BEFORE THE UNITED STATES DEPARTMENT OF THE INTERIOR

PETITION TO COMPLETE A SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE TRANS-ALASKA PIPELINE SYSTEM & PLAN FOR DISMANTLEMENT, REMOVAL, & RESTORATION

Submitted By

Center for Biological Diversity, Pacific Environment, Sovereign Iñupiat for a Living Arctic, Alaska Community Action on Toxics, Fairbanks Climate Action Coalition, and Public Employees for Environmental Responsibility

Filed With

DEBRA HAALAND, in her official capacity as Secretary,
United States Department of the Interior

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PETITION SUMMARY

The Trans-Alaska Pipeline System (TAPS), first authorized by Congress in 1974, is approaching the end of its useful life due to mounting climate change-driven damages to both the aging pipeline infrastructure and the entire Arctic ecosystem, as well as the imperative for the United States to rapidly transition away from fossil fuel-based energy. While the current 30-year pipeline right of way (ROW) granted by the Bureau of Land Management (BLM) expires in 2034 and a new environmental analysis is anticipated around that time, the current circumstances along with abundant new information demand an earlier environmental review of TAPS. Therefore, this petition seeks the immediate initiation and completion of a new supplemental environmental impact statement (SEIS) for TAPS. Moreover, because the only rational conclusion of that analysis will be a managed phasedown of the pipeline, drafting an updated Dismantlement, Removal, and Restoration (DR&R) plan should also promptly commence. Avoiding the most severe harms from climate change requires immediate action to halt any new fossil fuel development and begin a rapid transition towards more sustainable energy sources, especially in the Arctic. We simply cannot afford a decade more of TAPS operations without any comprehensive analysis of its ongoing, harmful impacts and the need to implement fundamental changes towards a phasedown.

INTRODUCTION

Alaska is among the fastest warming regions on the planet, warming faster than any other state and two to three times faster than the global average. The temperature on Alaska's North Slope is already 6.2°F (3.4°C) warmer than fifty years ago, with projections for an additional 8.1°F (4.5°C) of warming statewide by the end of the century. Because of the changing climate, both people and the environment are suffering. Loss of sea ice, thawing permafrost, and other climate-driven changes in Alaska are transforming ecosystems, disrupting cultural practices, harming fisheries and other livelihoods, exacerbating health disparities, and placing infrastructure at risk.

The Biden administration has recognized the need to reduce the United States' greenhouse gas emissions to protect against climate change.[1] The science is clear that fossil fuels are the primary driver of the climate emergency and must be phased out to stem the climate crisis. To limit the rise in temperature to 1.5°C (2.7°F), studies have shown that governments must immediately halt approvals of new fossil fuel production and infrastructure projects and phase out existing projects.[2] The United States' responsibility for phasing out extraction is especially great. In

[1] *See, e.g.*, Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (January 27, 2021).
[2] *See* IPCC, Climate Change 2023: Synthesis Report, A Report of the Intergovernmental Panel on Climate Change at 20, 28, 58, 86, 95 (2023) https://www.ipcc.ch/report/sixth-assessment-report-cycle; *see also* International Institute for Sustainable Development (IISD), Navigating Energy Transitions: Mapping the road to 1.5°C at iv-v, 16-18 (2022), https://www.iisd.org/publications/report/navigating-energy-transitions; *see also* International Energy Agency (IEA), Net Zero By 2050: A Roadmap for the Global Energy Sector at 21, 101, 102, 152, 160 (2021) https://www.iea.org/reports/net-zero-by-2050.

addition to being the biggest emitter of greenhouse gases in history, the United States is currently the largest oil-producing country in the world.[3]

Much of the United States' oil production takes place on the North Slope of the Brooks Range in the Alaskan Arctic. This production is facilitated by TAPS, which runs from Prudhoe Bay to Port Valdez on the Prince William Sound. This 800-mile pipeline has been transporting oil from Alaska's North Slope since 1977, delivering more than 18 billion barrels of crude so far.[4] After crossing the state of Alaska in the pipeline, much of the oil is shipped by oil tankers to refineries along the west coast of the United States and around the world. The 11 million gallons of oil spilled in the 1989 *Exxon Valdez* disaster transited TAPS before it spilled into the Prince William Sound.

The Trans Alaska Pipeline System Authorization Act authorized the issuance of the original ROW for TAPS in 1974. Because the Mineral Leasing Act of 1920 limits ROWs to thirty-year terms, the ROW was set for expiry in 2004. In 2003, however, BLM renewed the ROW for another thirty-year term that will expire January 22, 2034. Before granting the 2003 renewal, BLM undertook an analysis under the National Environmental Policy Act (NEPA) to study the environmental effects of the pipeline's continued operation. BLM issued the results of that analysis—a Final Environmental Impact Statement—in 2002 (2002 FEIS).

Since then, a myriad of new information demonstrates that the 2002 FEIS is woefully outdated and triggers BLM's legal obligation to issue an SEIS. For example, an international scientific consensus has established that governments must stop approving new fossil fuel extraction and infrastructure and phase out existing fossil fuel development to limit temperature rise to 1.5°C and prevent catastrophic climate harms (see Appendix A for a detailed summary of the need for a rapid fossil fuel phaseout). Furthermore, conditions in Alaska (and our understanding of them) have changed dramatically since BLM produced the 2002 FEIS. In the intervening twenty-two years, the Arctic has rapidly warmed causing harms across Alaska and beyond, thawing permafrost has caused first-of-its-kind damage to TAPS, and new species have been listed under the Endangered Species Act (see Appendix B for a detailed summary of new information). These developments constitute new information that BLM has a continuing duty under NEPA to consider (see Appendix C for a detailed summary of the legal facts regarding BLM's obligation to produce a new SEIS).

As BLM conducts a new NEPA analysis of TAPS, BLM must also begin to plan for the necessary decommissioning of the pipeline and phasedown of the fossil fuel extraction the pipeline enables. The continued operation of TAPS not only exacerbates the climate crisis, but its

[3] *See* Hannah Ritchie, Who has contributed most to global CO2 emissions? (2019) https://ourworldindata.org/contributed-most-global-co2; *see also* U.S. Energy Information Administration, Which countries are the top producers and consumers of oil? (as of April, 11, 2024) https://www.eia.gov/tools/faqs/faq.php?id=709&t=6.

[4] Alyeska Pipeline Service Co., Trans Alaska Pipeline System (TAPS), https://www.alyeska-pipe.com/trans-alaska-pipeline-system-taps-overview (updated Feb. 2022).

integrity is severely threatened by thawing permafrost and it is approaching the end of its life. Moreover, oil spills and leaks are inevitable for all pipelines and there is no certain way to fully remove or clean up oil spilled on lands and waters. Moreover, if BLM does not promptly initiate phasedown planning, the opportunity to support a just and sustainable transition for North Slope communities away from a dependence on an oil extraction-driven economy will become more and more difficult. The need to begin to address this transition, including meaningful consultation with impacted communities, is too urgent to wait for the 2034 expiry of the current federal ROW grant. Consultation and public participation processes must be accessible and occur as early as possible to allow rural and Tribal communities the opportunity to fully engage. The SEIS process mandated by new information is the perfect opportunity to begin this planning now.

BLM and the Secretary of the Interior have significant authority over TAPS's ROW and its operations. The Trans Alaska Pipeline System Authorization Act and the Federal Land Policy and Management Act provide robust jurisdiction to phasedown TAPS and to require measures to mitigate its impacts to the environment and human health. BLM and Secretary Haaland must recognize this authority and, through the new SEIS process mandated by new information and changed circumstances, exercise control over TAPS to address the local, national, and global climate crisis and prepare for the pipeline's phasedown.

PETITIONED ACTION

Pursuant to the right to petition the government provided in the First Amendment to the U.S. Constitution,[5] and the Administrative Procedure Act,[6] the above listed organizations hereby petition the Secretary of the Interior and BLM to:

1) Immediately initiate scoping for supplemental environmental review of the TAPS;
2) Complete a supplemental environmental impact statement for TAPS with meaningful alternatives and mitigation measures; and,
3) Draft a plan for the dismantlement and removal of TAPS, and the restoration of the right of way.

These actions are necessary to comply with BLM's continuing duties under NEPA and to protect the public interest in avoiding the worst damages from climate change. BLM and the Secretary must promptly respond to this petition.[7]

[5] U.S. Const. amend. I; *see also United Mine Workers v. Ill. State Bar Ass'n*, 389 U.S. 217, 222 (1967) (explaining that the right "to petition for a redress of grievances [is] among the most precious of the liberties safeguarded by the Bill of Rights").
[6] 5 U.S.C. § 555(b).
[7] *See* 5 U.S.C. § 555(b) ("within a reasonable time, each agency shall proceed to conclude a matter presented to it").

BLM AND THE SECRETARY HAVE THE LEGAL AUTHORITY AND OBLIGATION TO GRANT THIS PETITION

Congress enacted NEPA to "promote efforts which will prevent or eliminate damage to the environment" and ensure the federal government helps to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."[8] To help achieve these goals, NEPA requires federal agencies to prepare an environmental impact statement (EIS) for any proposed action "significantly affecting the quality of the human environment."[9] In conducting such analyses, agencies must "take a hard look" at the "environmental consequences" of their actions.[10]

Compliance with NEPA "is more than a technicality; it is an extremely important statutory requirement to serve the public and the agency *before* major federal actions occur."[11] As such, agencies cannot "commit resources prejudicing selection of alternatives before making a final decision" and EISs must "serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made."[12] Ultimately, NEPA ensures that federal agencies "will have available, and will carefully consider, detailed information concerning significant environmental impacts" and that such information "will be made available to the larger [public] audience that may play a role in both the decision-making process and the implementation of the decision."[13]

An agency's NEPA obligations do not end with the preparation of an EIS. Under NEPA, agencies "[s]hall prepare" supplements to an EIS whenever "a major Federal action is incomplete or ongoing, and … [t]here are substantial new circumstances or information about the significance of adverse effects that bear on the analysis."[14] An agency "[m]ay also prepare supplements when [it] determines that the purposes of [NEPA] will be furthered by doing so."[15] As such, agencies have "a continuing duty to supplement" existing EISs.[16] "[A]n agency that has prepared an EIS cannot simply rest on the original document."[17] The agency must always "be alert to new information that may alter the results of its original environmental analysis."[18]

When "new information comes to light," the agency must "consider it, evaluate it, and make a reasoned determination" of its significance.[19] An agency must produce a supplemental EIS

[8] 42 U.S.C. §§ 4321, 4331(a)–(b).
[9] 42 U.S.C. § 4332(2)(C).
[10] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).
[11] *Found. on Econ. Trends v. Heckler*, 756 F.2d 143, 157 (D.C. Cir. 1985).
[12] 40 C.F.R. § 1502.2(f), (g) (2024). This petition cites the NEPA regulations as amended by the Council on Environmental Quality in 2024. *See* 89 Fed. Reg. 35,442 (May 1, 2024).
[13] *Robertson*, 490 U.S. at 349.
[14] 40 C.F.R. § 1502.9(d)(1)(ii).
[15] *Id.* § 1502.9(d)(2).
[16] *Idaho Sporting Cong., Inc. v. Alexander*, 222 F.3d 562, 566 n.2 (9th Cir. 2000).
[17] *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 557 (9th Cir. 2000).
[18] *Id.*
[19] *Id.* at 558.

(SEIS) "if changes, new information, or circumstances may result in significant environmental impacts in a manner not previously evaluated and considered."[20] "[S]ubstantial questions [about] whether a project may have a significant effect" is sufficient to trigger an agency's obligation to prepare an SEIS.[21]

These standards are easily met here. First, there remains a major federal action to occur given BLM's ongoing oversight of TAPS.[22] Indeed, as BLM itself has acknowledged, it "can impose new or supplementary requirements on the TAPS permittees at any time, not just at the time of ROW renewal."[23] Second, and as explained in further detail in Appendix C, a variety of new information and changed circumstances reveal that TAPS may result in significant environmental impacts that BLM has not previously considered. Specifically, BLM must conduct a SEIS analysis for TAPS because of:

1) New information regarding the threat of climate change and the role of oil extraction and burning driving it;
2) New threats to the safety and integrity of the pipeline; and
3) New endangered species listings, as well as new critical habitat designations and impacts on unlisted species.

The new SEIS must consider the proposed action's environmental impact and "any adverse environmental effects which cannot be avoided should the proposal be implemented."[24] The SEIS must consider both direct and indirect impacts, as well as cumulative effects and effects from connected and related actions; and it must consider a reasonable range of alternatives.[25]

THE ALTERNATIVES ANALYSIS IN A NEW SEIS MUST FULLY CONSIDER MEANINGFUL ALTERNATIVES AND MITIGATION MEASURES

In addition to assessing the environmental impact of renewing the TAPS ROW, the SEIS must "[r]igorously explore and objectively evaluate all reasonable alternatives" to a blanket renewal.[26] Consideration of alternatives is "the heart" of an EIS.[27] This alternatives analysis must inform the public and decisionmakers about the full suite of options available to BLM.[28] BLM has the power to implement a variety of environmental safeguards that minimize TAPS's environmental impact. Alternatives to a *carte blanche* thirty-year ROW renewal include a grant

[20] *N Idaho Cmty. Action Network v. U.S. Dep't of Transp.*, 545 F.3d 1147, 1157 (9th Cir. 2008) (internal quotation marks omitted).
[21] *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1150 (9th Cir. 1998) (emphasis in original).
[22] *See e.g.*, *Sierra Club v. Bosworth*, 465 F. Supp. 2d 931 (N.D. Cal. 2006).
[23] U.S. Department of the Interior, Final Environmental Impact Statement, Renewal of the Federal Grant for the Trans-Alaska Pipeline System Right-of-Way, November 2002 ("2002 FEIS") at ES-1.
[24] 42 U.S.C. § 4332(2)(C)(i)–(ii).
[25] *Id.*; 40 C.F.R. §§ 1501.3(b), 1508.1(i), 1502.16(1), (6).
[26] *Ctr. for Biological Diversity v. U.S. Dep't of Interior*, 623 F.3d 633, 642 (9th Cir. 2010) (citing 40 C.F.R. § 1502.14(a) (1977)).
[27] *Westlands Water Dist. v. United States DOI*, 376 F.3d 853, 865 (9th Cir. 2004).
[28] 40 C.F.R. § 1502.14.

with a shorter duration, a hard cap on, and reduction of, oil transiting the pipeline, safety measures, bonding requirements, and other policies to reduce environmental harm along the TAPS and at its origin and destination. Examining these alternatives, described in further detail below, can begin the managed phasedown of TAPS.

The options available to BLM are *robust*. BLM must not constrict its view of its legal authority to regulate—and ultimately phasedown—TAPS. The Trans Alaska Pipeline System Authorization Act authorizes BLM and the Secretary of the Interior "to amend or modify any right-of-way, permit, lease, or other authorization" "at any time when necessary to protect the public interest."[29] BLM itself has noted that "the [Trans Alaska Pipeline System Authorization Act] and Federal Grant provide that all TAPS operations (even those on state and private lands as well as federal lands) are subject to BLM systemwide oversight and decisions."[30] BLM's previous grants are no obstacle to the implementation of new conditions.

In addition, BLM also has an affirmative duty under the Federal Land Policy Management Act to "take any action necessary to prevent unnecessary or undue degradation of [public] lands."[31] The Act also requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values," and requires BLM to "take[] into account the long-term needs of future generations" in managing public lands.[32] The Act further states that each ROW "shall be limited to a reasonable term in light of all circumstances concerning the project."[33] Consistent with these statutory mandates, BLM regulations state that the agency should "direct and control the use of [ROWs] on public lands in a manner that … protects the natural resources associated with Federal lands and adjacent lands [and] [p]revents unnecessary or undue degradation to public lands."[34] Together, these statutes and regulations provide more than sufficient authority on which BLM can rely to modify TAPS's operation and begin its phasedown. BLM must be aware of these powers in assessing options in its next SEIS.

Accordingly, several alternatives described in further detail below—all reasonable and feasible—must be considered in the new SEIS.[35] "The existence of a 'viable but unexamined alternative'"

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[29] 43 U.S.C. § 1652(e).
[30] 2002 FEIS at ES-1. Nor are existing leases on BLM-managed land on the North Slope an impediment to implementing a phasedown of TAPS. The lease form states that BLM "reserves the right to specify rates of development and production in the public interest," Form AK- 3130-1, and BLM's regulations governing oil and gas activity in the National Petroleum Reserve-Alaska, state, for example, that all unit agreements must include "a provision that acknowledges BLM's authority to set or modify the quantity, rate, and location of development and production." 43 C.F.R. § 3137.21(a)(4). As such, BLM could set rates of development and production in the Reserve consistent with a phaseout of TAPS.
[31] 43 U.S.C. § 1732(b).
[32] 43 U.S.C. §§ 1701(a)(8), 1702(c).
[33] *Id.* § 1764(b).
[34] 43 C.F.R. § 2801.2(a).
[35] *City of Los Angeles v. FAA*, 63 F.4th 835, 843 (9th Cir. 2023) *(*citing *Protect Our Cmtys. Found. v. Jewell*, 825 F.3d 571, 580 (9th Cir. 2016).

would render BLM's SEIS "inadequate."[36] Therefore, BLM has an obligation to give "meaningful consideration" to each of the below alternatives, and any other feasible options that would reduce environmental harm.[37]

1. A true "no action" alternative

BLM must evaluate a no action alternative whereby the ROW would not be renewed and decommissioning would ensue. When, like here, changed circumstances require an agency to conduct a supplemental EIS, NEPA mandates that a "true no action alternative" be considered.[38] A true no action alternative is not the status quo.[39] Therefore, BLM must meaningfully consider termination of the TAPS ROW.

2. A ROW with a duration of ten years or less

BLM must evaluate issuing a ROW with a duration of ten years or less. A thirty-year ROW was selected because this is the maximum duration grant that can be issued under the Mineral Leasing Act.[40] But the wisdom behind a thirty-year grant has declined dramatically since TAPS received its original federal grant. Indeed, the congressional record shows that in enacting the Trans Alaska Pipeline System Authorization Act, Congress expected the pipeline would no longer be in operation after 25-35 years, shutting down between 2002-2012.[41] In its next EIS, BLM must consider a ROW grant of no greater than ten years.[42] Doing so reflects the present reality that pipeline safety is an increasingly acute concern. Moreover, the Arctic cannot withstand another 30 years of TAPS operation and a thirty-year renewal is incompatible with the phaseout of oil and gas production that is needed to curb climate change.

The 2002 FEIS evaluated a "Time-Dependent Alternative," wherein the ROW would be renewed for a period of less than thirty years to allow the documenting of "environmental, social, cultural, economic, or operational issues" that can arise over time.[43] But no fixed-length renewal alternative was evaluated. Instead, the 2002 FEIS alternative operated on an abstract principle

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[36] *Envtl. Def. Ctr. v. Bureau of Ocean Energy Mgmt*., 36 F.4th 850, 877 (9th Cir. 2022) (citing *Westlands Water*, 376 F.3d at 868).
[37] *Id.*
[38] *Natural Res. Def. Council v. United States Forest Serv*., 421 F.3d 797, 809, 813-14 (9th Cir 2005); *Or. Natural Res. Council Action v. United States Forest Serv.*, 445 F. Supp. 2d 1211.
[39] *Conservation Council for Hawaii v. National Marine Fisheries Service*, 97 F.Supp.3d 1210 (D. Haw. 2015).
[40] 30 U.S.C. § 185(n).
[41] U.S. House of Representatives, Committee on Interior and Insular Affairs, Oil and Natural Gas Pipeline Rights-Of-Way Hearings, Ninety-Third Congress, First Session on H.R. 9130 at 472, 634, 650, 671, 688, 691, 1282 (April 11, 18, 19, 20; May 1, 2, 1973); U.S. Senate, Committee on Interior and Insular Affairs, Rights-Of-Way Across Federal Lands: Transportation of Alaska's North Slope Oil Hearings, Ninety-Third Congress, First Session on S. 970, S. 993, S. 1565 at 160, 187, 442, 633, 635 (May 2, 3, 1973).
[42] By BP's own estimates, TAPS may be reaching end-of-life as soon as 2049. To issue the maximum renewal permitted by law without critically evaluating the duration fails to properly consider the costs and benefits of the project. *See* Alan Bailey, A TAPS bottom line, *Petroleum News* (January 15, 2012), https://www.petroleumnews.com/pntruncate/225019711.shtml.
[43] 2002 FEIS at 2-5.

that the renewal could have a shorter duration, but it failed to critically engage with a set time frame. Further, the evaluation compared the annual impacts of each alternative, rather than the cumulative impacts. Throughout all criteria it considered, the 2002 FEIS said of the less-than-thirty-year-renewal alternative: "The impacts from routine operations and the number and risk of spills *would be the same on an annual basis.*"[44] But this framing completely ignores the significantly different *cumulative* impacts between the two alternatives; a shorter duration ROW will necessarily have fewer total impacts, including spills, if annual impacts remain similar.

In its new SEIS, BLM must properly consider a shorter duration renewal, such as for a period of ten years or less. A shorter duration ROW allows for continuous re-evaluation of the landscape in which TAPS operates, continued attention to what mitigation measures are appropriate, and regular re-assessment and adjustment of a necessary TAPS phasedown plan.

3. Hard capacity limit on oil transiting through pipeline

BLM must consider hard capacity limit on oil transiting through the pipeline. TAPS facilitates the continued extraction of oil in the North Slope, leading to millions of tons of climate-warming greenhouse gas emissions that our planet cannot afford. To ensure that not only do these emissions not increase, but that North Slope oil operations begin to be phased-down, BLM should evaluate an alternative in which a hard capacity cap is placed on oil transiting the pipeline. By limiting the capacity of TAPS, the amplifying climate effects of the pipeline can be mitigated.

Further, this alternative should include prohibitions on heavy oil, at least without conducting specific analysis on the climate impacts of its extraction. Advancements in enhanced oil recovery techniques are unlocking "many billions of barrels of viscous and heavy oil" in the North Slope.[45] This deposit was previously believed to be uneconomical to extract.[46] Heavy oil is incredibly carbon intensive and has resulted in the greenhouse gas emission intensity for Alaska North Slope crude oil to increase by 25% since 2012.[47] As North Slope production operations begin to extract this deposit, it constitutes a major shift since the 2002 EIS. Changing course in this way requires that the environmental impacts of these emissions be studied before proceeding any further. [48]

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[44] 2002 FEIS at Table 2-1 (emphasis added).
[45] Trent Jacobs, First-Ever Polymer Flood in Alaska Hailed as a Heavy-Oil Breakthrough, *Journal of Petroleum Technology*, (October 14, 2022), https://jpt.spe.org/first-ever-polymer-flood-in-alaska-hailed-as-a-heavy-oil-breakthrough.
[46] U.S. Department of Energy Office of Scientific and Technical Information, First Ever Field Pilot on Alaska's North Slope to Validate the Use of Polymer Floods for Heavy Oil EOR a.k.a Alaska North Slope Field Laboratory (ANSFL) (2023) https://www.osti.gov/biblio/1916626.
[47] *See*, California Air Resources Board, Final California Crude Average Carbon Intensity Values (2012 & 2022) https://ww2.arb.ca.gov/resources/documents/lcfs-crude-oil-life-cycle-assessment.
[48] Unless and until this oil is considered in an analysis, it constitutes a change of course that is beyond the scope of existing the 2002 FEIS. In the Ninth Circuit, supplementation to an EIS is required when making changes to the federal action, unless (1) the new alternative is a "*minor variation* of one of the alternatives discussed in the draft EIS," and (2) the new alternative is "*qualitatively within the spectrum of alternatives* that were discussed in the draft

Therefore, BLM should consider an alternative where TAPS is capacity constrained and is prohibited from transiting the heavy oil deposit once believed uneconomical at the time of previous NEPA analyses.

4. Mandatory emissions reductions from extraction operations

In deciding whether to renew the TAPS ROW, BLM has significant control over the TAPS operator, Alyeska Pipeline Service Company, and therefore its oil and gas company owners. As such, BLM can require oil producers operating in the North Slope to adopt emissions controls for their operations, including requiring the reduction of methane flaring. Reducing the carbon emissions of the oil extraction operation facilitated by TAPS would greatly reduce the environmental impact of the project and should be considered as a reasonable alternative or mitigation measure. False, non-viable solutions to reduce emissions, such as Carbon Capture and Storage, should not be considered in this alternative.

Although BLM has not previously used the EIS process to secure mitigation measures for the oil field operations that TAPS enables, the environmental harms from activities at the pipeline's origin are indirect and cumulative effects of the pipeline itself and must be considered.[49] The urgency of the climate crisis, worsened by North Slope oil extraction, necessitate that these alternatives be analyzed. As the Ninth Circuit has explained: "where changed circumstances affect the factors relevant to the development and evaluation of alternatives," BLM "must account for such change in the alternatives it considers."[50] The changed circumstances evaluated at length in Appendixes A and B —climate change, endangered species impacts, and permafrost thaw, among others—require that the alternatives considered by BLM change accordingly.

5. Vessel speed reductions in the Prince William Sound

The same control that BLM has over the North Slope oil field operations exists over the operations at the TAPS terminus in Valdez. So, just as BLM may exercise its authority to control extraction activities at the origin, the agency can and should use its authority to control vessel speed in the Prince William Sound. At a minimum, those measures should be studied as a mitigation measure in the next SEIS.

As discussed in Appendix B, tankers transporting TAPS oil cause significant harm to whale populations—including listed humpback whale DPSs—in the Prince William Sound. Whether by vessel strikes or noise pollution, the operation of TAPS indirectly cases harm to whales through

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[EIS]." *Russell Country Sportsmen v. United States Forest Serv.*, 668 F.3d 1037, 1045 (9th Cir. 2011). Here, facilitating the extraction of this heavy oil deposit is a substantial change to TAPS operation that was not analyzed in the 2002 FEIS, and therefore supplementation is required.

[49] *See* 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1508.1(i) 1502.16(1), (6).

[50] *NRDC v. United States Forest Serv.*, 421 F.3d 797, 813–14 (9th Cir. 2005).

oil tankers.[51] One way to drastically reduce the frequency and threat of vessel strikes and noise pollution is to reduce the speed of vessels.[52] Speed reduction has worked to mitigate harm in other water bodies, and it would do the same in and around the Prince William Sound.[53] Additionally, slower tanker vessel speed can substantially reduce greenhouse gas emissions.[54]

That vessel speed is "not within the jurisdiction of" BLM is a legally insufficient reason to reject consideration of an alternative.[55] As courts have made clear, "[a]n agency's refusal to consider an alternative that would require some action beyond that of its congressional authorization is counter to NEPA's intent to provide options for both agencies and Congress."[56] Because vessel speed reductions are a reasonable and feasible mitigation measure for the indirect environmental effects of TAPS's operation, they should be analyzed in the next SEIS.[57]

6. Required pipeline safety measures

BLM must proactively analyze measures necessary to maintain safe operation of TAPS. Permafrost thaw has already damaged the pipeline supports in a way thought impossible in the 2002 FEIS.[58] Remedying that damage involved a novel use of thermosyphons to maintain permafrost far from the pipeline ROW.[59] This type of environmental intervention needs to be evaluated wholesale as an alternative to the existing project.[60] Using infrastructure to (attempt to) artificially maintain the permafrost far outside the ROW has a significantly larger environmental impact than previously contemplated thermosyphon uses. Continued application of this intervention must be fully studied.

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[51] *Humpback Whale (*Megaptera novaeangliae kuzira*): Mexico-North Pacific Stock Definition And Geographic Range*, NOAA Fisheries (2022), https://www.fisheries.noaa.gov/s3/2023-08/Humpback-Whale-MNP-2022.pdf, at 261.

[52] Conn, P. B., and G. K. Silber. 2013. "Vessel Speed Restrictions Reduce Risk of Collision-related Mortality for North Atlantic Right Whales." Ecosphere. Wiley. https://doi.org/10.1890/es13-00004.1.

[53] *See, e.g.*, *Vessel Speed Reduction to Protect Whales*, Greater Farallones National Marine Sanctuary, available at https://farallones.noaa.gov/eco/whales/vessel-speed-reduction.html.

[54] Leaper, Russell, The Role of Slower Vessel Speeds in Reducing Greenhouse Gas Emissions, Underwater Noise and Collision Risk to Whales, 6 Mar. Sci. (2019).

[55] *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 235 F. Supp. 2d 1143, 1154 (W.D. Wash. 2002) (citing *Muckleshoot Indian Tribe v. United States Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999)).

[56] *Id.* (citing *Natural Res. Def. Council v. Morton*, 458 F.2d 827, 836 (D.C. Cir. 1972) ("The mere fact that an alternative requires legislative implementation does not automatically establish it as beyond the domain of what is required for discussion, particularly since NEPA was intended to provide a basis for consideration and choice by the decisionmakers in the legislative as well as the executive branch.")).

[57] *See* 40 C.F.R. § 1502.14(a), (e).

[58] David Hasemyer, Trans-Alaska pipeline under threat from thawing permafrost, *High Country News*, (July 14, 2021) https://www.hcn.org/articles/climate-change-trans-alaska-pipeline-under-threat-from-thawing-permafrost/.

[59] *Id.*

[60] *See Alliance for the Wild Rockies v. Probert*, 412 F. Supp. 3d 1188, 1208 (D. Mont. 2019); *see also Native Ecosys. Council v. Tidwell*, 599 F.3d 926, 937–38 (9th Cir. 2010) (supplemental analysis required where new information was inconsistent with prior EA); *Cascadia Wildlands v. BLM*, 2012 U.S. Dist. LEXIS 182930, *32 (D. Or., Dec. 21, 2012) (same).

Nor is the novel use of thermosyphons the only safety measure that requires analysis. As discussed above, the coming decades will see significant environmental degradation where TAPS operates, adding to the already-heightened risk of an oil spill and requiring strong regulatory oversight. A major oil spill in the Prince William Sound remains a threat.[61] Alaska's U.S. Senators Murkowski and Sullivan are so concerned about the current safety and regulatory oversight of TAPS and the Valdez Marine Terminal that in October 2023, they requested the U.S. Government Accountability Office review and provide a report assessing the efficacy and ability of the six federal and six state agencies charged with ensuring the safety of TAPS and its facilities to adequately fulfill their responsibilities.[62] BLM must undertake a full study of what mitigation and safety measures are possible, the efficacy of regulatory oversight, and compare whether the unmitigated risk is worth the continued operation of the pipeline.

BLM AND THE SECRETARY MUST COMPLETE A TAPS DISMANTLMENT, REMOVAL, AND RESTORATION PLAN AND ENSURE TAPS OWNERS CAN PAY FOR IT

As TAPS approaches the end of its useful life, BLM must turn its attention to the plans for dismantlement, removal, and restoration (DR&R).[63] The Prince Williams Sound Regional Citizens' Advisory Council commissioned a TAPS DR&R Background Report and Recommendations (DR&R Report or Report), published in 2004, that summarized the provisions for dismantling and removing TAPS and restoring the ROW, and identified potential problems with the eventual DR&R process, including problems in the financial model used to estimate the cost of such a process.[64] This Report, while still useful, is now twenty years old, and needs updating and revision which are necessarily to properly understand the scope and preparation of DR&R efforts in the coming decades. Furthermore, BLM now has a clear public interest mandate to urgently phaseout fossil fuels. As such, BLM must promulgate an up-to-date DR&R report that builds on the 2004 Report and includes a pipeline decommissioning and North Slope oil phasedown plan.

Ensuring that adequate funds are available for DR&R will be crucial to this process. The ROW grant imposed an obligation on TAPS's owners to properly remove and rehabilitate the ROW when operations terminate.[65] The 2002 FEIS acknowledged but did not analyze in detail an

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[61] Garde, Billie P., Assessment of Risks and Safety Culture at Alyeska's Valdez Marine Terminal (April 2023), https://www.pwsrcac.org/wp-content/uploads/filebase/programs/terminal_operations/Assessment-of-Risks-and-Safety-Culture-at-Alyeskas-Valdez-Marine-Terminal.pdf?no_preview=1.

[62] Senator Lisa Murkowski and Senator Dan Sullivan, Letter to Gene Dodaro, Comptroller General of the U.S., U.S. Government Accountability Office re: Request for GAO Review of the Joint Pipeline Office (Oct. 2, 2023); *see also* Prince William Sound Regional Citizens' Advisory Council, Assessment of Risks and Safety Culture at Alyeska's Valdez Marine Terminal (Apr. 2023).

[63] *See* Fineberg, Richard A., Research Associates, Trans-Alaska Pipeline System Dismantling, Removal and Restoration (DR&R): Background Report and Recommendations, June 24, 2004, https://www.pwsrcac.org/wp-content/uploads/filebase/programs/terminal_operations/451.431.040628.TAPSdrrReprt.pdf ("DR&R Report").

[64] DR&R Report at 11.

[65] 2002 FEIS at 2-11 (citing Grant Stipulation 1.10)

alternative that would establish an escrow account for DR&R of TAPS.[66] In casting this alternative aside, the 2002 FEIS relied on numerous facts. First, a settlement agreement related to litigation between the TAPS owners and the Federal Energy Regulatory Commission allowed the owners to collect money for DR&R. Second, regulations require TAPS owners to make guarantees of ability to cover these costs, and BLM "believes" these representations "constitute adequate assurances."[67] Third, transfers of ownership of TAPS require new owners to "demonstrate, to the satisfaction of [BLM], that the Transferee is capable of performing all of the liabilities and obligations of the Transferor relating to the interest to be transferred" and prior to renewing the ROW, BLM also makes a determination of whether the TAPS owners have "the technical and financial capability to…terminate the project."[68]

Whatever the merits of BLM's calculus in 2002, current circumstances require that BLM fully analyze and quantify these owners' ability to pay, as well as use bonding, escrow, or other tools to back up these commitments. First, per the 2002 FEIS, the aforementioned settlement allowed the collection of DR&R-related fees until 2011.[69] Therefore, the parties to that settlement should now have the funds necessary to cover the costs of DR&R, assuming the receipts were properly earmarked and set aside. Indeed, billions in tariffs have been collected.[70] BLM can and should audit these funds to ensure that they are available.[71] Second, TAPS owners' financial position's might change substantially and interim transfers of ownership do not typically undergo any substantive NEPA review, let alone the robust scrutiny of the EIS process, posing a real risk of new or dominant TAPS ownership without the financial security necessary to fully complete DR&R.[72] Third, an epidemic of unfunded decommissioning liabilities has amassed across public

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[66] *Id.* Adjusting for errors in the original modeling for DR&R collections, the Report determined that, without a publicly escrowed fund, TAPS owners have received substantial windfall gains by retaining DR&R collections on their own books for themselves, with the funds functioning as "a long-term, interest-free loan to pipeline owners that frequently carries additional, unrecognized tax benefits, as well as special benefits to pipeline owners who are shipping their own oil." A roughly $50 billion surplus in 2004 dollars was estimated in the Report if DR&R is conducted between 2029-2034. This is a staggering subsidy to TAPS owners that currently bolsters their company books and likely is used for perpetuating fossil fuel extraction. In contrast, the public has reaped only uncertainty without a publicly escrowed DR&R fund, lacking any tangible assurances that the required sums for DR&R will in fact be available and ready when required.

[67] 2002 FEIS at 2-12. But BLM's belief is countered by the Government Accountability Office's finding that existing financial assurances are insufficient to fund DR&R. U.S. Gov't Accountability Off., GAO-02-357, Alaska's North Slope: Requirements for Restoring Lands After Oil Production Ceases 10–14, 53 (2002).

[68] *Id.* at 2-11, 2-12.

[69] *Id.*

[70] DR&R Report at 1.

[71] It has been a common practice in Alaska to require external DR&R accounts managed by an independent trustee for pipelines, *see*, e.g., Cook Inlet Pipe Line Co., P-80-5(16) / P-82-1(12) (1985) 6 APUC 527, 1985 WL 1208641 (Alaska P.U.C.) and Kenai Pipe Line Co., P-91-2(23) / P-85-1(31)(1993) 14 APUC 3, 1993 WL 968763 (Alaska P.U.C.

[72] *See*, e.g., Wight, P., Do Alaskans Have a Say in the Stewardship of Our Resources?, Alaska Daily News (June 23, 2023), https://www.adn.com/opinions/2023/06/24/opinion-do-alaskans-have-a-say-in-the-stewardship-of-our-resources/; Parshley, L., Alaska Wants to Let an Oil Giant Keep Secrets from Its Own People, The New Republic (June 27, 2023), https://newrepublic.com/article/173805/alaska-oil-giant-hilcorp-valdez-lawsuit-pipeline; Rosen, Y., Alaska Supreme Court Considers Whether Hilcorp's Financial Information Should Stay Secret, Alaska Beacon (June 27, 2023), https://alaskabeacon.com/2023/06/27/alaska-supreme-court-considers-whether-hilcorps-financial-information-should-stay-secret/.

lands and waters in the United States, with oil and gas infrastructure left in place.[73] Recognizing the potential for similar neglect here, and as a phaseout of fossil fuels and the end of TAPS's useful life brings DR&R closer to reality, BLM must meaningfully assess the financial ability of the TAPS owners to fully decommission and restore the TAPS ROW and ensure there are adequate funds to pay for it.

CONCLUSION

Petitioners request that the Secretary and BLM immediately initiate a scoping process for a SEIS for TAPS's continued operation and potential renewal and issue a new SEIS that takes a hard look at the numerous harmful environmental impacts from TAPS. New information and changed circumstances compel a new SEIS as a matter of law; climate change, impacts to protected species, and degradation of TAPS's safety and integrity render the 2002 FEIS obsolete.

A proper, science-based review will reveal that a thirty-year renewal is unwarranted. Therefore, a wide range of feasible alternatives and mitigation measures must be considered. BLM must also immediately begin work to complete a DR&R report that plans for the necessary decommissioning of TAPS and a phasedown of fossil fuel extraction it enables and ensure that the current TAPS owners have adequate funds to pay for implementing such a plan. These actions are necessary to meet the Biden administration's climate goals and avoid the devastating climate harms that threaten Alaska and the planet.

Respectfully submitted this 12th day of June, 2024,

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[73] *See, e.g.*, Kevin Hardy, Billions of Dollars for Oil and Gas Wells Won't Be Enough, (Oct. 17, 2023), https://www.governing.com/infrastructure/billions-of-dollars-for-oil-and-gas-wells-wont-be-enough (discussing the $4.7 billion allocation in the Bipartisan Infrastructure Law for plugging abandoned oil and gas wells); U.S. Gov't Accountability Off., GAO-24-106229, *Interior Needs to Improve Decommissioning Enforcement and Mitigate Related Risks* (2024); *see also*, e.g., Joshua Macey & Jackson Salovaara, *Bankruptcy as Bailout: Coal Company Insolvency and the Erosion of Federal Law*, 71 Stan. L. Rev. 879, 895 (2019).

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APPENDIX A

A RAPID PHASEOUT OF FOSSIL FUEL PRODUCTION AND INFRASTRUCTURE IS NECESSARY TO LIMIT TEMPERATURE RISE TO 1.5°C AND PREVENT CATASTROPHIC CLIMATE HARMS

Fossil fuels are driving the climate emergency and must be rapidly phased out to meet the Paris Agreement's 1.5°C climate target and preserve a livable planet

Although the impacts of climate change were evident in 2002, the climate crisis has significantly escalated in the past two decades. At the start of 2024, the 1.2°C (2.2°F) of global heating to date is fueling intensifying climate disasters that are killing people, causing ecosystem collapse, costing the U.S. economy billions in damages every year, and increasing suffering across the nation and around the world.[74] The climate crisis also breeds glaring injustice, with Black, Indigenous, Latino, Asian American and Pacific Islander, and other communities of color and low-wealth communities experiencing the gravest harms.[75]

Science has made clear that fossil fuels are the primary driver of the climate emergency and must be phased out to stem the climate crisis. The vast majority of all CO_2 pollution—nearly 90%—in the U.S. and globally comes from oil, gas, and coal.[76] Every increase in fossil fuel pollution pushes us further toward a dangerous and increasingly unlivable planet, posing an existential "threat to human well-being and planetary health."[77]

Specifically, in 2015 the United States committed to the international climate change limit of holding the long-term global average temperature "to well below 2°C (3.6°F) above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-

[74] IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report, A Report of the Intergovernmental Panel on Climate Change, Contribution of Working Groups I, II and III, https://www.ipcc.ch/report/sixth-assessment-report-cycle/.
[75] Donaghy, Tim and Charlie Jiang for Greenpeace, Gulf Coast Center for Law and Policy, Red, Black & Green Movement, and Movement for Black Lives, Fossil Fuel Racism: How Phasing Out Oil, Gas, and Coal Can Protect Communities (2021), https://www.greenpeace.org/usa/wp-content/uploads/2021/04/Fossil-Fuel-Racism.pdf; U.S. Environmental Protection Agency, Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts, EPA 430-R-21-003 (2021), www.epa.gov/cira/social-vulnerability-report.
[76] U.S. Global Change Research Program, Impacts, Risks, and Adaptation in the United States, Fourth National Climate Assessment, Vol. II (2018), https://nca2018.globalchange.gov/ at 60; IPCC, Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis, Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2021), https://www.ipcc.ch/report/sixth-assessment-report-working-group-i at 5-19.
[77] IPCC, Climate Change 2022, Impacts, Adaptation and Vulnerability (2022) https://www.ipcc.ch/report/ar6/wg2/, at SPM-35.

industrial levels" under the Paris Agreement.[78] The Paris Agreement established the 1.5°C climate limit given the evidence that 2°C of warming would lead to catastrophic climate harms.[79]

An equitable fossil fuel phaseout aligned with the 1.5°C target requires the U.S. to immediately end new fossil fuel development and phase out existing fossil fuel development

An overwhelming scientific consensus, including scientific assessments from the IPCC, International Energy Agency (IEA), and United Nations, has established that limiting temperature rise to 1.5°C requires governments to immediately halt approvals of new fossil fuel production and infrastructure projects and phase out existing extraction and infrastructure to keep most fossil fuel reserves in the ground.[80]

Numerous studies have concluded that the fossil fuel extraction and infrastructure projects already in development globally—i.e., oil and gas fields, coal mines, and fossil fuel infrastructure already in operation or under construction—would release enough greenhouse

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[78] United Nations Framework Convention on Climate Change, Conference of the Parties, Nov. 30-Dec. 11, 2015, Adoption of the Paris Agreement Art. 2, U.N. Doc. FCCC/CP/2015/L.9 (December 12, 2015), http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf ("Paris Agreement"). The United States signed the Paris Agreement on April 22, 2016 as a legally binding instrument through executive agreement, and the treaty entered into force on November 4, 2016.

[79] IPCC, Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (Oct. 6, 2018), http://www.ipcc.ch/report/sr15/.

[80] Oil Change International, The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production (September 2016), http://priceofoil.org/2016/09/22/the-skys-limit-report/; Oil Change International, Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits (2019), http://priceofoil.org/drilling-towards-disaster; Tong, Dan et al., Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target, 572 Nature 373 (2019), https://doi.org/10.1038/s41586-019-1364-3; SEI, IISD, ODI, E3G, and UNEP, The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C (2020), http://productiongap.org/; International Energy Agency (IEA), Net Zero By 2050: A Roadmap for the Global Energy Sector (October 2021), https://www.iea.org/reports/net-zero-by-2050; Teske, Sven and Sarah Niklas, Fossil Fuel Exit Strategy: An orderly wind down of coal, oil and gas to meet the Paris Agreement (June 2021), https://fossilfueltreaty.org/exit-strategy; Welsby, Dan et al., Unextractable fossil fuels in a 1.5 °C world, 597 Nature 230 (2021), https://doi.org/10.1038/s41586-021-03821-8; Calverley, Dan and Kevin Anderson, Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets (2022), https://research.manchester.ac.uk/en/publications/phaseout-pathways-for-fossil-fuel-production-within-paris-complia; Trout, Kelly et al., Existing fossil fuel extraction would warm the world beyond 1.5°C, 17 Environmental Research Letters 064010 (2022), https://iopscience.iop.org/article/10.1088/1748-9326/ac6228#references; International Institute for Sustainable Development, Navigating Energy Transitions: Mapping the road to 1.5°C (October 2022), https://www.iisd.org/publications/report/navigating-energy-transitions; IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report, A Report of the Intergovernmental Panel on Climate Change, Contribution of Working Groups I, II and III, https://www.ipcc.ch/report/sixth-assessment-report-cycle/; Paul, Mark and Lina Moe, An Economist's Case for Restrictive Supply Side Policies: Ten Policies to Manage the Fossil Fuel Transition, Climate and Community Project (March 2023), https://www.climateandcommunity.org/economists-case-end-fossil-fuels; International Energy Agency (IEA), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach (September 2023), https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach.

gases to heat the planet well past 1.5°C.[81] According to one recent analysis, the world's already developed reserves would emit 936 gigatons of CO_2 pollution if fully extracted[82]—well beyond the remaining carbon budget of 380 gigatons CO_2 from the beginning of 2023 for a 50% chance of 1.5°C.[83] The International Energy Agency's "Net Zero by 2050" analysis confirmed this conclusion, stating that new fossil fuel extraction projects are incompatible with the 1.5°C climate limit.[84]

For fossil fuel infrastructure, studies including the IPCC *Sixth Assessment Report* and United Nations *Production Gap Report* have concluded that the committed greenhouse gas emissions from existing fossil fuel infrastructure exceed the remaining carbon budget for 1.5°C. [85] These studies establish that no new fossil infrastructure can be built, and much existing fossil fuel infrastructure must be retired early to prevent catastrophic climate harms.

Leaders around the world have highlighted the urgency for governments to phase out fossil fuels to preserve a livable planet. Upon the release of the IPCC's Sixth Assessment Report, U.N. Secretary-General António Guterres said "This report must sound a death knell for coal and fossil fuels, before they destroy our planet…"[86] Fatih Birol, Executive Director of the IEA, said upon the release of the IEA's 2021 climate report that "[i]f governments are serious about the climate crisis, there can be no new investments in oil, gas and coal, from now – from this year."[87]

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[81] *Id.*

[82] Oil Change International, Investing in Disaster: Recent and Anticipated Final Investment Decisions for New Oil and Gas Production Beyond the 1.5°C Limit (November 2022), https://priceofoil.org/2022/11/16/investing-in-disaster/

[83] Friedlingstein, Pierre *et al*., Global carbon budget 2022, 14 Earth System Science Data 4811 (2022), https://essd.copernicus.org/articles/14/4811/2022/ at 4814.

[84] International Energy Agency (IEA), Net Zero By 2050: A Roadmap for the Global Energy Sector (October 2021), https://www.iea.org/reports/net-zero-by-2050 at 21.

[85] Tong, Dan *et al*., Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target, 572 Nature 373 (2019), https://doi.org/10.1038/s41586-019-1364-3; IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report, A Report of the Intergovernmental Panel on Climate Change, Contribution of Working Groups I, II and III, https://www.ipcc.ch/report/sixth-assessment-report-cycle/ at 19-20 ("CO_2 emissions from existing fossil fuel infrastructure (without abatement) would exceed the remaining carbon budget for 1.5°C"; "Projected CO_2 emissions over the lifetime of existing and planned fossil fuel infrastructure are about equal to the remaining carbon budget for limiting warming to 2°C with 83% confidence); SEI, Climate Analytics, E3G, IISD, and UNEP, The Production Gap: Phasing down or phasing up? Top fossil fuel producers plan even more extraction despite climate promises, (2023), https://doi.org/10.51414/sei2023.050 at 30 ("Finally, other research has shown that the emissions of CO_2 expected to occur over the lifetime of existing fossil fuel production (and -combustion) infrastructure already exceed the remaining carbon budget for a 50% chance of limiting warming to 1.5°C by 2100 (IPCC, 2023; Tong et al., 2019; Trout et al., 2022). This leaves no room for new coal mines and oil and gas fields, unless existing infrastructure is retired early. Indeed, the IEA NZE scenario foresees no need for new coal mines or oil and gas fields after 2021 amid declining fossil fuel demand (IEA, 2021, 2023c).")

[86] United Nations Secretary-General, *Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment*, Aug. 9, 2021, https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment.

[87] Harvey, Fiona, *No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body,* Guardian, May 18, 2021, https://www.theguardian.com/environment/2021/may/18/no-new-investment-in-fossil-fuels-demands-top-energy-economist.

The most recent COP28 decision text, to which the U.S. agreed, states the urgent need to rapidly transition away from fossil fuels.[88]

The U.S. must phase out fossil fuels more rapidly than the global average

Based on equity principles, the U.S. has a responsibility to implement a more rapid and aggressive fossil fuel phaseout because of its greater financial resources and technical capabilities to implement a just transition to clean, renewable energy, combined with its dominant role in driving the climate crisis. Several studies have identified the U.S. as a high-emitting, fossil fuel producer nation with the greatest capacity to manage a rapid transition away from oil and gas because of its low level of dependence on fossil fuel revenues, high wealth, and high economic diversification.[89] A 2022 study from the Tyndall Centre for Climate Change Research concluded that wealthy, high-emitting nations must phase out all oil and gas production by 2034.[90] Specifically, an equitable phaseout for the U.S. would require ending all oil and gas production by 2034 for a 50% chance of limiting temperature rise to 1.5°C and by 2031 for a 66% chance.[91]

A rapid fossil fuel phaseout is necessary not only to prevent catastrophic climate harms but also to stem the public health and environmental justice crises and biodiversity extinction crisis made worse by the fossil fuel industry

The fossil fuel industry is not only driving the climate emergency but has created a public health and environmental justice crisis in the U.S. Every stage of the fossil fuel life cycle generates hazardous and criteria air pollutants that can cause serious health harms such as cancer, lung disease, birth defects, and heart disease.[92] One in five premature deaths worldwide are caused by

[88] UNFCCC, COP28 First global stocktake (Dec. 13, 2023) https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf.
[89] Muttitt, Greg and Sivan Kartha, Equity, climate justice and fossil fuel extraction: principles for a managed phase out, 20 Climate Policy 1024 (2020), https://doi.org/10.1080/14693062.2020.1763900; U.S. Climate Action Network, The U.S. Climate Fair Share (2020), https://usfairshare.org/backgrounder/; Dooley, Kate et al., Ethical choices behind quantification of fair contributions under the Paris Agreement, 11 Nature Climate Change 300 (2021), https://doi.org/10.1038/s41558-021-01015-8; Calverley, Dan and Kevin Anderson, Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets (2022), https://research.manchester.ac.uk/en/publications/phaseout-pathways-for-fossil-fuel-production-within-paris-complia.
[90] Calverley and Anderson (2022).
[91] *Id.*
[92] Garcia-Gonzalez, Diane A. *et al.,* Hazardous air pollutants associated with upstream oil and natural gas development: a critical synthesis of current peer-reviewed literature, 40 Annual Review of Public Health 283 (2019), https://www.annualreviews.org/doi/10.1146/annurevpublhealth-040218-043715; Johnston, Jill E. *et al*., Impact of upstream oil extraction and environmental public health: A review of the evidence, 657 Sci Total Environ 187 (2019), https://pubmed.ncbi.nlm.nih.gov/30537580/; Concerned Health Professionals of New York and Physicians for Social Responsibility, *Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction) (7th ed.)* (2020), http://concernedhealthny.org/compendium/.

particulate pollution from fossil fuel combustion.[93] A long history of environmental racism has concentrated oil and gas wells, refineries, and other fossil fuel infrastructure—with all their adjacent harms—in Black, Brown and Indigenous communities, exposing residents to hazardous air and water pollution.[94] Fossil fuel pollution disproportionately harms communities of color and low-wealth communities and perpetuates the systemic racism entrenched in the nation's fossil fuel energy system. For example, in the Alaskan Arctic, the island upon which the City of Kivalina and Native Village of Kivalina rests is rapidly eroding from increasing arctic temperatures, impacting essential traditional subsistence activities.[95]

The science is overwhelmingly clear that fossil fuels represent a stark threat to the future of biodiversity within the U.S. and around the world due to the dual harms of the climate crisis and the direct impacts from fossil fuel development. As recently stated by scientific experts, "[t]he scale of threats to the biosphere and all its lifeforms — including humanity — is in fact so great that it is difficult to grasp for even well-informed experts" and our planet faces a "ghastly future" unless swift action is taken to reverse the climate crisis, including "a rapid exit from fossil fuel use."[96] The U.S. federal government in its National Climate Assessments has similarly repeatedly recognized that human-caused climate change is causing widespread and intensifying harms to life across the planet and is driving many species toward extinction. For example, the Fourth National Climate Assessment warned that "climate change threatens many benefits that the natural environment provides to society," and that "extinctions and transformative impacts on some ecosystems" will occur "without significant reductions in global greenhouse gas emissions."[97]

Countless scientific studies have documented how climate change is increasing stress on species and entire ecosystems, causing disruptions of species' distributions, timing of breeding and migration, physiology, vital rates, genetics, and the ecosystem processes that support basic human needs.[98] A 2019 United Nations report concluded that one million animal and plant

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[93] Vohra, Karn *et al.*, Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem, 195 Environmental Research 110754 (2021), https://www.sciencedirect.com/science/article/abs/pii/S0013935121000487.

[94] *See* Bullard, Robert D. *et al.*, Toxic Wastes and Race at Twenty: 1987-2007 (March 2007), http://www.ejnet.org/ej/twart.pdf; Donaghy, Tim and Charlie Jiang for Greenpeace, Gulf Coast Center for Law & Policy, Red, Black & Green Movement, and Movement for Black Lives, Fossil Fuel Racism: How Phasing Out Oil, Gas, and Coal Can Protect Communities (2021), https://www.greenpeace.org/usa/wp-content/uploads/2021/04/Fossil-Fuel-Racism.pdf.

[95] *See*, *e.g.*, *Native Village of Kivalina v. ExxonMobile Corp.*, 696 F.ed 849 (2012).

[96] Bradshaw, Corey J.A. *et al.*, Understanding the Challenges of a Ghastly Future, 1 Frontiers in Conservation Science Article 615419 (2021), https://doi.org/10.3389/fcosc.2020.615419 at 1.

[97] U.S. Global Change Research Program, Impacts, Risks, and Adaptation in the United States, Fourth National Climate Assessment, Vol. II (2018), https://nca2018.globalchange.gov/ at 51.

[98] Parmesan, Camille & Gary Yohe, A globally coherent fingerprint of climate change impacts across natural systems, 421 Nature 37 (2003), https://doi.org/10.1038/nature01286; Root, Terry L. *et al*., Fingerprints of global warming on wild animals and plants, 421 Nature 57 (2003), https://doi.org/10.1038/nature01333; Parmesan, Camille, Ecological and evolutionary responses to recent climate change, 37 Annual Review of Ecology Evolution and Systematics 637 (2006), https://doi.org/10.1146/annurev.ecolsys.37.091305.110100; Chen, I-Ching *et al.*, Rapid range shifts of species associated with high levels of climate warming, 333 Science 1024 (2011), https://doi.org/10.1126/science.1206432; Cahill, Abigail E. *et al.*, How does climate change cause extinction?, 280

species are now threatened with extinction, with climate change as a primary driver.[99] Climate change-related local extinctions are already widespread and have occurred in hundreds of species,[100] and extinction risk will accelerate with continued fossil fuel pollution. A 2024 study forecast the extinction of 14% to 32% of animal and plant species—representing the devastating loss of 3 million to 6 million species—in the next 50 years, even under intermediate climate change scenarios.[101] Another study estimated that one species will go extinct for every 4.3 million metric tons of CO_2e emitted.[102] Scientists have called for a rapid transformation of our energy system away from fossil fuels to avoid a mass extinction event.[103]

Fossil fuel development also causes a wide array of harms to species and ecosystems: destroying and fragmenting wildlife habitat, reducing water supplies often in water-stressed areas, causing air, noise, and light pollution, contaminating surface and ground water, and facilitating the spread of ecologically disruptive invasive species,[104] with similar harms in the offshore marine environment.[105] Fossil fuel development creates the significant risk of oil spills and brine spills which can kill wildlife and cause devastating effects over large areas. For many species, the harms from the fossil fuel-based energy system have led to mortality, changes in behavior, population declines, disruptions to community composition, and loss of ecosystem function.

Proceedings of the Royal Society B 20121890 (2012), https://doi.org/10.1098/rspb.2012.1890; Scheffers, Brett R. *et al.*, The broad footprint of climate change from genes to biomes to people, 354 Science 719 (2016), https://doi.org/10.1126/science.aaf7671.

[99] Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Global Assessment Report (May 6, 2019), https://ipbes.net/news/Media-Release-Global-Assessment.

[100] Wiens, John J., Climate-related local extinctions are already widespread among plant and animal species, 14 PLoS Biology e2001104 (2016), https://doi.org/10.1371/journal.pbio.2001104.

[101] Wiens, John J. and Joseph Zelinka, How many species will Earth lose to climate change?, 30 Global Change Biology e17125 (2024), https://doi.org/10.1111/gcb.17125.

[102] Mokany, Karel *et al.*, Reporting the biodiversity impacts of greenhouse gas emissions, 30 Global Change Biology e17037 (2023), https://doi.org/10.1111/gcb.17037.

[103] Barnosky, Anthony D., Transforming the global energy system is required to avoid the sixth mass extinction, 2 MRS Energy and Sustainability E10 (2015), https://doi.org/10.1557/mre.2015.11.

[104] Butt, Nathalie *et al.*, Biodiversity risks from fossil fuel extraction, 342 Science 425 (2013), https://www.science.org/doi/10.1126/science.1237261; Brittingham, Margaret C. *et al.*, Ecological risks of shale oil and gas development to wildlife, aquatic resources and their habitats, 48 Environmental Science and Technology 11034 (2014), https://doi.org/10.1021/es5020482; Pickell, Paul D. *et al.*, Monitoring forest change in landscapes under-going rapid energy development: challenges and new perspectives, 3 Land 617 (2014), https://doi.org/10.3390/land3030617; Souther, Sara *et al.*, Biotic impacts of energy development from shale: research priorities and knowledge gaps, 12 Frontiers in Ecology and the Environment 330 (2014), https://doi.org/10.1890/130324; Allred, Brady W. *et al.*, Ecosystem services lost to oil and gas in North America, 348 Science 401 (2015), https://www.science.org/doi/10.1126/science.aaa4785; Harfoot, Michael B. *et al.*, Present and future biodiversity risks from fossil fuel exploitation, 11 Conservation Letters e12448 (2018), https://doi.org/10.1111/conl.12448.

[105] Venegas-Li, Rubén *et al.*, Global assessment of marine biodiversity potentially threatened by offshore hydrocarbon activities, 25 Global Change Biology 2009 (2019), https://doi.org/10.1111/gcb.14616.

Greenhouse gas emissions from TAPS are incompatible with limiting temperature rise to 1.5°C

The crude oil enabled by TAPS emits enormous greenhouse gas emissions that worsen the climate emergency, are inconsistent with meeting the 1.5°C international climate target and threaten Alaska. Based on an average of 20 million gallons of crude oil transported per day, TAPS enables greenhouse gas emissions of at least 98 million metric tons of carbon dioxide equivalent (CO_2e) per year.[106]

The annual emissions from TAPS are similar to the annual emissions from Liquified Natural Gas (LNG) export terminals which the Biden administration paused the approval of in January 2024 based on their contribution to the climate crisis and environmental justice and health harms. As stated by President Biden, "This pause on new LNG approvals sees the climate crisis for what it is: the existential threat of our time."[107] TAPS is similarly harmful to the climate, communities, and wildlife.

APPENDIX B

NEW INFORMATION AND CHANGED CIRCUMSTANCES SINCE 2002 RENDER THE 2002 TAPS FEIS INADEQUATE

Before granting a renewal of the right-of-way for TAPS in 2004, BLM undertook a NEPA analysis of the project. BLM issued the final environmental impact statement on November 26, 2002. In the twenty-two years since its publication, new information and changed circumstances have radically shifted our understanding of the environmental impacts of TAPS's operation. New climate science, a more ro understanding of the harms of climate change, newly listed species under the Endangered Species Act, and a deterioration in the stability of the pipeline—to name a few of the intervening developments—render the 2002 FEIS analysis obsolete.

Climate change developments since 2002 constitute new information and changed circumstances

Numerous scientific assessments published since 2002 have established that the fossil-fueled climate crisis has become an existential threat to the state of Alaska, its people, wildlife, livelihoods, infrastructure, and way of life. Since 2002, four National Climate Assessments have

[106] Annual lifecycle emissions from the crude oil enabled by TAPS were estimated using the annual volume of crude oil carried by the pipeline (20 million gallons of crude oil per day, equal to 174 million barrels per year) and the lifecycle emissions factor for Alaska North Slope crude oil (564 kg CO_2e per barrel crude) provided by the Carnegie Endowment's Oil-Climate Index (Carnegie Endowment, Oil-Climate Index, Total Estimated GHG Emissions and Production Volumes for 75 OCI Test Oils, https://oci.carnegieendowment.org/#total-emissions),

[107] The White House, Statement from President Joe Biden on Decision to Pause Pending Approvals of Liquefied Natural Gas Exports (January 26, 2024), https://www.whitehouse.gov/briefing-room/statements-releases/2024/01/26/statement-from-president-joe-biden-on-decision-to-pause-pending-approvals-of-liquefied-natural-gas-exports/.

been issued which highlight that Alaska is suffering "rapid, widespread, and extreme" harms from the climate emergency. National Climate Assessments, prepared by hundreds of scientific experts and reviewed by the National Academy of Sciences and 13 federal agencies including the Department of the Interior, represent the federal government's current best understanding of climate change and its impacts in the U.S., which must be integrated into decision-making about management of TAPS. Additionally, since 2002, three comprehensive IPCC Assessment Reports have been issued, as well as annual NOAA Arctic Report Cards[108], numerous reports from the Arctic Monitoring and Assessment Programme, and countless published studies related to climate change in Alaska.

These scientific assessments make clear that Alaska is on the front lines of the climate emergency; is suffering severe harms to cultural practices, livelihoods, health, wildlife and ecosystems, and infrastructure; and climate threats are escalating. As summarized by the 2018 Fourth and 2023 Fifth NCA:

> Alaska is on the front lines of climate change and is among the fastest warming regions on Earth. It is warming faster than any other state, and it faces a myriad of issues associated with a changing climate.[109]

Loss of sea ice, thawing permafrost, and other climate-driven changes in Alaska are transforming ecosystems, disrupting cultural practices, harming fisheries and other livelihoods, exacerbating health disparities, and placing infrastructure at risk.[110]

The National Climate Assessments document the "rapid, widespread, and extreme climate-related changes" in Alaska, including thawing permafrost, extreme snow and rain storms and associated flooding events, rapid coastal erosion in many regions, shrinking sea ice reaching record lows, melting glaciers, heating oceans, the world's highest rates of ocean acidification, and the increasing frequency of heatwaves on land and at sea. The 2023 Fifth NCA concluded that "[t]here is no indication that these trends will slow or reverse in the near future."[111]

Several climate change impacts in Alaska are particularly relevant to the TAPS pipeline—rapid temperature rise, melting permafrost, and the increasing frequency of extreme flooding, as detailed below.

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[108] Thoman, Richard L. et al. (eds.), Nat'l Oceanic and Atmosph. Admin., Arctic Report Card 2023, Dec. 2023, https://arctic.noaa.gov/wp-content/uploads/2023/12/ArcticReportCard_full_report2023.pdf.
[109] Steve T. Gray et al, U.S. Glob. Change Rsch. Prog., *Ch. 26: Alaska*, *in* Impacts, Risks, and Adaptation in the United States: Fourth Nat'l Climate Assessment, Vol. II, at 1190 (Reidmiller et al. eds., 2018), https://nca2018.globalchange.gov/downloads/NCA4_Ch26_Alaska_Full.pdf.
[110] Henry P. Huntington et al., *Ch. 29: Alaska*, *in* Fifth Nat'l Climate Assessment (A.R. Crimmins et al., eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch29_Alaska.pdf.
[111] *Id.*

The 2023 Fifth NCA warned that "Alaska is warming two to three times faster than the global average."[112] Temperatures are increasing fastest on the North Slope, with heating of 6.2°F since 1971 which is 2.6 times the rate of the continental U.S.[113] Recent research has found that climate models are under-calculating the rate of heating and that over the past four decades the Arctic has been warming nearly four times faster than the globe.[114] Looking forward, Alaska is projected to experience more heating than any other state, with the greatest increases expected in the Alaskan Arctic.[115] Alaska's statewide average surface temperature is projected to increase by 8.1°F by the end of the century under an intermediate emissions scenario (SSP2-4.5) and 14.2°F (7.9°C) under a high scenario (SSP5-8.5), for 2081–2100 relative to 1981–2010.[116]

Rising temperatures from climate change are causing Alaskan permafrost to thaw and degrade at rapid rates, with the greatest thaw rates in the North Slope region.[117] The Fourth NCA concluded that "since the 1970s, Arctic and boreal regions in Alaska have experienced rapid rates of warming and thawing of permafrost, with spatial modeling projecting that near-surface permafrost will likely disappear on 16% to 24% of the landscape by the end of the 21st century.[118]" However, the Fifth NCA warned that permafrost thaw may be accelerating, and that new science indicates these projections are underestimating thaw rates.

Thawing permafrost is threatening the integrity of infrastructure including the TAPS pipeline. A 2018 study identified 550 km of the Trans-Alaska Pipeline System as at high risk from permafrost thaw.[119] The Fifth NCA warned that thawing permafrost is causing damage to oil and gas infrastructure that will be costly to maintain, repair or replace, especially in remote regions:

> Much of Alaska's infrastructure was built for a stable climate, and changes in permafrost, ocean conditions, sea ice, air temperature, and precipitation patterns place that infrastructure at risk (high confidence). Further warming is expected to lead to greater needs and costs for maintenance or replacement of buildings, roads, airports, and other facilities (high confidence).
>
> The oil development and production industry on Alaska's North Slope also faces challenges from thawing permafrost. Intensive efforts are now required to keep the

[112] *Id.*
[113] *Id.*
[114] Rantanen, Mika *et al*., The Arctic has warmed nearly four times faster than the globe since 1979, 3 Communications Earth & Environment 168 (2022), https://doi.org/10.1038/s43247-022-00498-3.
[115] Steve T. Gray et al, U.S. Glob. Change Rsch. Prog., *2018: Alaska*, *in* Impacts, Risks, and Adaptation in the United States: Fourth Nat'l Climate Assessment, Vol. II, at 1191 (Reidmiller et al. eds., 2018), https://nca2018.globalchange.gov/downloads/NCA4_Ch26_Alaska_Full.pdf.
[116] Henry P. Huntington et al., *Ch. 29: Alaska*, *in* Fifth Nat'l Climate Assessment (A.R. Crimmins et al., eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch29_Alaska.pdf.
[117] Hong, E. *et al.*, Thaw settlement hazard of permafrost related to climate warming in Alaska, 67 Arctic 93 (2014).
[118] Steve T. Gray et al, U.S. Glob. Change Rsch. Prog., *2018: Alaska*, *in* Impacts, Risks, and Adaptation in the United States: Fourth Nat'l Climate Assessment, Vol. II, at 1197 (Reidmiller et al. eds., 2018), https://nca2018.globalchange.gov/downloads/NCA4_Ch26_Alaska_Full.pdf.
[119] Hjort, J. *et al.*, Degrading permafrost puts Arctic infrastructure at risk by mid-century, 9 Nature Communications 5147 (2018).

> ground cold and solid to support roads, pipelines, and buildings and these are short-term solutions. Thawing permafrost will drive up the costs of North Slope operations.[120]

Thawing permafrost also affects river and stream discharge, water quality, and wildlife habitat, while releasing carbon dioxide and methane, resulting in additional heating that worsens the climate emergency.

Flooding in Alaska is also intensifying due to climate change, driven by an increase in overall rainfall amounts, extreme rainfall events, and earlier snowmelt. Annual and seasonal precipitation in Alaska is increasing on average, with the largest trends in northern Alaska.[121] In parts of the North Slope, precipitation has increased by 35 to 45% since the 1970s.[122] Downpours and other extreme precipitation events are also becoming more frequent, particularly on the North Slope and southeastern part of the Interior, fueled by hotter temperatures and increased moisture in the atmosphere due to hotter ocean temperatures (evaporative moisture).[123] As temperatures rise, snowmelt is occurring earlier and the resulting runoff can cause rivers to overflow. Average statewide precipitation is projected to increase by 21% by the end of the century under an intermediate emissions scenario and 36% under a high scenario, for 2081–2100 relative to 1981–2010.[124]

The flooding of rivers and streams is already threatening TAPS integrity. TAPS runs close to 34 major rivers and streams, either elevated above the ground or buried beneath it. Flooding causes rivers to maintain higher levels for longer periods and erode riverbanks, increasing their potential to wash out the pipeline and cause damage and catastrophic spills. In 2019 alone, the Sagavanirktok River in August, Dietrich River in May, and Lowe River in March flooded, causing massive erosion and reducing the buffer between the pipeline and the riverbank to dangerous levels.[125]

Finally, one of the most devastating impacts of the climate crisis in Alaska is the extreme loss of sea ice. Arctic summer sea ice extent and thickness have decreased by a whopping 40% during the past several decades.[126] Sea ice loss has accelerated since 2000, with Alaska's coast suffering some of the fastest losses.[127] Approximately 95% of the oldest and thickest sea ice has

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[120] Henry P. Huntington et al., *Ch. 29: Alaska*, *in* Fifth Nat'l Climate Assessment (A.R. Crimmins et al., eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch29_Alaska.pdf..
[121] *Id*.
[122] U.S. Dep't of Agric., Alaska and a Changing Climate, https://www.climatehubs.usda.gov/hubs/northwest/topic/alaska-and-changing-climate# (last visited May 13, 2024).
[123] *Id.*
[124] Henry P. Huntington et al., *Ch. 29: Alaska*, *in* Fifth Nat'l Climate Assessment (A.R. Crimmins et al., eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch29_Alaska.pdf..
[125] David Hasemyer, Raging Flood Waters Driven by Climate Change Threaten the Trans-Alaska Pipeline, *Inside Climate News*, (Oct. 12, 2021) https://insideclimatenews.org/news/12102021/trans-alaska-pipeline-climate-change-floods/.
[126] U.S. Global Change Research Program, Climate Science Special Report: Fourth National Climate Assessment, Vol. I (2017), https://science2017.globalchange.gov/ ("NCA Vol. I) at 29, 57, 303.
[127] *Id.* at 305.

disappeared during the past three decades, and the remaining thinner, younger ice is more vulnerable to melting.[128] The length of the sea ice season is getting shorter as ice melts earlier in spring and forms later in autumn.[129] Along Alaska's northern and western coasts, the sea ice season has shortened by more than 90 days.[130] As greenhouse gas emissions continue to rise, the Arctic is projected to be virtually ice-free in summer by 2040,[131] a shocking loss given that minimum summer sea ice averaged 2.64 million square miles during 1979 to 1992.[132] As summarized by the Fourth National Climate Assessment:

> Since the early 1980s, annual average arctic sea ice has decreased in extent between 3.5% and 4.1% per decade, become thinner by between 4.3 and 7.5 feet, and began melting at least 15 more days each year. September sea ice extent has decreased between 10.7% and 15.9% per decade (*very high confidence*). Arctic-wide ice loss is expected to continue through the 21st century, *very likely* resulting in nearly sea ice-free late summers by the 2040s (*very high confidence*)."[133]

Importantly, the National Climate Assessments and countless scientific studies make clear that the harms of climate change to Alaska are long-lived, and the choices that governments make now on whether to phase out fossil fuel production and infrastructure will affect the severity of the climate change impacts that will be suffered in the future.[134] As summarized by the National Research Council, "emissions reduction choices made today matter in determining impacts experienced not just over the next few decades, but in the coming centuries and millennia."[135]

New advancements in enhanced oil recovery techniques constitute changed circumstances

Advancements in enhanced oil recovery techniques are unlocking "many billions of barrels of viscous and heavy oil" in the North Slope.[136] This deposit was previously believed to be uneconomical to extract.[137] Heavy oil is incredibly carbon intensive and has resulted in the

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[128] Osborne, Emily, *et al*. (eds.), Nat'l Oceanic and Atmosph. Admin., Arctic Report Card 2018, Dec. 2018, https://www.arctic.noaa.gov/Report-Card/Report-Card-2018 at 2; *see also* Moon, T.A. et al. (eds.), Nat'l Oceanic and Atmosph. Admin., Arctic Report Card 2021, Dec. 2021, https://www.arctic.noaa.gov/Report-Card/Report-Card-2021.
[129] NCA4 Vol. I at 307.
[130] *Id.* at 307.
[131] Id. at 29, 303.
[132] National Oceanic and Atmospheric Administration (NOAA), Climate Change: Arctic Sea Ice Summer Minimum, Climate.gov, Sept. 8, 2020, https://www.climate.gov/news-features/understanding-climate/climate-change-minimum-arctic-sea-ice-extent.
[133] NCA4, Vol. I at 29, 303.
[134] NCA4 Vol. II, Overview at 4.
[135] National Research Council, Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia, Washington, DC: National Academies Press (2011) at 3.
[136] Trent Jacobs, First-Ever Polymer Flood in Alaska Hailed as a Heavy-Oil Breakthrough, *Journal of Petroleum Technology*, (October 14, 2022), https://jpt.spe.org/first-ever-polymer-flood-in-alaska-hailed-as-a-heavy-oil-breakthrough.
[137] U.S. Department of Energy Office of Scientific and Technical Information, First Ever Field Pilot on Alaska's North Slope to Validate the Use of Polymer Floods for Heavy Oil EOR a.k.a Alaska North Slope Field Laboratory (ANSFL) (2023) https://www.osti.gov/biblio/1916626.

greenhouse gas emission intensity for Alaska North Slope crude oil to increase by 25% since 2012.[138] There is the potential for at least 5.4 billion barrels of additional crude oil unlocked on the North Slope by these advanced recovery techniques, which could result in over 3 gigatons of greenhouse gas emissions. As North Slope production operations begin to extract this deposit, it constitutes a major shift since the 2002 EIS.

Developments related to pipeline integrity constitute new information and changed circumstances

Two developments related to pipeline safety demonstrate that the 2002 FEIS no longer reflects on-the-ground realities: climate change's impact on pipeline integrity and the state of the aging infrastructure.

First, climate change poses significant risks to the safe operation of the pipeline because of its impact on permafrost. The 800-mile-long pipeline traverses extensive Arctic and sub-Arctic expanses of Alaskan permafrost, which is defined as ground that has remained frozen continuously for at least two years. More than 85% of Alaska is covered in permafrost, but this permafrost is being lost to thawing. Due to climate change, permafrost on the North Slope of Alaska has warmed 2.2–3.9°C (4–7°F) in the last one hundred years.[139] With each one-degree Fahrenheit of warming, more 700,000 square miles of permafrost are projected to be lost to thawing.[140] Current models predict continued warming of 1.1-2.2°C (2–4°F) in Alaska over the next twenty-five years.[141] Such loses have dire implications for the safety of the pipeline.

The importance of permafrost to the pipeline is well recognized. More than 400 miles of pipeline were constructed on an elevated support system because of permafrost concerns. To prevent the oil transiting the pipeline from transferring heat to the ground and warming the permafrost, the pipeline is elevated six feet off the ground in these sections. Further, the pipeline requires use of 124,000 thermosyphons, which are devices inserted in the ground near the pipeline to keep the ground frozen.[142] These thermosyphons are essential for maintaining the integrity of the pipeline, but as originally constructed they only affect the ground beneath the structure.

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[138] *See*, California Air Resources Board, Final California Crude Average Carbon Intensity Values (2012 & 2022) https://ww2.arb.ca.gov/resources/documents/lcfs-crude-oil-life-cycle-assessment.
[139] Alaska's Thawing Permafrost, USGS, Goddard Space Flight Center, available at https://www.uvm.edu/~swac/docs/mod6/cape_halkett_4web.pdf.
[140] Chadburn, S., Burke, E., Cox, P. *et al*. An observation-based constraint on permafrost loss as a function of global warming. *Nature Clim Change* 7, 340–344 (2017). https://doi.org/10.1038/nclimate3262.
[141] Climate Change Impacts, United States Environmental Protection Agency, archived at https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-alaska_.html
[142] David Hasemyer, Trans-Alaska pipeline under threat from thawing permafrost, *High Country News*, (July 14, 2021) https://www.hcn.org/articles/climate-change-trans-alaska-pipeline-under-threat-from-thawing-permafrost/.

These chillers are no match for climate change, and in 2021 thawing permafrost damaged the pipeline for the first time.[143] About 57 miles north of Fairbanks, Alaska, the slope of the permafrost has started to shift because of thawing, which in turn has caused several of the braces supporting the elevated pipeline to twist and bend.[144] This "slope creep" damage jeopardizes the structural integrity of the pipeline. To mitigate the damage from the thawing permafrost in this section, the Alaska Department of Natural Resources approved an Aleyska Pipeline Service Company petition to add approximately 100 additional thermosyphons.[145] These thermosyphons are intended to provide slope stability, rather than just focusing on the ground immediately beneath the pipeline.[146] The 2021 incident marks the first attempted defensive use of thermosyphons.[147] The viability of the strategy remains to be seen; the area of the damage has warmed more than 8°F (4.4°C) since 1949.[148]

New information shows that the risks from melting permafrost threaten not just the TAPS ROW, but the North Slope oil field operations altogether. In 1978, the permafrost near Prudhoe Bay was -16°F (-26.7°C) at a depth of 65 feet; by 2018 it had reached 22.5°F (-5.3°C).[149] This rate of warming, confirmed by new modelling, predicts the area will reach the melting point (32°F/0°C) by the year 2100.[150] And a melt at a depth of 65 feet means all the permafrost above it is already melted; more research shows that 93% of near-surface permafrost could be lost by 2100—including all of the near-surface permafrost in Alaska.[151]

And problems will occur long before the entire permafrost layer melts. Ice-rich deposits in soils melt and form taliks, unfrozen ground within permafrost. Studies show that by 2030, 70% of Alaska—including much of the area of TAPS operation—will begin to see talik formation

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[143] David Hasemyer, Thawing Permafrost has Damaged the Trans-Alaska Pipeline and Poses an Ongoing Threat, *Inside Climate News*, (July 11, 2021) https://insideclimatenews.org/news/11072021/thawing-permafrost-trans-alaska-pipeline.

[144] David Hasemyer, Trouble in Alaska? Massive oil pipeline is threatened by thawing permafrost, *NBC News*, (July 11, 2021) https://www.nbcnews.com/news/us-news/trouble-alaska-massive-oil-pipeline-threatened-thawing-permafrost-n1273589.

[145] State of Alaska Department of Natural Resources, *Analysis and proposed decision: Trans-Alaska Pipeline right-of-way lease amendment, ADL 63574*, (Nov. 30, 2020) available at https://aws.state.ak.us/OnlinePublicNotices/Notices/Attachment.aspx?id=125562. The use of thermosyphons in this way required that the state grant Alyeska additional lands beyond the existing right of way, as widespread thawing present "slope creep" threats to the pipeline from greater distances.

[146] David Hasemyer, Trans-Alaska pipeline under threat from thawing permafrost, *High Country News*, (July 14, 2021) https://www.hcn.org/articles/climate-change-trans-alaska-pipeline-under-threat-from-thawing-permafrost/.

[147] *Id.*

[148] *Id.*

[149] Tim Bradner, Melting permafrost may make oil production nearly impossible on the North Slope, *Anchorage Press* (Sep. 17, 2022) https://www.anchoragepress.com/news/melting-permafrost-may-make-oil-production-nearly-impossible-on-the-north-slope/article_6b912510-10a9-11ea-8991-6729e599710a.html.

[150] *Id.*

[151] Guo, Donglin, Huijun Wang, Vladimir E. Romanovsky, *et al.* 2023. "Highly Restricted Near-surface Permafrost Extent during the Mid-Pliocene Warm Period." Proceedings of the National Academy of Sciences. *Proceedings of the National Academy of Sciences*. https://doi.org/10.1073/pnas.2301954120 (defining near-surface as top 10 to 13 feet).

regardless of winter conditions.[152] Talik development will rapidly accelerate the rate and extent of permafrost degradation.[153] These changes will occur more rapidly in area with development, as road dust and roadside flooding increase the rate of change.[154]

Compounding the threat of permafrost thaw to the pipeline is the threat of flooding. As already noted, TAPS runs close to 34 major rivers and streams with evidence as recently as 2019 of river flooding threatening the integrity of the pipeline. This includes severe flooding of the Sagavanirktok River which, in 2019, eroded more than 100 feet of riverbank, leaving only a 30-foot buffer between the pipeline and the river.[155] Alyeska Pipeline Service Company has stated that "waterways along TAPS are often turbulent and changing" with, starting in 2015, "major flooding in the northern region of TAPS that hadn't been witnessed before."[156] The 2019 flooding exemplifies this, with warmer temperatures noted as an important contributor.

The threat posed by flooding extends beyond that to the TAPS infrastructure directly. Extreme flooding in 2015 resulted in a weeks-long closure of Alaska's Dalton Highway, the only road link to the North Slope oil fields, and proximal to TAPS.[157] Importantly, the Dalton Highway also serves as a berm that protects TAPS.[158] Therefore, impairment of the Dalton Highway also imperiled vulnerable TAPS infrastructure.

New evidence shows that the effects of such flooding outlast the flood itself: a 2023 study found that the 2015 flood event had longer-term effects on permafrost thaw. Radar evidence showed ground subsidence following the 2015 flood, interpreted as mostly due to flood waters warming the ground and causing ground ice to melt.[159] The most dramatic examples of thaw and subsidence were in ice-rich regions of permafrost. This could have potentially led to further

[152] Farquharson, L.M., Romanovsky, V.E., Kholodov, A. *et al.* Sub-aerial talik formation observed across the discontinuous permafrost zone of Alaska. *Nat. Geosci.* 15, 475–481 (2022). https://doi.org/10.1038/s41561-022-00952-z; *see also* Rod Boyce, *UAF scientists find new indicators of Alaska permafrost thawing*, Geophysical Institute (June 6, 2022), https://www.gi.alaska.edu/news/uaf-scientists-find-new-indicators-alaska-permafrost-thawing ("After approximately 2030, however, our air temperatures in the summer and winter will warm up enough that we're going to have talik formation no matter what the snow does.").
[153] Boyce (2022).
[154] Raynolds *et al.* 2014. Cumulative geoecological effects of 62 years of infrastructure and climate change in ice-rich permafrost landscapes, Prudhoe Bay Oilfield, Alaska, *Global Change Biology* 20:1211-24.
[155] David Hasemyer, Trans-Alaska pipeline under threat from thawing permafrost, *High Country News*, (July 14, 2021) https://www.hcn.org/articles/climate-change-trans-alaska-pipeline-under-threat-from-thawing-permafrost/.
[156] Alyeska Pipeline Service Company, 2015: The Sag River Saga (Accessed January 23, 2024), https://www.alyeska-pipe.com/2015-the-sag-river-saga/.
[157] Rosen, Y., Extreme flooding on Alaska's Arctic highway caused thaw-induced sinking in later years, *Alaska Public Media* (October 31, 2023), https://alaskapublic.org/2023/10/31/extreme-flooding-on-alaskas-arctic-highway-caused-thaw-induced-sinking-in-later-years/.
[158] Alyeska Pipeline Service Company, 2015: The Sag River Saga (Accessed January 23, 2024), https://www.alyeska-pipe.com/2015-the-sag-river-saga/.
[159] Zwieback, S. *et al.*, Disparate permafrost terrain changes after a large flood observed from space, 34 Permafrost and Periglac Process. 451 (2023).

complications by allowing for the ponding of water, leading to a darker and warmer ground surface, and more thawing.[160]

Additionally, aging pipeline infrastructure also threatens the pipeline, and the impacts of TAPS's age have not been properly considered. New studies show that pipelines between 40 and 50 years—the age of TAPS—have the highest environmental risk.[161] This "sharp increase" in accident rate is due to "aging and corrosion of pipeline materials."[162] Although pipeline age has long been understood to be a risk factor for accidents,[163] the impact of age in predicting risk was only recently quantified. A recent report by the Prince William Sound Citizens' Advisory Council initiated in response to safety concerns by current and former Alyeska Pipeline Service Committee employees highlights further challenges related operations and aging infrastructure, heightening the urgent action needed to avoid the dire consequences of a safety or environmental event. The report found "a real risk of serious accident or incident in the near future" and concluded that "[Alyeska] is stretched with aging and obsolete equipment, obsolete and missing spare parts to maintain the infrastructure, and inadequate Audit and Quality Function, an apparently non-functional Compliance and Ethics Program, a seriously degraded Safety Culture, a hollowed out [open work environment], a deficient [process safety management] process, and inadequate [Valdez Marine Terminal] resources. Alyeska has suffered significantly under more recent corporate management. At the same time, regulatory oversight at the VMT has diminished, allowing the deterioration to occur."[164] This new information was not (and could not have been) considered in the 2002 FEIS, which did not consider the aging infrastructure as a risk at all.

New information about the increased quadruple threats to pipeline integrity—thawing permafrost, flooding, aging infrastructure, and degraded safety culture —demonstrate the elevated risk of an oil spill. Should a spill occur, it would be devastating. TAPS averages 20 million gallons of oil per day, and any discharged oil could further accelerate the thawing of the permafrost.[165] Since the 2002 FEIS, there have already been at least eighteen breaches of TAPS, spilling nearly 10,000 barrels of oil.[166]

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[160] Boyce, R., Flooding that closed Dalton Highway also caused widespread ground sinking, University of Alaska Fairbanks (October 11, 2023), https://www.uaf.edu/news/flooding-that-closed-dalton-highway-also-caused-widespread-ground-sinking.php.
[161] Hongfang Lu, Dongmin Xi, Guojin Qin, Environmental risk of pipeline accidents, 2023, https://doi.org/10.1016/j.scitotenv.2023.162386
[162] *Id.*
[163] U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, Pipeline Replacement Background, https://www.phmsa.dot.gov/data-and-statistics/pipeline-replacement/pipeline-replacement-background.
[164] Garde, Billie P., Assessment of Risks and Safety Culture at Alyeska's Valdez Marine Terminal (April 2023), https://www.pwsrcac.org/wp-content/uploads/filebase/programs/terminal_operations/Assessment-of-Risks-and-Safety-Culture-at-Alyeskas-Valdez-Marine-Terminal.pdf?no_preview=1; *see also* David Hasemyer, Concerns Linger Over a Secretive Texas Company that Owns the Largest Share of the Trans-Alaska Pipeline, Inside Climate News (November 22, 2021), https://insideclimatenews.org/news/22112021/hilcorp-trans-alaska-pipeline/.
[165] David Hasemyer, Trans-Alaska pipeline under threat from thawing permafrost, *High Country News*, (July 14, 2021) https://www.hcn.org/articles/climate-change-trans-alaska-pipeline-under-threat-from-thawing-permafrost/.
[166] *Id.*

Endangered species developments since 2002 constitute new information and changed circumstances

Since 2002, developments related to endangered species constitute new information that was not included in the previous NEPA analysis. The 2002 FEIS claims TAPS operation will not "produce population-level effects" on listed or protected species.[167] It also stated no designated critical habitat occurs in the vicinity of TAPS.[168] Several species have been listed under the Endangered Species Act (ESA) since 2002, including polar bears, ringed and bearded seals, and multiple distinct population segments of humpback whales, among others; and critical habitat has been designated for these species in the area that TAPS affects. Additionally, new science has revealed TAPS's harm to other species, such as caribou.

Polar bears were listed under the Endangered Species Act in 2008

Because of the warming climate's impact on sea ice, the U.S. Fish and Wildlife Service (FWS) listed the polar bear as a threatened species in 2008.[169] Polar bears are an ice-dependent species; they need sea ice as a platform from which to hunt, to make seasonal migrations between the sea ice where they feed and their terrestrial denning areas, and to find mates.[170] Additionally, female polar bears give birth in snow dens excavated either on land or in the snow on top of the drifting sea ice.[171]

Because of their specialized habitats and life history, polar bears are particularly vulnerable to sea ice loss. Research by the USGS concluded that reduced sea ice would result in the loss of approximately two-thirds of the world's polar bears within 50 years, and Alaska's polar bears will likely be extirpated if business as usual emission scenarios occur.[172] These studies, and others, led FWS to list polar bears as threatened under the ESA in 2008.[173] But these impacts are not just predictions or future threats; they are already occurring and documented.

In fact, the population of polar bears living closest to the North Slope—and therefore TAPS operations—has suffered from dramatic sea ice losses and is in decline.[174] The most recent population estimate for this group, the South Beaufort Sea population, estimated an average of 565 bears between 2006 to 2015.[175] The 2002 FEIS estimates this population at 1,765 bears—

[167] 2002 FEIS at 4.3-58.
[168] 2002 FEIS at 4.3.18.
[169] 73 Fed. Reg. 28,212, 28,293 (May 15, 2008).
[170] 73 Fed. Reg. at 28,214.
[171] 73 Fed. Reg. at 28,215.
[172] S.C. Amstrup, *et al*., Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21st Century, U.S. Geological Survey Administrative Report (2007).
[173] 73 Fed. Reg. at 28,212.
[174] USGS, Southern Beaufort Sea Polar Bear Population Declined in the 2000s, Nov. 17, 2014.
[175] Bromaghin, J.F, *et al.*, Survival and abundance of polar bears in Alaska's Beaufort Sea, 2001-2016, 11 Ecology and Evolution 14250 (2021), https://doi.org/10.1002/ece3.8139.

indicating the population has decreased by more than two-thirds (68%) since then.[176] The August 2023 Species Status Assessment for the Polar Bear prepared by FWS classified the Southern Beaufort Sea population as declining.[177] FWS also stated that projections for polar bears in Alaska's Southern Beaufort Sea and Chukchi/Bering Sea subpopulations, "were the most pessimistic with populations being greatly decreased for all [Representative [GHG] Concentration Pathways] in all future time periods," including the short term (2020–2030).[178] In fact, a prominent 2020 study projected that many polar bear populations, including the Southern Beaufort Sea and Chukchi Sea populations in Alaska, could be extirpated in just a few decades without aggressive efforts to reduce fossil fuel emissions.[179] The outdated 2002 FEIS describes the South Beaufort Sea stock as "increasing," a claim that abundant new scientific information has shown to be errant.[180]

After listing the imperiled species, recognizing the critical importance of sea ice for polar bear survival, FWS designated sea ice habitat off Alaska as critical habitat for the polar bear in 2010.[181] Polar bear sea ice critical habitat includes the Beaufort Sea off the coast of the North Slope; an area impacted by TAPS operations.[182] FWS also designated denning critical habitat, including the area surrounding the Kavik River, near Prudhoe Bay.[183] This denning habitat surrounds TAPS and the North Slope. The 2002 FEIS declares that "no designated critical habitat occurs in the vicinity of the TAPS."[184] However, because of changed circumstances, TAPS now operates in the heart of both polar bears' denning critical habitat and polar bears' sea ice critical habitat.

Nor does the 2002 FEIS make any mention of the potential climate impacts to polar bears from TAPS operations. It fails to acknowledge the jeopardy of the species. The 2002 FEIS claims that no listed and protected species found in the Beaufort Sea would be affected because "TAPS operation does not directly or indirectly affect the waters of the Beaufort Sea."[185] But this is wrong. Climate science has now definitively shown that TAPS operation affects the waters and sea ice of the Beaufort Sea. And polar bears, which were not listed in 2002 but now have been, are certainly affected by TAPS.

[176] 2002 FEIS at 3.22-14.
[177] U.S. Fish and Wildlife Service, Species Status Assessment for the Polar Bear (*Ursus maritimus*) (Aug. 18, 2023) at Table 1.
[178] *Id.* at 86.
[179] Molnár, Péter K. *et al*., Fasting season length sets temporal limits for global polar bear persistence, 10 Nature Climate Change 732 (2020), https://doi.org/10.1038/s41558-020-0818-9.
[180] *Compare id. with* Bromaghin (2021).
[181] U.S. Fish and Wildlife Service, Designation of Critical Habitat for the Polar Bear (*Ursus maritimus*) in the United States, 75 Fed. Reg. 76,086 (Dec. 7, 2010).
[182] 75 Fed. Reg. at 76134
[183] 75 Fed. Reg. at 76135
[184] 2002 FEIS at 4.3.18.
[185] *Id.*

As one example, the Willow Master Development oil drilling project, approved in March 2023, is enabled by TAPS and will further imperil polar bears and their habitat.[186] The oil and gas development from Willow will harm polar bears through noise pollution, inevitable oil spills, disturbance from seismic activities, interactions with humans, and physical obstructions.[187] The significant greenhouse gas pollution from this project will drive further loss of the sea ice that polar bears need for survival.[188]

What is more, scientists can now predict specific harms to individual species from the incremental emissions increases directly attributable to the federal agency actions, and can also assess the consequences of emissions for listed species' conservation and recovery.[189] Highlighting the importance of reducing greenhouse gas emissions to protect sea ice and sea-ice dependent species, one recent study estimated that each metric ton of CO2 emission results in a sustained loss of 3 ± 0.3 m^2 of September Arctic sea ice area based on the robust linear relationship between monthly-mean September sea ice area and cumulative CO2 emissions.[190] Similar to other research,[191] the study concluded that limiting warming to 2°C is not sufficient to allow Arctic summer sea ice to survive, but that a rapid reduction in emissions to achieve a 1.5°C global warming target gives Arctic summer sea ice "a chance of long-term survival at least in some parts of the Arctic Ocean."[192]

Ringed seals and bearded seals were listed under the Endangered Species Act in 2010

Like polar bears, ringed seals and bearded seals need ample sea ice to survive. It is the only surface where they breed, give birth, raise their young, and haul out to complete their annual molt.[193] Ringed seals also need deep amounts of snow on top of sea ice to build caves that provide newborn and nursing pups with vital safeguards from the cold and predators.[194] After finding the seals in danger of extinction within the foreseeable future because climate change

[186] Bromaghin (2021).
[187] *See, e.g.*, Ryan R. Wilson & George M. Durner, Seismic Survey Design and Effects on Maternal Polar Bear Dens, Journal of Wildlife Management. (2020); Owen, Megan A. 2021. Estimating the Audibility of Industrial Noise to Denning Polar Bears, Journal of Wildlife Management 85:384; Ryan Wilson *et al.*, Potential impacts of an autumn oil spill on polar bears summering on land in northern Alaska, 292 Biological Conservation 110558 (2024).
[188] Amstrup, Steven C. *et al.*, Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21st Century, U.S. Department of the Interior and U.S. Geological Survey, USGS Science Strategy to Support U.S. Fish and Wildlife Service Polar Bear Listing Decision, Reston, Virginia (2007); Amstrup, Steven C. *et al.*, Greenhouse Gas Mitigation Can Reduce Sea Ice Loss and Increase Polar Bear Persistence, 468 Nature 955 (2010).
[189] Amstrup, Steven C. *et al.*, Unlock the Endangered Species Act to address GHG emissions, 381 Science 949 (2023).
[190] Dirk Notz & Julienne Stroeve, Observed Arctic sea ice loss directly follows anthropogenic CO2 emission, 354 Science 747 (2016).
[191] Schleussner, Carl-Friedrich *et al.*, Science and policy characteristics of the Paris Agreement temperature goal, 6 Nature Climate Change 827 (2016) at 830.
[192] Notz & Stroeve (2016) at 3–4.
[193] 77 Fed. Reg. 76,706, 76,709 (Dec. 28, 2012) (ringed seals); 77 Fed. Reg. 76,740, 76,743 (Dec. 28, 2012) (bearded seals).
[194] 77 Fed. Reg. at 76,709.

will destroy the sea ice (and snow) the seals need to survive, the National Marine Fisheries Service (NMFS) listed both species as threatened under the ESA in 2012.[195]

Bearded seals feed primarily on benthic (i.e., seabed-dwelling) organisms that are more plentiful in shallow waters where light can reach the seafloor.[196] As such, the bearded seal's range is generally restricted to areas where seasonal sea ice occurs over relatively shallow waters, typically less than 200 meters in depth.[197]

And unlike other seals, ringed seals excavate caves in the snow on top of sea ice, forming "snow caves."[198] These snow caves hide seals from predators and provide insulation from the extreme cold while seals are resting, and while adult females are whelping and nursing their young. Snow caves are especially important in spring when pups are born and nursed. Without these snow caves, pups freeze to death or are eaten by predators. Indeed, studies have documented a nearly 100 percent pup mortality rate without these snow caves.[199]

While the 2002 FEIS describes both ringed seals and bearded seals as present near TAPS's operation area, the FEIS does not examine the pipeline's impacts on the species. The outdated FEIS notes that neither species (at the time) was listed as threatened under the ESA.[200] The document could not identify population trends for either species.[201]

Since 2002, new information has led to a radically different understanding of the status of ringed and bearded seals. In listing both species, NMFS relied on models widely accepted as the best available science on climate change to analyze impacts to bearded and ringed seals from habitat loss through 2100.[202] Using observational and predictive data from the IPCC's Fourth Assessment Report, NMFS analyzed the extent of Arctic sea ice loss (and snow cover loss in the ringed seal listing) within the foreseeable future, and then evaluated the effects on the seals from such habitat loss.[203]

The warming indicated by greenhouse gases already in the atmosphere and those modeled to be emitted in the coming decades means "that loss of sea ice and reduced snow cover will continue throughout the 21st century."[204] Based on these models and other science, NMFS concluded "that the consequences of habitat change associated with a warming climate can be expected to

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[195] 77 Fed. Reg. at 76706 (Dec. 28, 2012) (ringed seals); 77 Fed. Reg. at 76740 (Dec. 28, 2012) (bearded seals).
[196] 77 Fed. Reg. at 76,745.
[197] *See Alaska Oil & Gas Ass'n v. Pritzker*, 840 F.3d 671, 677 (9th Cir. 2016) ("Pritzker") (noting NMFS's conclusion "that the availability of sea ice in shallow water was crucial to the [bearded seal's] viability.").
[198] 77 Fed. Reg. at 76,709.
[199] *Id.*
[200] 2002 FEIS at 3.22.2.6 (ringed seal); *id.* at 3.22.2.7 (bearded seal).
[201] *Id.* at 3.22.2.6 (ringed seal); *id.* at 3.22.2.7 (bearded seal).
[202] *See* 77 Fed. Reg. 76706, 76,707 (Dec. 28, 2012) (listing "habitat alteration stemming from climate change" as primary threat to ringed seals); 77 Fed. Reg. 76740, 76742 (Dec. 28, 2012) (listing alterations as sea ice habitat as the "main concern" for bearded seals).
[203] 77 Fed. Reg. 76,707; 77 Fed. Reg. at 76,741.
[204] 77 Fed. Reg. 76,707; 77 Fed. Reg. at 76,741.

manifest throughout the current breeding and molting ranges of [bearded and ringed seals], and that the ongoing and projected changes in sea ice habitat pose significant threats to the persistence of" both species.[205] NMFS also concluded that "[w]ithin this century, snow cover is forecasted to be inadequate for the formation and occupation of birth lairs over most of the [ringed seals'] range."[206] NMFS then determined that such losses would likely cause the extirpation of bearded and ringed seals from most places they live and threaten the species with extinction within the foreseeable future. NMFS listed both seals as threatened as a result.

NMFS has also designated critical habitat for the Arctic ringed seal and the Beringia distinct population segment (DPS) of the bearded seal in Alaska.[207] In doing so, NMFS reiterated the importance of sea ice for the survival and recovery of both species; and concluded that oil and gas activities and marine transport pose threats to that habitat and may require special management considerations or protections.[208] The agency noted, for example, that "in the event of an oil spill, sea ice essential for whelping, nursing, and molting could become oiled" and "the quantity and/or quality of primary prey resources essential to the conservation of the Beringia DPS [of the bearded seal] could be diminished as a result of spills."[209]

The 2002 FEIS does not consider the listing status of ringed and bearded seals in analyzing the effects of TAPS on these species. Nor does it consider potential effects to the seals' critical habitat from TAPS, including from vessel traffic, oil spills, and increased sea ice loss caused by the greenhouse gas emissions the continued operations of TAPS enables.

Distinct population segments of humpback whales were listed under the Endangered Species Act in 2016

In 2016, NMFS recognized three previously unidentified subspecies of humpback whale and evaluated the status of each.[210] In doing so, it classified four DPSs as endangered and one DPS as threatened.[211]

Two of the DPSs, the endangered Western North Pacific DPS and the threatened Mexico DPS, spend time in Alaskan waters, including the Prince William Sound.[212]

[205] 77 Fed. Reg. 76,717; 77 Fed. Reg. at 76,749.
[206] 77 Fed. Reg. 76,710.
[207] 87 Fed. Reg. 19,180 (Apr. 1, 2022); 87 Fed. Reg. 19,232 (Apr. 1, 2022).
[208] 87 Fed. Reg. at 19,190–91; 87 Fed. Reg. at 19,242–43.
[209] 87 Fed. Reg. at 19,191.
[210] 81 Fed. Reg. 62,261 (Sep. 8, 2016).
[211] The endangered DPSs are the Cape Verde Islands/Northwest Africa DPS, the Western North Pacific DPS, the Central America DPS, and the Arabian Sea DPS. The Mexico DPS was listed as threatened. *Id.*
[212] *See* NOAA Fisheries, Humpback Whale Distinct Population Segments Identification Map, November 23, 2020, https://www.fisheries.noaa.gov/resource/map/humpback-whale-distinct-population-segments-identification-map.

In 2021, NMFS designated critical habitat for these listed DPSs.[213] The Mexico DPS's critical habitat was determined to include the Prince William Sound.[214] NMFS also designated critical habitat for the Western North Pacific DPS that largely overlapped with the Mexico DPS critical habitat, including Alaskan waters surrounding Kodiak Island and the Aleutian Islands.[215] The final rule designating critical habitat recognized ship strikes and vessel noise as impacts to the species.[216]

New population data from 2022 suggests that the number of humpback whales—including calves—in the Prince William Sound is declining.[217] The drop in whale population has been observed throughout the Gulf of Alaska, which suggests that there is a true decline and changes in whale distribution are not responsible for the reduction in encounters.[218] Other sightings of "skinny whales," or whales with poor body condition due to their "emaciated appearance" have been reported in the Prince William Sound as well.[219]

These listed whale populations are impacted by TAPS's operation. Oil transiting TAPS ends at Port Valdez.[220] From there, tankers are loaded with the crude oil at the Valdez Marine Terminal, then travel through the Prince William Sound and Gulf of Alaska to their final destinations, largely the U.S. west coast.[221] In 2020, 209 tankers made this trip, averaging 17 per month.[222] Those tankers harm whale populations that live in the region.

NMFS listed vessel strikes as the "[p]otential threat[] most likely to result in direct human-caused mortality" to whales in the Mexico-North Pacific stock, a subset of the threatened Mexico DPS.[223] NMFS has documented reports of vessel strikes of whales from the Western North Pacific DPS in the Prince William Sound area as well.[224] Oil tankers carrying north slope crude risk killing listed whales with each trip. Further, even if they are not struck by a tanker, the sound from the vessels harms the whales. NMFS identified "[i]ncreasing levels of anthropogenic

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[213] 86 Fed. Reg. 21,082 (April 21, 2021).
[214] *Id.* at 21,156.
[215] *Id.* at 21,157.
[216] *Id.* at 21,103 (vessel strikes); *Id.* at 21,115 (anthropogenic noise).
[217] Mexico-North Pacific Stock Assessment at 259; *See also* Cheeseman, Ted *et al*., Bellwethers of change: population modelling of North Pacific humpback whales from 2002 through 2021 reveals shift from recovery to climate response, 11 R. Soc. Open Sci. 231462 (Feb. 28, 2024).
[218] *Id.*
[219] 84 Fed. Reg. 54,363 (Oct. 9, 2019).
[220] 2002 FEIS at 3.9.
[221] 2002 FEIS at 3.11.4.1.
[222] *FAQs*, Alyeska Pipeline Service Company, available at https://www.alyeska-pipe.com/faqs/how-many-tankers-visit-the-valdez-marine-terminal-every-year-to-transport-oil/. The 2002 FEIS estimated that by 2020, the number of oil tankers serving the Valdez Marine Terminal would decrease from 26 to "8 to 10." 2002 SEIS 3.11.4.1 at 3.11-6. Whether this drop has occurred is currently unknown.
[223] Mexico-North Pacific Stock Assessment at 261.
[224] *Humpback Whale (*Megaptera novaeangliae kuzira*): Western North Pacific Stock Stock Definition And Geographic Range*, NOAA Fisheries (2022), https://www.fisheries.noaa.gov/s3/2023-08/Humpback-Whale-WNPS-2022.pdf at 233.

sound" as a threat to the listed DPSs.[225] Humpback whales communicate using low-frequency sound, and the noise from shipping traffic interferes with communication.[226]

NMFS's reclassification and listing of the Western North Pacific and Mexico humpback whale DPSs in 2016 is new information that was not (and could not have been) analyzed in the 2002 FEIS.[227] The 2021 critical habitat designations are also new information, as are the 2022 surveys showing a decline in these populations. The 2002 FEIS's recognition that TAPS's operation will have effects on the Prince William Sound, including the marine mammals that live there, demonstrates the connection between the pipeline and these animals.[228] The listing of Western North Pacific DPS and the Mexico DPS, as well as the designation of their critical habitat, are developments that must be considered in a supplemental NEPA analysis.

The North Pacific right whale received Endangered Species Act Protections in 2008

The eastern population of North Pacific right whales is the smallest known whale population in the world today, with fewer than 50 individuals estimated to be surviving. A 2011 study estimated the population includes only 28 to 31 individuals based on genotype and photographic data,[229]and a 2012 study estimated the effective population size (Ne) is exceedingly low—just 11.6 total whales.[230] Although these estimates may only relate to a Bering Sea subpopulation, recent data indicate individuals in the Gulf of Alaska and Bering Sea are part of the same population, and it is unlikely its population is any larger than these estimates given the limited number of sightings in the eastern North Pacific in recent years.[231] Scientists have described the number of reproducing animals as "alarmingly low" and of significant concern for the survival of the species.[232]

In 2008, NMFS listed the North Pacific right whale as a separate species under the ESA. In doing so, NMFS noted that the whale's small population size, "anthropogenic threats and other factors … demonstrate a high risk of extinction for the North Pacific right whale throughout its range, into the foreseeable future."[233] Following the listing, NMFS designated two areas as critical habitat for the species in 2008—waters in the Gulf of Alaska near Kodiak Island and waters in the southeastern Bering Sea.[234] NMFS recently announced its intent to expand that designation, in response to a petition to connect the two existing critical habitat areas by

[225] *Id.* at 265.
[226] *Id.*
[227] 2002 FEIS at 4.3-63; *see also id.* at Table 4.3-5 ("No impacts to [humpback whales] are anticipated.").
[228] *See, e.g.*, *id.* at 3.18-18.
[229] Wade, P. R., Kennedy, A., *et al.*, The world's smallest whale population? 7(1) Biology Letters 83–85 (2011).
[230] LeDuc, R. G., et al., Genetic analysis of right whales in the eastern North Pacific confirms severe extirpation risk, 18(2) Endangered Species Research 163–167 (2012).
[231] Wade *et al*. (2011); LeDuc *et al*. (2012) at 166 ("The genetic test [of a whale biopsied in the Gulf of Alaska] did not exclude that whale from the Bering Sea population, suggesting that the small numbers of whales found in the Gulf of Alaska may be a part of the same population found in the Bering Sea.").
[232] LeDuc *et al*., (2012).
[233] 73 Fed. Reg. 12,024 (Mar. 6, 2008).
[234] 50 C.F.R. § 226.215; 73 Fed. Reg. 19,000, 19,003 (Apr. 8, 2008).

extending the Bering Sea boundary westward and southward to the Fox Islands, through Unimak Pass to the edge of the continental slope, and eastward to Kodiak Island—encompassing a key migratory point and connecting two essential feeding grounds.[235] These habitat areas and the species itself are threatened by vessel traffic associated with TAPS.

Collisions with vessels is a major threat and impact to North Pacific right whales. Although there is a lack of documented cases of ship strikes with North Pacific right whales, this is only due to their extremely low population numbers and lack of necropsy reports, not because there is no such threat.[236] Indeed, whales are particularly vulnerable to ship collisions if they are slow swimmers, spend a lot of time at the surface, or use areas near shipping lanes—and like its cousin in the North Atlantic, the North Pacific right whale "qualifies in all three categories."[237] This makes it highly susceptible to ship strikes, particularly since its population is already so critically low and there is high shipping traffic in the region, making ship strikes an "acute" threat.[238]

In addition to vessel strikes, North Pacific right whales are also threatened by vessel noise. Research reveals that chronic stress in North Atlantic right whales is associated with exposure to low frequency noise from ship traffic. Specifically, "the adverse consequences of chronic stress often include long-term reductions in fertility and decreases in reproductive behavior; increased rates of miscarriages; increased vulnerability to diseases and parasites; muscle wasting; disruptions in carbohydrate metabolism; circulatory diseases; and permanent cognitive impairment."[239] These findings have led researchers to conclude that "over the long term, chronic stress itself can reduce reproduction, negatively affect health, and even kill outright."[240] North Pacific right whales likely suffer in the same ways.

The 2002 FEIS does not consider the listing status of the North Pacific right whale in analyzing the effects of TAPS or the potential effects to the whale's current critical habitat and likely

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[235] 88 Fed. Reg. 65,940 (Sept. 26, 2023).
[236] *See, e.g.*, Wright, D. L., *et al.*, Acoustic detection of North Pacific right whales in a high-traffic Aleutian Pass, 2009–2015, 37 Endangered Species Research 77–90 (2018) at 88 ("Although there is limited evidence for [ship strike threats], the remote habitat makes detections of anthropogenic mortalities unlikely. Right whales in other parts of the world with high vessel activity are vulnerable to ship strike. . . ."); Muto, M., *et al.*, Alaska marine mammal stock assessments, 2019. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-TM-AFSC-404 (2020) at 250 ("[G]iven the remote nature of the known and likely habitats of North Pacific right whales, it is very unlikely that any mortality or serious injury in this population would be observed. Consequently, it is possible that the current absence of reported mortality or serious injury due to entanglement in fishing gear, ship strikes, or other anthropogenic causes (e.g., oil spills) is not a reflection of the true situation").
[237] Clapham, P. J., Young, S. B., & Brownell Jr, R. L. (1999). Baleen whales: conservation issues and the status of the most endangered populations. Mammal Review, 29(1), 35–60, at 38.
[238] Wright *et al.* (2018) at 88; *see also* Ransome, N. *et al.*, Vessel Strikes of Large Whales in the Eastern Tropical Pacific: A Case Study of Regional Underreporting, 8 Frontiers in Marine Science 675245 (2021) at 1 ("Vessel strike is recognized as a major modern threat to the recovery of large whale populations globally, but the issue is notoriously difficult to assess. Vessel strikes by large ships frequently go unnoticed, and those involving smaller vessels are rarely reported.").
[239] R. Rolland *et al.*, Evidence that ship noise increases stress in right whales, Proc. R. Soc. B. (Feb. 8, 2012).
[240] R. Rolland *et al.*, The Inner Whale: Hormones, Biotoxins and Parasites, In The Urban Whale: North Atlantic Right Whales at the Crossroads 232–72 (S.D. Kraus & R.M. Rolland eds., 2007).

expansion. The 2002 FEIS also fails to consider the multitude of new information demonstrating the existential threat that vessel traffic, including TAPS-related vessel traffic, poses to the species.

New studies of impacts to caribou migration and habitat have emerged since 2002

In Alaska, Arctic caribou are a highly significant cultural and subsistence resource for Alaska Native people.[241] In the summer, these caribou travel north to coastal habitat to raise newborn calves, find quality forage, and get relief from mosquitos—in doing so they trek the longest migration of any terrestrial mammal.[242] Increasingly, land-use activities are affecting the caribou migration. The Central Arctic Herd has the greatest interaction with oil field infrastructure, as they must navigate the Kuparuk, Milne Point, and Prudhoe Bay oil fields to access their summer habitat.[243] In response to energy infrastructure—including TAPS and related development—caribou have exhibited "avoidance behavior, reduced densities, shifted their calving distributions, and limited their movements."[244]

Four migratory herds in Alaska have experienced "significant declines."[245] Recovery of these herds is affected by a changing climate and "increased land-use activities across the herds' ranges."[246] Climate change-induced shifts to the timing of thawing and springtime growth are affecting caribou's migration success.[247] Indeed, caribou may have already altered their winter range based on changes to the weather.[248] The effect of interannual weather variation and climate change on the caribou migration demonstrates the importance of ensuring caribou have access to sufficient suitable habitat.

The ability of caribou to respond to a changing climate is impacted by TAPS and associated infrastructure, including oil field development on the North Slope. Caribou have demonstrated a "consistent and robust" avoidance pattern of roads and other infrastructure.[249] The latest studies show that, rather than acclimating to development, caribou may be exhibiting a stronger aversion to this infrastructure over time. Latest estimates show that caribou remain 5 km away from

[241] *See, e.g.*, 2002 SEIS at 3.24-1.
[242] Severson, John P., Heather E. Johnson, Stephen M. Arthur, *et al*. 2021. "Spring Phenology Drives Range Shifts in a Migratory Arctic Ungulate with Key Implications for the Future." At 2. *Global Change Biology*. https://doi.org/10.1111/gcb.15682.
[243] Severson, John P., Timothy C. Vosburgh, and Heather E. Johnson. 2023. "Effects of Vehicle Traffic on Space Use and Road Crossings of Caribou in the Arctic." Ecological Applications. https://doi.org/10.1002/eap.2923.
[244] *Id.*
[245] Russell, D., A. Gunn, and R. White. 2021. A decision support tool for assessing cumulative effects on an Arctic migratory tundra caribou population. *Ecology and Society* 26(1):4. https://doi.org/10.5751/ES-12105-260104
[246] *Id.* at 1.
[247] Severson (2021) at 2.
[248] Nicholson, K.L., Arthur, S.M., Horne, J.S., Garton, E.O., and Del Vechhio, P.A., 2016, Modeling caribou movements—Seasonal ranges and migration routes of the Central Arctic herd: *PLoS One*, v. 11, p. e0150333.
[249] Severson (2023).

energy infrastructure during the calving period and 2 km during the post-calving period.[250] Earlier estimates predicted habituation over time, which new studies show is not occurring.[251]

TAPS, which bisects the summer range of the Central Arctic Herd, has a strong detrimental effect on the caribou that was not considered in the 2002 FEIS. While the 2002 FEIS recognized that caribou often hesitate or struggle to cross a pipeline,[252] it concluded the TAPS ROW and the accompanying Dalton Highway "are not barriers to movements" of the caribou.[253] It claimed that "no data indicate adverse effects at the population level"[254] and would only impact "relatively few individuals."[255]

But new studies show that this is false. Caribou are sensitive to traffic volumes at levels "well below" what was previously believed to be a threshold: merely zero to five vehicles an hour.[256] Further, caribou exhibited an even greater avoidance of "multiple adjacent structures (e.g., pipelines situated adjacent to roads)."[257] TAPS, which for most of its length includes the "multiple structures" of the Dalton Highway and pipeline, causes severe impacts to caribou migration and habitat availability.[258]

New information about the status of threatened Steller's eiders was uncovered in 2019

Steller's eider is one of three ESA-listed bird species that the 2002 FEIS analyzes. The Alaska-breeding population of Steller's eiders was listed as threatened under the ESA in 1997.[259] This population was held to be a DPS because of its discreteness and its significance to the total population.[260] The decision to list the Alaska DPS of Steller's eiders was based on the contraction of its breeding range.[261] In 2001, USFWS designated 2,830 square miles of critical habitat for the population, including breeding habitat (Yukon-Kuskokwim Delta), molting habitat (Kuskokwim Shoals and Seal Islands) and wintering areas (Nelson Lagoon and Izembek Lagoon).[262] The 2002 FEIS recognizes and considers this information.

[250] Johnson, Heather E., Trevor S. Golden, Layne G. Adams, *et al*. 2019. "Caribou Use of Habitat Near Energy Development in Arctic Alaska." *The Journal of Wildlife Management*. https://doi.org/10.1002/jwmg.21809.
[251] *Id.*
[252] 2002 FEIS at 4.3-56.
[253] *Id*. at 4.3-58
[254] *Id*.
[255] *Id*. at 4.3-90.
[256] Severson (2023).
[257] Johnson (2019).
[258] Although Johnson (2019) did not look at specific infrastructure, its conclusions apply.
[259] 62 Fed. Reg. 31,748 (July 11, 1997).
[260] 61 Fed. Reg. 4722 (Feb. 7, 1996).
[261] 62 Fed. Reg. 31,748.
[262] 66 Fed. Reg. 8,850 (Feb. 2, 2001).

In 2018, the Service initiated a five-year status review,[263] for which a stock assessment was produced in 2019.[264] The review concluded that the Alaska breeding population remained a threatened DPS.[265] Following this review, a revised recovery plan was finalized in 2021.[266] The 2019 status reviewed concluded that "the number of Steller's eiders present on the Arctic Coastal Plain annually is low and highly variable."[267] The agency predicted that current stressors of the population "will continue, and possibly increase."[268] It noted that the threats likely to impact this listed species were "increase[d] oil and gas development (both tundra and offshore), and "increased marine shipping activities," each of which will cause habitat loss, disturbance, collisions, and spill risks.[269] The authors found climate change was also a significant factor. Because of these impacts, the report predicted no recovery in either the redundancy (which the report rated as low) or the representation of the listed DPS.[270]

APPENDIX C

BLM AND THE SECRETARY OF THE INTERIOR HAVE AN OBLIGATION TO PRODUCE A SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT IN LIGHT OF NEW INFORMATION AND CHANGED CIRCUMSTANCES

As explained above, an SEIS must be prepared whenever new information is sufficient to show that the government action may cause effects "in a significant manner or to a significant extent not already considered."[271] Here, a myriad of new information and changed circumstances trigger BLM's obligation to prepare a SEIS on TAPS.

Climate change impacts must be examined

New science on the hastening rate of climate change triggers BLM's duty to supplement its NEPA analysis. Specifically, this obligation is triggered by the finding that climate models are under-calculating heating in the Arctic,[272] the projection that Alaska's surface temperature will increase by 8.1°F by the end of the century under an intermediate emissions scenario,[273] and the projected losses to the Arctic permafrost—which is itself a carbon bomb. This and other climate science must be considered.

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[263] 83 Fed. Reg. 141,142 (Jan. 2, 2018).
[264] U.S. Fish & Wildlife Serv., Status Assessment of the Alaska-breeding Population of Steller's Eiders, March 2019.
[265] *Id*.
[266] Revised Recovery Plan for the Alaska-breeding Population of Steller's Eider (Polysticta stelleri), U.S. Fish and Wildlife Service, Northern Alaska Fish and Wildlife Field Office, December 2021.
[267] U.S. Fish and Wildlife Service. 2019. 5-year status review of the Alaska-breeding population of Steller's eiders. Fairbanks Fish and Wildlife Field Office, Fairbanks, Alaska at 5.
[268] *Id.* at 7.
[269] *Id.*
[270] *Id.*
[271] *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 374, (1989) (citing 42 U.S.C. § 4332(C)).
[272] Rantanen, Mika *et al.*, The Arctic has warmed nearly four times faster than the globe since 1979, 3 Communications Earth & Environment 168 (2022), https://doi.org/10.1038/s43247-022-00498-3.
[273] Henry P. Huntington et al., *Ch. 29: Alaska*, *in* Fifth Nat'l Climate Assessment (A.R. Crimmins et al., eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch29_Alaska.pdf..

Even if climate change had been properly considered in the 2002 FEIS—which it was not—changed circumstances since 2002 give rise to an agency obligation to supplement the EIS with new analysis. *National Wildlife Federation vs. NMFS* is illustrative.[274] There, plaintiffs challenged the EISs issued in 1992, 1993, and 1997 relied upon by the Army Corps of Engineers and Bureau of Reclamation to take actions related to the Columbia River system. The court found these EISs to be "insufficient to constitute compliance with NEPA," and that "relying on data that is too stale to carry the weight assigned to it" is unlawful, holding:

[S]ince the 1990s, there have been significant developments in the scientific information relating to climate change and its effects. All of this new information leads to the conclusion that the relevant physical environment has changed and our understanding of this environment has improved *such that environmental impact statements prepared in the 1990s are neither current nor sufficient*.[275]

The court ordered that a supplemental analysis be conducted. Similarly here, if TAPS's current operation were to continue to rely on a climate analysis conducted in 2002, such reliance would be unlawful. But the status quo is even more dire because the 2002 EIS did not even attempt to analyze climate impacts.[276] Nor has BLM yet considered the climate impacts in a supplemental analysis.[277]

Because the 2002 EIS did not consider climate effects, it is legally insufficient and must be supplemented to comply with NEPA.[278] The 2002 FEIS falsely declared, "[c]arbon dioxide [] emissions from TAPS would add little to the global CO2 concentration level."[279] Not only is this wrong scientifically—as newly available climate science has made clear—it is wrong as a matter of law. "The fact that climate change is largely a global phenomenon . . . does not release the agency from the duty of assessing the effects of its actions on global warming within the context of other actions that also affect global warming."[280] The "incorrect assumptions" in BLM's past NEPA analysis are "sufficient to trigger [a requirement for] supplemental analysis."[281]

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[274] *Nat'l Wildlife Fedn v. Nat'l Marine Fisheries Serv*., 184 F. Supp. 3d 861, 875 (D. Or. 2016).
[275] *Id.*
[276] And because BLM must consider all "direct," "indirect" and "cumulative" effects of its action, the included emissions must include the downstream GHG emissions from TAPS's operation. *Ctr. for Biological Diversity v. Bernhardt*, 982 F.3d 723, 738 (9th Cir. 2020) (holding even foreign consumption of oil and gas needed to be included in emissions calculations).
[277] Email from BLM Alaska FOIA Office to Jeff Ruch, September 19, 2023, available at https://peer.org/wp-content/uploads/2023/10/10_16_23_BLM_FOIA_response.pdf.
[278] *Columbia Riverkeeper v. United States Army Corp of Eng'rs*, 2020 U.S. Dist. LEXIS 219535 (W.D. Wash., Dec. 9, 2020).
[279] 2002 FEIS at 4.3-15.
[280] *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., 538 F.3d 1172, 1217 (9th Cir. 2008).
[281] *Alliance for the Wild Rockies v. Probert*, 412 F. Supp. 3d 1188, 1208 (D. Mont. 2019); *see also Native Ecosys. Council v. Tidwell*, 599 F.3d 926, 937–38 (9th Cir. 2010) (supplemental analysis required where new information was inconsistent with prior EA); *Cascadia Wildlands v. BLM*, 2012 U.S. Dist. LEXIS 182930, *32 (D. Or., Dec. 21, 2012) (same).

Risks to pipeline integrity must be examined

As detailed at length in Appendix A, the rapidly thawing permafrost, aging pipeline infrastructure, and degraded safety culture are threatening the integrity of the pipeline. These developments constitute "changed circumstances" and therefore mandate the supplementation of the now-outdated 2002 FEIS.

When "new developments" change the context in which a project operates, the agency has an affirmative duty under NEPA to supplement its analysis.[282] The 2002 FEIS indicates that the pipeline uses several types of vertical support, and "each is designed for extant soil and loading conditions."[283] Matching the proper vertical support to conditions is crucial to ensuring pipeline safety. However, due to climate change and a thawing permafrost, the "extant" soil conditions from the 2002 analysis have changed dramatically.

In fact, the 2002 FEIS indicates that the thermosyphons are used to "*avoid* instability" that would lead to "tilt[ing]" from the thawing of permafrost.[284] The analysis determined that matching soil types to vertical support structure—plus the use of thermosyphons—could *avoid* "tilt[ing] and [] mov[ing] up or down" of the pipeline supports.[285]

But the recent twisting and bending of pipeline supports, caused by thawing permafrost, indicates how drastically soil conditions have changed since the last environmental analysis.[286] The failure of pipeline infrastructure could not be clearer evidence that the calculations in the 2002 analysis are no longer able to accurately account for current conditions. The 2002 FEIS is woefully inadequate in its assessment of permafrost threats and impacts.[287] Because climate change has altered the conditions on the ground, TAPS is at a significantly higher risk for a spill.

In *Indigenous Environmental Network*, plaintiffs claimed the Department of State's EIS was outdated because it did not consider new information indicative of "a higher likelihood of oil spills . . . than the Department had anticipated" its original EIS.[288] Further, plaintiffs provided studies showing a greater difficulty in cleaning up any potential spill.[289] The court found that both the increased likelihood of spills and the studies indicating difficulty in cleaning up a spill were "new information" that required supplementing the existing EIS.[290]

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[282] *Gallatin Wildlife Ass'n v. United States Forest Serv*., 2016 U.S. Dist. LEXIS 77208, *36 (D. Mont. June 14, 2016).
[283] 2002 FEIS at 4.1-13.
[284] *Id*.
[285] *Id*. (emphasis added)
[286] *See* Appendix B.
[287] 2002 FEIS at 3.12.7.2.4.
[288] *Envtl. Network v. United States Dep't of State*, 347 F. Supp. 3d 561, 581 (D. Mont. 2018).
[289] *Id*.
[290] *Id*. at 587.

Similarly here, the rapidly thawing permafrost, aging infrastructure, and degraded safety culture are increasing the risk of an oil spill and the difficulty of cleaning up a spill should one occur. That the thawing permafrost has already damaged TAPS infrastructure beyond what the 2002 FEIS believed possible demonstrates that the risk of a spill is high. These developments must be accounted for in a supplemental analysis.

TAPS is now in a situation akin to the one evaluated in *Blue Mountains*. In that case, the court found that an agency could not use an environmental analysis conducted before a wildfire to satisfy its NEPA obligations for agency action taken after the wildfire.[291] The wildfire had changed circumstances in important ways that need to be evaluated and considered. So too here. The Alaskan permafrost has begun a rapid thaw, leaving house-sized holes in the ground and damaging pipeline infrastructure. These developments are "new circumstances" that must be considered in a NEPA analysis.[292]

Impacts to endangered species must be considered

The developments related to protected species also constitute "new information," triggering an agency obligation to supplement its 2002 analysis. The law states that adverse effects on threatened or endangered species indicates potential significance for the purposes of an analysis under NEPA.[293] And, as discussed at length above, new listings under the ESA and new studies indicating harm to other species have emerged since 2002. Any one of these developments would—alone—require EIS supplementation; together they present an urgent case for increased study. [294]

New ESA listings require preparation of an SEIS

Because new species—polar bears, humpback whale DPSs, ringed seals and bearded seals, and North Pacific right whales—have been listed under the ESA, and new critical habitat designated for these species, BLM must supplement its 2002 analysis to consider TAPS's impact on these species. The legal mandate for a supplemental EIS is laid out plainly in *Friends of the Clearwater*. There, plaintiffs petitioned the Forest Service, noting it had been more than ten years since the agency had completed an EIS for a particular forest unit, and that in the intervening period steelhead, chinook salmon, and bull trout had been listed under the Endangered Species Act, and the lynx had been proposed for listing.[295] When the Forest Service failed to prepare a

[291] *League of Wilderness Defenders - Blue Mts. Biodiversity Project v. Marquis-Brong*, 259 F. Supp. 2d 1115, 1123 (D. Or. 2003).
[292] 40 C.F.R. § 1502.9(d)(ii); *Blue Mts. Biodiversity Project*, 259 F. Supp. 2d at 1123.
[293] 40 C.F.R. § 1501.3(d)(2)(vi).
[294] Nor does purported compliance with the Endangered Species Act solve BLM's NEPA issues with respect to listed species. The agency has a separate obligation under NEPA to consider the harms from agency actions that is not alleviated through satisfying its Endangered Species Act consultation requirements. *See, e.g.*, *Save the Yaak Committee v. Block*, 840 F.2d 714, 718 (9th Cir 1988).
[295] 222 F.3d 552, 555–56 (9th Cir. 2000).

new SEIS, plaintiffs sued.[296] The Ninth Circuit held that the agency was required to have considered new information related to new species designations in a new NEPA analysis.[297] "When confronted with this important new information, it was incumbent on the Forest Service to evaluate the existing EIS to determine whether it required supplementation."[298]

The same result was reached in *Greenpeace v. National Marine Fisheries Service*. In *Greenpeace*, plaintiffs challenged the sufficiency of NMFS's NEPA analysis.[299] The agency had approved a fishery management plan in 1998 without considering in a supplement EIS the "dramatic changes" to the ecosystem, including the listing of species under the ESA.[300] Just as here, twenty years had passed since the "original EISs" were prepared, and in the intervening period there were several new listings: Steller sea lions were listed as threatened and the western population as endangered.[301] Again, just as here, the area had experienced major climate change since the original EIS.[302] Because the agency did not "consider how the vast array of new information about the affected environment,"[303] the court ordered the agency to consider these species in a new supplemental EIS.[304]

Also instructive is *Oregon Natural Resources Council Fund v. Forsgren*. There, FWS produced an EIS before promulgating a forest management plan in 1990.[305] In 2000, FWS finalized a rule listing the lynx as a threatened species under the ESA.[306] Because the operative EIS did not include "any specific management standards or directions to protect the lynx," the court found it needed to be supplemented to consider the listed species.[307]

The application of these holdings here could not be clearer. Since the 2002 FEIS, polar bears were listed as threatened in 2008, ringed seals and bearded seals were listed as threatened in 2010, and in 2016 humpback whale DPSs were re-analyzed and listed as endangered (Western North Pacific DPS) and threatened (Mexico DPS).[308] No analysis of TAPS's impact on these listed species has been conducted. These listings are "new information" that not only render the 2002 FEIS inadequate,[309] they affirmatively require BLM to supplement the analysis.[310]

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[296] *Id.*
[297] *Id.* at 558. Over the course of the litigation, the court's attention turned to seven additional species designated as "sensitive" by the Forest Service and away from those listed under the Endangered Species Act. *Id.* at 555.
[298] *Id.*
[299] 55 F. Supp. 2d 1248, 1258 (W.D. Wash. 1999).
[300] *Id.*
[301] *Id.* at 1252.
[302] *Id.* at 1257.
[303] *Id.* at 1271.
[304] *Id.* at 1276.
[305] *Or. Natural Res. Council Fund v. Forsgren*, 252 F. Supp. 2d 1088, 1090 (D. Or. 2003).
[306] *Id.* at 1092.
[307] *Id.* at 1106–07.
[308] 81 Fed. Reg. 62,2602.
[309] *Greenpeace v. National Marine Fisheries Service*, 55 F. Supp. 2d at 1276.
[310] *Friends of Clearwater*, 222 F.3d at 558.

New impacts to Steller's eiders require preparation of an SEIS

The Alaska breeding population of Steller's eiders, listed under the ESA long before the 2002 FEIS, face increased threats to their resiliency and abundance.[311] The new information that has emerged about these impacts since 2002 require BLM to consider TAPS's impact to the eiders in a new SEIS. This obligation is triggered by evidence suggesting a decline of 4% to 7% of a listed species.[312] Where, like here, increasing stressors to known a listed species is compounding the project's impact, the agency should conduct a supplemental analysis.

New impacts to other impacted species require preparation of an SEIS

Because NEPA's command is to analyze the full range of environmental impacts of an action, a species does not need protection under the Endangered Species Act to require consideration in an EIS. TAPS has detrimental effects on many species, some protected and some not.[313] Since 2002, a new understanding has emerged of oil infrastructure's impact on caribou herds.[314] These studies are sufficient to trigger BLM's obligation to supplement its 2002 FEIS.

In *Cascadia Wildlands*, BLM conducted an environmental assessment to a forest management project that involved commercial timber sales.[315] After the environmental assessment was released, the Fish and Wildlife Service produced a study that a DPS of the red tree vole resided in the project area.[316] The new study revealed that habitat "loss, modification, and fragmentation" were substantial threats to the red tree vole.[317] The court held that BLM's "continuing duty" to supplement their NEPA analyses in response to new information mandated that the agency renew its review.[318] The study on the red tree vole, although not listed under the ESA, was new information and BLM was required to produce a supplemental analysis.[319]

Like in *Cascadia Wildlands*, BLM must consider new information about impacts to non-listed species in the project area. As documented above, new studies continue to document the harms

[311] U.S. Fish and Wildlife Service. 2019. 5-year status review of the Alaska-breeding population of Steller's eiders. Fairbanks Fish and Wildlife Field Office, Fairbanks, Alaska.
[312] *See Or. Natural Res. Council Action v. U.S. Forest Serv.,* 445 F. Supp. 2d 1211, 1226 (D. Or. 2006).
[313] Omitted for brevity are the impacts to Pacific walrus from TAPS's operation. But courts have ruled that FWS' finding that a species is warranted biologically for listing under the ESA, but precluded for other reasons, is significant new information that triggers the duty to supplement a NEPA analysis. *Sierra Club v. Bosworth*, No. C 05-00397 CRB, C 05- 00898 CRB, C 04-02588 CRB, 2005 WL 3096149, at *11 (N.D. Cal. Nov. 14, 2005); *see also Sierra Club v. Bosworth*, No. C 05-00397 CRB, 2005 WL 2204986, at *5-10 (N.D. Cal. Sept. 9, 2005) (FWS warranted but precluded finding requires the Forest Service to conduct a "thorough, detailed, and reasoned analysis" of the new information). The walrus is a species with this status. *See* 82 Fed. Reg. 46642–44 (Oct. 5, 2017); *Ctr. for Biological Diversity v. Haaland*, 998 F.3d 1061 (9th Cir. 2021). Therefore, effects on the Pacific walrus must be considered in a supplemental analysis.
[314] *See supra* text accompanying footnotes 235–52.
[315] *Cascadia Wildlands v. BLM*, 2012 U.S. Dist. LEXIS 182930, at *2 (D. Or. Dec. 21, 2012).
[316] *Id.* at *27.
[317] *Id.* at *29.
[318] *Id.* at *27.
[319] *Id.* at *34–*35.

that oil infrastructure is inflicting on the caribou migration. In fact, the same harm is at issue: "loss, modification, and fragmentation" of habitat."[320] That the 2002 FEIS completely brushed aside the potential for this harm demonstrates how legally insufficient it is. The caribou impacts are "new information," and NEPA requires that they are analyzed in a supplemental EIS.

[320] *Id.* at *29.