FERC to identify the specific end uses of the natural gas, because nearly all of the U.S. natural gas supply is used for combustion and therefore releases emissions. See, e.g., U.S. Energy Info. Admin., *About 7% of Fossil Fuels are Consumed for Non-Combustion Use in the United States*, Today in Energy (April 6, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=35672> (“Relatively small amounts of natural gas are consumed for non-combustion use in the industrial sector”).

²⁵⁶ DEIS at 3-2.

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unless the pipeline is constructed.

CO26-62

FERC should also calculate the increased demand and resulting emissions that could result from the construction of the pipeline. For example, the DEIS notes that the availability of gas to in-state users could “induce development of certain natural-gas-intensive industrial uses, such as fertilizer production,” but mentions only the increase in jobs and population that would result from these industries, and not the additional GHG emissions.²⁵⁷

The DEIS fails to identify airplanes as an emission source for the construction of the GTP,²⁵⁸ and transmission lines from Point Thomson and Prudhoe Bay.²⁵⁹ The emissions from air support activities must also be quantified.²⁶⁰ Similarly, for operations, the DEIS states, “Additional air emissions would be generated by employees traveling to and from Project facilities and from maintenance activities for the Project. Operational emissions would be generated from a variety of sources and equipment, and would be long term and permanent.”²⁶¹ The FEIS must quantify these impacts.

CO26-63

CO26-63

See the updates to section 4.15.4 of the final EIS.

In addition, the DEIS fails to recognize or calculate GHGs and other air emissions from bulk carriers traveling to their ultimate destination. The agency’s failure to quantify all of these emissions renders the analysis inadequate.²⁶²

CO26-64

CO26-64

LNG carrier emissions are quantified in table 4.15.5-20 of the final EIS as part of the operating air emissions associated with the Liquefaction Facilities. Because the destination of LNG carriers departing the Liquefaction Facilities is unknown, an analysis of associated emissions would be speculative.

Finally, the FEIS should acknowledge that the use of these GHGs is an irreversible and irretrievable commitment of resources, especially in light of the planet’s finite capacity for GHGs while still maintaining a habitable environment.

CO26-65

CO26-65

Section 4.19.4.18 of the final EIS discusses potential climate change impacts associated with the Project.

2. The DEIS fails to disclose the emissions of the alternatives and explore options that would decrease emissions.

Under NEPA, agencies must “rigorously explore and objectively evaluate all reasonable alternatives,” giving each of them “full and meaningful consideration.”²⁶³ This should include alternatives with different levels of greenhouse gas emissions and should address mitigation and the use of renewable energy. If an agency ignores an alternative that is reasonably related to the project’s purpose, its NEPA analysis may be held invalid.²⁶⁴

CO26-66

CO26-66

Most of the alternatives identified in the final EIS as reasonable and practicable (e.g., pipeline route and liquefaction site alternatives) would have identical or nearly identical climate change impacts. The example alternatives identified in the comment lack specificity and would not meet the purpose and need of the Project. The No Action Alternative is discussed in section 3.1 of the final EIS.

The FEIS must present greenhouse gas emissions under all the alternatives and

²⁵⁷ DEIS at 4-1114.

²⁵⁸ *Id.* at 4-897.

²⁵⁹ *Id.* at 4-898.

²⁶⁰ *See id.* at 4-329 (mentioning air transportation to Project sites).

²⁶¹ *Id.* at 4-902.

²⁶² *See WildEarth Guardians*, 368 F. Supp. 3d at, 76.

²⁶³ *Ctr. for Biological Diversity*, 538 F.3d at 1217 (internal quotation marks and citations omitted).

²⁶⁴ *Ctr. for Biological Diversity*, 538 F.3d at 1219.

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assess the difference in climate impacts among those alternatives. Any change in upstream and downstream greenhouse gas emissions can and should be evaluated for each of the various reasonable alternatives (including the proposed project, a project with reduced capacity, a project with conditions such as operational limits, a non-pipeline export alternative, and the no action alternative).

CO26-66

As discussed above, FERC assumes that if the no action alternative is selected, “AGDC or other applicants would likely develop a new project to transport gas from the North Slope for export and in-state delivery,” for which the “environmental impacts would likely be comparable,” and therefore, “the no action alternative provides no significant environmental advantage over the Project.”²⁶⁵ This assumption is unfounded, including insofar as it is an attempt to answer whether GHG emissions would be less under the no action alternative.²⁶⁶

CO26-67

CO26-67

Section 3.1 of the final EIS provides the basis for our assumption that in the absence of the current proposal by AGDC, alternative projects would be proposed to meet the Project’s objectives, if the market dictates.

Further, FERC eliminated from consideration, without a satisfactory explanation, options that would have reduced the project’s climate impacts. For example, it rejected electric-driven compressors as an alternative to gas-fired, explaining that the electricity would likely be generated by older coal and oil fired power plants, which emit more pollutants.²⁶⁷ Furthermore, FERC asserts that even if the power plants were converted, “energy losses during electricity transmission from the power plant to the compressor stations would require more power to be generated relative to on-site gas-fired turbines, with associated air quality impacts” and the transmission lines would create additional habitat disturbance.²⁶⁸ Yet the agency fails to assess whether the gains in reduced GHG emissions might outweigh the energy loss and habitat disturbance caused by using transmission lines. In addition, the assumption that electricity would be generated by coal- and oil-fired power plants is incongruous with one of the primary purposes of the project, which is to develop natural gas in Alaska.

CO26-68

CO26-68

Comment noted.

Under NEPA, agencies must discuss “[e]nergy requirements and conservation potential of various alternatives and mitigation measures,”²⁶⁹ and this discussion is required even where a particular technique offers only a partial solution to the problem.²⁷⁰ By disregarding options and design features that would reduce the project’s greenhouse gas emissions, FERC violates NEPA’s command to consider reasonable alternatives.

²⁶⁵ DEIS at 5-43; *see also id.* at 3-2 to 3-3.

²⁶⁶ *See WildEarth Guardians v. BLM*, 870 F.3d at 1237-38 (rejecting BLM’s argument of perfect substitution).

²⁶⁷ DEIS at 3-30.

²⁶⁸ *Id.*

²⁶⁹ 40 C.F.R. § 1502.16(e).

²⁷⁰ *See Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 235 F. Supp. 2d 1143, 1154-55 (W.D. Wash. 2002) (citing *Nat. Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 836 (D.C. Cir. 1972)).

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3. The DEIS does not explain how climate change would alter the project’s impacts.

NEPA requires that an EIS describe the environment that would be affected by the proposed action.²⁷¹ This necessarily includes reasonably foreseeable changes in the environment that will result from climate change without the proposed action. Depending on anticipated conditions, full NEPA review may disclose climate-related hazards and thus reveal more resilient alternatives that should be considered. In addition, communities and ecosystems that are already experiencing climate-related stresses may be more susceptible to environmental harms. FERC must therefore explain how climate change could exacerbate the project’s impacts.

- a. The DEIS disregards or downplays climate-related hazards.

The DEIS acknowledges the projected climate change impacts in the project area, including increasing annual average temperatures, increased annual precipitation, sea ice loss, and ocean acidification.²⁷² Despite acknowledging how the climate will change over the lifetime of the project, the DEIS fails to adequately assess the potential impacts of these changes on the project’s infrastructure.

The DEIS asserts, “AGDC has incorporated the potential effects of climate change on the GTP into the Project design,” identifying GHG emissions from the use of waste heat recovery units at the GTP to increase efficiency on combustion turbines.²⁷³ While this measure may result in a slight reduction of GHG emissions, it does not incorporate the potential effects of climate change into the project design.

The DEIS acknowledges that although AGDC’s analysis considered the effects of long-term permafrost degradation due to pipeline construction and operation, it did not consider the effects of climate change.²⁷⁴ The DEIS also notes that both Project and climate change induced permafrost thaw could result in changes to aquifers and vegetation composition.²⁷⁵

Yet the DEIS fails to assess the potential impacts of the project in light of AGDC’s failure to incorporate these concerns into various aspects of the project design. The agency’s request for some information about these impacts prior to construction defeats the purpose of NEPA.²⁷⁶

²⁷¹ See 40 C.F.R. § 1502.15.

²⁷² DEIS at 4-1161.

²⁷³ *Id.* at 4-911.

²⁷⁴ *Id.* at 4-42.

²⁷⁵ *Id.* at 4-101.

²⁷⁶ *Id.* at 4-1102 (requesting design specifications informed by, inter alia, permafrost degradation due to climate change).

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Section 4.19.4.18 of the final EIS describes components of the Project design that considered potential future effects of climate change, including accommodation of future sea level changes, coastal erosion near Project facilities, and temperature increases.

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In addition, FERC explains that AGDC’s modeling of the effects of climate warming on permafrost degradation is based on overly optimistic assumptions about the length of time it will take for gravel pads and cleared rights-of-way to re-vegetate. Yet the DEIS fails to analyze the potential impacts in light of more realistic assumptions.²⁷⁷

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b. The DEIS does not adequately discuss how climate change could render the environment more susceptible to the project’s impacts.

As an initial matter, the DEIS is almost entirely devoid of any discussion about how climate change has already affected the baseline conditions. Any discussion of the project’s impacts that does not recognize this already dramatically altered baseline is incomplete.

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Although the draft BA provides passing references to the impacts of climate change on federally listed species,²⁷⁸ these brief statements do not sufficiently describe the extent and significance of climate change stressors on the environment. In considering climate change, the agencies must consider the additive harm that is anticipated from climate change, based on the best available scientific information, in addition to the proposed project, and how climate change will increase the chances of an event that would be catastrophic for the survival of any of the affected listed species.²⁷⁹

For example, the BA simply identifies climate change as one of the threats to Cook Inlet beluga whales, without providing any additional analysis or explanation.²⁸⁰ Cook Inlet beluga whales may be particularly vulnerable to climate-induced habitat alteration²⁸¹ and reduction of their prey base.²⁸² This population of belugas relies largely

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As discussed in section 7.4.1 of the Biological Assessment, which is provided as appendix O of the final EIS, we recognize that climate change poses a threat to the Cook Inlet beluga whale and is therefore part of the baseline condition experienced by the species.

²⁷⁷ *Id.* at 4-97.

²⁷⁸ *See, e.g.*, DEIS App. O at O-47 (noting threat of climate change to spectacled eiders), *id.* at O-100 (noting climate change threats to beluga whale); *id.* at O-72 (noting climate change threats to polar bear).

²⁷⁹ *Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 184 F. Supp. 3d 861, 874 (D. Or. 2016).

²⁸⁰ DEIS, App. O at O-100.

²⁸¹ In addition to the impacts on prey base, increased siltation in Cook Inlet as a result of faster glacier melt and runoff has the potential to result directly in habitat loss or alteration for Cook Inlet beluga whales. University of Alaska, Fairbanks, Center for Global Climate Change and Arctic System Research, *The Potential Consequences of Climate Variability and Change— Alaska* (Dec. 1999), <http://www.besis.uaf.edu/regional-report/regional-report.html>.

²⁸² Increasing ocean acidification is also likely to impact coastal Alaskan fish populations and ultimately the marine mammals that depend on them, including Cook Inlet beluga whales. Ocean acidification is occurring more rapidly in the coastal and pelagic waters of Alaska than in tropical climates, and is likely to result in a decrease in abundance of pteropods and other shelled planktonic species, which are unable to grow as rapidly in

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on Pacific salmon (*Oncorhynchus* spp.) runs in Cook Inlet, yet these runs are threatened by increasing water temperatures both in marine waters of Alaska and freshwater spawning habitat.²⁸³ Water temperature is known to have a strong effect on the abundance and health of anadromous fish populations, with warmer than usual temperatures associated with increases in disease, depressed oxygen levels, reduced growth and reduced survival.²⁸⁴ The FEIS must include a thorough analysis of how climate change has already affected the environment.

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In addition, the analysis of how climate change makes the environment more susceptible to impacts from the project is inadequate. Without a more complete picture of the effects of climate change on the affected environment, it is impossible for FERC and the public to evaluate the consequences of the proposed action.²⁸⁵

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See the response to comment FA1-71 and CO21-13. Also see sections 4.2.5.2, 4.5.4, and 4.19.4.19 of the final EIS.

For example, the DEIS notes that because “AGDC does not plan to segregate the organic layer along the pipeline right-of-way, soil fertility, the native seed bank, and BSCs associated with the organic layer would be lost or diminished.”²⁸⁶ Yet the DEIS fails to acknowledge the climate impacts of soil degradation.

In some cases, FERC acknowledges that impacts of the project can exacerbate climate impacts, but the agency fails to assess the significance of these synergistic impacts.²⁸⁷ For example, the DEIS states that, “Over the life of the Project, AGDC anticipates that impacts on permafrost thawing from Project operation and climate change would be similar to those that have occurred on TAPS.”²⁸⁸ This statement provides no context as to the significance of these effects. In addition, the assumption that climate change impacts to date will be similar to those in the future is unfounded, given the exponential increases in carbon emissions since the construction of TAPs.

acidic waters. V.J. Fabry *et al.*, *Impacts of Ocean Acidification on Marine Fauna and Ecosystems Processes*, ICES J. MAR. SCI. 65: 414-432 (2008). These species represent an important food source for pink salmon and other species; given the short life cycle of salmon, prey quality and availability during the juvenile stage strongly affect salmon biomass and abundance. K.Y. Aydin *et al.*, *Linking Oceanic Food Webs to Coastal Production and Growth Rates to Pacific Salmon (*Oncorhynchus* spp.)*, *Using Models on Three Scales*, DEEP SEA RES. II 52: 757-780 (2005) (Studies estimate that a 10% reduction in pteropods could result in a 20% decrease in the weight of adult salmon.)

²⁸³ See generally R. E. Kyle and T. P. Brabets, *Water Temperature of Streams in the Cook Inlet Basin, Alaska, and Implications of Climate Change* (2001).

²⁸⁴ See, e.g., *id.*

²⁸⁵ See 40 C.F.R. § 1502.15 (requiring agencies to include in an EIS a description of the affected environment sufficient to understand the effects of the alternatives).

²⁸⁶ DEIS at 4-255 to 256.

²⁸⁷ See, e.g., *id.* at 4-69 (noting impacts of vegetation and snow cover on rate of permafrost degradation); *id.* at 4-229 (noting impacts of granular fill on capacity of wetland to sequester carbon).

²⁸⁸ *Id.* at 4-104.

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CONCLUSION

For the reasons described above, the DEIS is seriously deficient and FERC should suspend the permitting process until AGDC submits the necessary information to allow sufficient review. Should FERC decide to continue the permitting process, however, the agency must prepare a supplemental DEIS to remedy the deficiencies and allow public comment on the supplemental draft before finalizing the NEPA review. In the absence of a supplemental EIS, the agency's only lawful choice is the no action alternative.

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