

**ALASKA COMMUNITY ACTION ON TOXICS—COOK INLETKEEPER
DEFENDERS OF WILDLIFE—EARTHJUSTICE
ENVIRONMENTAL INVESTIGATION AGENCY
EYAK PRESERVATION COUNCIL
KATCHEMAK BAY CONSERVATION SOCIETY
NATURAL RESOURCES DEFENSE COUNCIL—SIERRA CLUB ALASKA CHAPTER**

September 6, 2016

VIA REGULATIONS.GOV

Abigail Ross Hopper, Director
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, VA 20166

**Re: Draft Environmental Impact Statement for the Cook Inlet Outer Continental Shelf
Oil and Gas Lease Sale 244 (81 Fed. Reg. 47,819 (July 22, 2016))**

Dear Director Hopper:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (Draft EIS) for the Cook Inlet Outer Continental Shelf (OCS) Oil and Gas Lease Sale 244 in which the Bureau of Ocean Energy Management (BOEM) proposes “to offer for lease certain OCS blocks located within the federally-owned portion of Cook Inlet that may contain economically recoverable oil and gas resources.”¹ We regret that BOEM has chosen to hold the comment period for the Draft EIS during the height of the summer fishing and subsistence season and has refused to make accommodations for the burden this places on the Alaskan public. BOEM’s lack of consideration for the most affected communities has made commenting difficult. Nonetheless, the undersigned groups, which represent thousands of Alaskans, among others, provide the following comments.

As discussed below, BOEM has unreasonably limited the scope of the present action to oil and gas development. Furthermore, the Draft EIS fails to address climate change and other important environmental impacts as required by the National Environmental Policy Act (NEPA). Before BOEM makes a decision about whether, when, and where to offer leases, it must consider alternative uses of the OCS and fully assess and disclose the potential consequences of the proposed action. Of paramount importance, BOEM must consider how developing oil and gas from Cook Inlet comports with the United States’ commitments to reduce greenhouse gas emissions and combat climate change. The undersigned groups believe that a full assessment of the effects and alternatives will lead to the conclusion that BOEM should cancel the proposed lease sale.

¹ BOEM, Cook Inlet Planning Area Oil and Gas Lease Sale 244 Draft Environmental Impact Statement, OCS EIS/EA BOEM 2016-004 at 1-3 (June 2016) (Draft EIS).

I. BOEM'S PURPOSE AND NEED STATEMENT IS IMPERMISSIBLY NARROW

An environmental impact statement (EIS) prepared under NEPA must “briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.”² This statement guides the agency’s development of alternatives, and it therefore cannot be “so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency’s power would accomplish the goals of the agency’s action.”³ When assessing the reasonableness of the purpose and need statement, courts consider the statutory context of the proposed action.⁴ The Draft EIS unreasonably defines the purpose and need of this action so as only to consider development of oil and gas in Cook Inlet.

BOEM appropriately identifies a need of “further[ing] the orderly development of OCS resources in accordance with the Outer Continental Shelf Lands Act (OCSLA),” but it narrowly defines the purpose of the proposed action as “offer[ing] for lease certain OCS blocks located within the federally-owned portion of Cook Inlet *that may contain economically recoverable oil and gas resources.*”⁵ By framing the action in this way, BOEM precludes alternatives that would offer the Cook Inlet OCS for renewable energy projects.⁶

OCSLA requires BOEM to manage the OCS considering “economic, social, and environmental values of the *renewable* and nonrenewable resources contained in the [OCS].”⁷ It further authorizes the agency to issue leases promoting the production of energy from sources other than oil and gas, including renewables.⁸ BOEM notes that, “[w]ith their large dynamic range, the tides in Cook Inlet could be an important renewable power source for the region.”⁹ In light of its statutory authority to lease the OCS for development other than oil and gas extraction, and the great renewable energy potential of Cook Inlet, it is unreasonable for BOEM to define the purpose and need of the proposed action in a way that prevents consideration of this use of the OCS. BOEM must not only revise and broaden its purpose and need statement, but also consider new alternative that would satisfy that purpose and need, such as those involving developing renewable energy in the Cook Inlet OCS.

² 40 C.F.R. § 1502.13.

³ *League of Wilderness Defs.-Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 689 F.3d 1060, 1069 (9th Cir. 2012) (internal quotation marks and citation omitted).

⁴ *Id.* at 1070.

⁵ Draft EIS at 1-3 (emphasis added).

⁶ *See id.* at 2-14 to 2-16 (discussing alternatives considered but not analyzed in detail, which do not include renewable energy).

⁷ 43 U.S.C. § 1344(a)(1) (emphasis added).

⁸ *Id.* § 1337(p)(1)(C).

⁹ Draft EIS at 5-17.

II. BOEM'S ANALYSIS OF THE NO-ACTION ALTERNATIVE IS FLAWED AND OBSCURES POTENTIAL CLIMATE BENEFITS

Every EIS must contain a no-action alternative as a baseline against which to measure the effects of the action alternatives.¹⁰ “A no action alternative in an EIS allows policymakers and the public to compare the environmental consequences of the status quo to the consequences of the proposed action.”¹¹ When an agency premises its conclusions about the no-action alternative on mistaken legal or factual assumptions, a court may hold the agency’s EIS invalid.¹² BOEM’s discussion of the no-action alternative relies on a shortsighted, outdated, and overly general analysis; moreover, it disregards the effects of lowering the supply of fossil fuels on global consumption, especially as countries take steps to respond to the climate crisis. It therefore violates NEPA.

A. The Draft EIS relies on a flawed analysis to assess the environmental consequences of the no-action alternative.

BOEM’s model for estimating substitute energy sources under the no-action alternative wrongly assumes that the nation will continue to conduct business as usual for the next several decades. BOEM thus predicts that much of the oil and gas forgone from offshore sources under the no-action alternative will be replaced with oil imported from overseas and domestic onshore oil and gas.¹³ This substitute energy would cause air emissions and other pollution from transportation, impacts from potential spills, and degradation of water quality and habitat.¹⁴ Although the Draft EIS does not analyze these effects in detail, it notes that energy substitutions “would have their own environmental and socioeconomic impacts that could displace impacts from the Proposed Action to other geographic areas and resources.”¹⁵ However, as discussed in greater detail below, the United States has committed to reducing its greenhouse gas emissions to meet the challenge of climate change. In a more realistic policy scenario, then, if the proposed lease sale does not take place, there likely would be fewer substitute fossil fuels developed to replace forgone oil and gas, and the no-action alternative would have lesser environmental impacts than the Draft EIS suggests.

Even setting aside the unreasonable business-as-usual assumption, BOEM’s modeling is nonetheless outdated and imprecise. The Draft EIS concludes that the no-action alternative would lead to an increase of oil imports in the range of 85.5 to 122.6 million barrels.¹⁶ BOEM arrives at this result by multiplying total expected oil production under the exploration and

¹⁰40 C.F.R. § 1502.14(d); *Ctr. for Biological Diversity v. U.S. Dep’t of the Interior*, 623 F.3d 633, 642 (9th Cir. 2010).

¹¹ *Ctr. for Biological Diversity*, 623 F.3d at 642.

¹² *See id.*

¹³ BOEM, OCS Oil and Gas Leasing Program: 2017-2022 Draft Programmatic EIS at 4-130 to 4-131 & Tbl. 4.4.3-1 (Mar. 2016) (2017-2022 DPEIS); *see also* Draft EIS at 4-231.

¹⁴ *See* Draft EIS at 4-231.

¹⁵ *Id.*

¹⁶ *Id.*

development scenario¹⁷ by 57 percent, the average proportion of forgone oil that oil imports would supposedly replace.¹⁸ That percentage, however, derives from the agency’s 2012 projection of supply and demand using a model and inputs that have since been updated.¹⁹ The more recent analysis lists a lower replacement percentage from oil and gas imports.²⁰ BOEM should apply the most current predictions of energy substitutes when analyzing the no-action alternative.

More broadly, the replacement percentage represents the energy that oil imports would provide under an alternative in which *no* areas of the OCS are leased,²¹ which may be more or less than the percentage of imports that would replace forgone oil from the proposed action. BOEM asserts that, because oil and gas produced from Cook Inlet would be consumed locally, “the most logical replacement for lost or delayed oil and gas due to selection of the No Action Alternative would be additional imports or additional domestic production.”²² It also notes that, while reduced demand would likely replace some of the forgone oil and gas, renewable energy sources “would not likely contribute enough replacement energy for lost or delayed oil and gas production from Cook Inlet.”²³ Without a more specific prediction of likely substitute energy sources for forgone oil and gas from the lease sale under the no-action alternative, however, it is impossible for the public and BOEM to assess the no-action alternative’s effects.

B. The Draft EIS obscures the potential climate benefits of the no-action alternative.

The Draft EIS’s discussion of the no-action alternative omits any mention of potential climate benefits, instead asserting that, “[t]o replace the potential production of [oil and gas] that BOEM estimates could be produced from the Proposed Action, equivalent volumes would need to be produced from other sources, including domestic or imported oil and gas.”²⁴ Although the

¹⁷ *Id.* at 2-21, Tbl. 2.4.3-2 (total oil production of 150 to 215 million barrels).

¹⁸ *Id.* at 4-231.

¹⁹ *See id.*; BOEM, 2012-2017 OCS Oil and Gas Leasing Program Final Programmatic EIS at 4-643 to 4-644 & Tbl. 4.5.7-7 (July 2012) (2012-2017 PEIS). *Compare* BOEM, Consumer Surplus and Energy Substitutes for OCS Oil and Gas Production: The 2015 Revised Market Simulation Model (MarketSim), OCS Study BOEM 2015-054 (Dec. 2015) (MarketSim 2015), *with* BOEM, Consumer Surplus and Energy Substitutes for OCS Oil and Gas Production: The 2015 Revised Market Simulation Model (MarketSim), OCS Study BOEM 2012-024 (2012) (MarketSim 2012). Incidentally, the table in the 2012-2017 PEIS indicates that oil imports would replace 56 to 62 percent of forgone OCS production—not the 52 to 62 percent that the draft EIS states. Cited materials are submitted herewith and should become part of the administrative record.

²⁰ *Compare* 2012-17 PEIS at 4-644, Tbl. 4.5.7-7 (listing energy substitutions of 64 to 71 percent from oil and gas imports), *with* 2017-2022 DPEIS at 4-131, Tbl. 4.4.3-1 (listing energy substitutions of 58 percent from oil and gas imports).

²¹ *See* 2012-2017 PEIS at 4-643 to 4-644 & Tbl. 4.5.7-7.

²² Draft EIS at 4-231.

²³ *Id.*

²⁴ *Id.* at 4-230.

document goes on to discuss a variety of energy sources that might replace oil and gas from Cook Inlet, as predicted by the 2012 market model, both that model and the current version elide the true effects of decreasing the supply of oil and gas from the OCS on *global* consumption. This is so for two reasons. First, the model ignores the global nature of the oil and gas market, which in fact responds to decreases in supply. Second, it does not take into account the United States' and other countries' commitments to reduce their greenhouse gas emissions in light of compelling climate science, which will likely require them to develop and consume smaller amounts of fossil fuels. These reductions in fossil fuel production and consumption will amplify the positive effects of keeping Cook Inlet oil and gas in the ground.

1. The global nature of the oil market

A recent report by the Stockholm Environment Institute demonstrates that reducing the supply of oil from federal lands could affect global oil markets and lead to a reduction in oil consumption.²⁵ The report analyzes the impact of reforming the leasing of federal coal, oil, and gas—including in the OCS—on international energy markets and global CO₂ emissions.²⁶ It finds that, for each unit of oil that is not produced from federal lands, net global consumption of substitute fuels falls by 0.22 units by 2030 (due to a decrease in global supply) with a proportionate decrease in greenhouse gas emissions.²⁷ Thus, not holding a lease sale in Cook Inlet would reduce global greenhouse gas emissions and mitigate climate change, an outcome that the Draft EIS entirely fails to acknowledge. BOEM must analyze this effect of the lease sale.

Indeed, BOEM appears to recognize that forgoing production of oil and gas would decrease domestic consumption.²⁸ As discussed above, it also predicts that some of the forgone oil would be replaced by increases in imported oil, but it fails to acknowledge that importing oil would reduce consumption abroad.²⁹ As another recent analysis from the Stockholm Environment Institute demonstrates, excluding the international market effects dramatically

²⁵ P. Erickson & M. Lazarus, *How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO₂ Emissions and 2°C Goals?*, Stockholm Environment Institute, Working Paper 2016-02 at 31-32 (2016) (Erickson & Lazarus).

²⁶ *Id.* at 3-5.

²⁷ *Id.* at 23-25. The report models a cut in oil production as a shift in the supply curve and uses published estimates of the price elasticities for supply and demand to calculate changes in net consumption. The report concludes that for each unit of forgone production, net global oil consumption will drop by 0.44 units, meaning that substitution from other oil supplies would make up only 0.56 units of the lost production. Additionally, half of the remaining 0.4 unit decrease in net consumption would be made up by increased consumption of other oil substitutes, such as biofuels, natural gas and electricity, giving a total drop of consumption of 0.22 units. *Id.* at 24 & Tbl. 5.

²⁸ See Draft EIS at 4-231.

²⁹ See *id.* at 4-231 to 4-232; 2017-2022 DPEIS at 4-131. This seems inconsistent with BOEM's 2015 model, which correctly treats the oil market as global. MarketSim 2015 at 26; see also *id.* at 5 ("MarketSim models oil as a global market.").

understates how OCS leasing will affect consumption and therefore greenhouse gas emissions.³⁰ By not introducing OCS oil into the market, the United States would import more oil from abroad, which would reduce supply abroad, with corresponding reduced greenhouse gas emissions. The Stockholm Environment Institute analysis indicates that the no-action alternative would reduce global consumption of fossil fuels and greenhouse gas emissions, and the Draft EIS must discuss these advantages.

2. The climate context

The no-action alternative also violates NEPA because it fails to recognize the climate context in which this decision is being made and how climate commitments will amplify the no-action alternative's reductions in consumption and greenhouse gas emissions. The international scientific community has reached a consensus that in order to preserve a fair chance to avoid the worst effects of climate change, the world must cap its emissions of greenhouse gases and that burning even a fraction of the remaining fossil-fuel reserves would cause us to exceed that cap. Indeed, the vast majority of known fossil-fuel reserves, let alone undiscovered future resources, must remain undeveloped to provide a chance of meeting climate goals. Accordingly, choices must be made about which resources to extract and burn and which to leave undeveloped. Fossil-fuel extraction decisions must be assessed in the context of this framework.

The concept of a carbon budget starts from the well-established scientific understanding that the global increase in temperature due to greenhouse gas emissions must be capped at or below 2 °C above pre-industrial levels to avoid unmanageable climate change consequences. This understanding was enshrined in the Copenhagen Accord³¹ in 2009 and was recently reaffirmed and strengthened in the Paris Agreement,³² which established a commitment to take efforts to limit temperature rise to 1.5 °C above pre-industrial levels.

In the fall of 2014, the Intergovernmental Panel on Climate Change (Panel) published a comprehensive synthesis of the latest worldwide scientific consensus on climate change, called the Climate Change 2014 Synthesis Report.³³ The synthesis describes the recent scientific consensus that there is an overall limit to the amount of carbon dioxide (CO₂) that can be released into the atmosphere to stay within the 2 °C warming cap.³⁴ It calculates that emissions

³⁰ P. Erickson, *U.S. again overlooks top CO2 impact of expanding oil supply . . . but that might change* (Apr. 30, 2016), <https://www.sei-international.org/blog-articles/3388>.

³¹ Copenhagen Accord ¶ 1, *agreed* Dec. 18, 2009, FCCC/CP/2009/11/Add.1, <http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf> (“recognizing the scientific view that the increase in global temperature should be below 2 degrees Celsius” relative to pre-industrial temperatures to “stabilize greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”); *id.* at ¶ 2 (agreeing that “deep cuts in global emissions are required according to science” to meet this goal).

³² Paris Agreement art. 2, ¶ 1(a), *adopted* Dec. 12, 2015, FCCC/CP/2015/L.9/Rev.1, <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf> (Paris Agreement).

³³ Intergovernmental Panel on Climate Change, *Climate Change 2014: Synthesis Report* (2014), <http://www.ipcc.ch/report/ar5/syr/> (IPCC Synthesis Report).

³⁴ *Id.* at 63.

would need to be limited to about 2,900 gigatons of CO₂ (GtCO₂) since 1870 to have a reasonable chance of staying within the cap.³⁵ By 2011, about 1,900 GtCO₂ had already been emitted.³⁶ Thus, the report concludes, to provide better than a 66 percent chance of limiting warming to less than 2 °C, additional carbon dioxide emissions must be limited to 1,000 GtCO₂.³⁷

The report estimates that there are about 3,670-7,100 GtCO₂ in proven fossil-fuel “reserves” remaining in the ground,³⁸ which it describes as quantities of fossil fuels “able to be recovered under existing economic and operating conditions.”³⁹ As the report notes, this volume of reserves is four to seven times the amount that can be burned to have better than a 66 percent chance of remaining within the 2 °C warming goal, with the amount of somewhat less certain “resources” much larger still.⁴⁰ One of the expert reports feeding into the Panel’s synthesis explained that to meet “[t]he emissions budget for stabilizing climate change at 2 °C above pre-industrial levels . . . only a small fraction of reserves can be exploited.”⁴¹

Subsequently, researchers have investigated and further refined our understanding of how major investment in developing such resources locks in oil production far into the future. In particular, a research brief from the Stockholm Environment Institute identified oil drilling, especially in higher-cost, yet-to-produce resources, as particularly prone to locking in future fossil fuel production. The high up-front sunk costs required prior to any return on investment create momentum for future over-production, adding fossil fuels to markets that should, consistent with limiting climate damage, be shrinking, thereby depressing adoption of efficiency measures and clean alternatives.⁴²

The United States is playing a leading role in catalyzing world commitments to address the urgent crisis of climate change. It recently signed the Paris Agreement, which committed the United States and most of the world’s countries to steadily and verifiably reducing their carbon emissions to hold the increase in global temperature average to “well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-

³⁵ *Id.* (“[L]imiting total human-induced warming . . . to less than 2°C relative to the period 1861–1880 with a probability of >66% would require total CO₂ emissions from all anthropogenic sources since 1870 to be limited to about 2900 GtCO₂”).

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.* at 64, Tbl. 2.2.

³⁹ *Id.* Tbl. 2.2 n.f (defining “reserves” and noting that “resources,” by contrast, are quantities of fossil fuels where economic extraction is potentially feasible).

⁴⁰ *Id.* at 63.

⁴¹ G. Blanco *et al.*, *Drivers, Trends and Mitigation*, in *Climate Change 2014: Mitigation of Climate Change*, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change at 251, 380 (2014), http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter5.pdf.

⁴² Erickson, P. *et al.*, *Carbon Lock-in from Fossil Fuel Supply Infrastructure*, Stockholm Environment Institute at PDF 1 (2015), <http://www.sei-international.org/publications?pid=2805>.

industrial levels.”⁴³ Reaching the Paris Agreement goals will require the United States to adopt measures that urgently reduce reliance on fossil fuels,⁴⁴ including a shift away from further fossil fuel development. Limiting the supply of fossil fuels must be a part of any comprehensive plan to address climate change. The international scientific community has reached a consensus that burning even a fraction of the world’s remaining known fossil-fuel reserves, let alone undiscovered future resources like those at issue in the proposed program, would cause us to exceed climate goals.⁴⁵

As described above, in its analysis of the relative contributions of substitute energy sources, BOEM assumes that the nation will conduct business as usual for the next 40 years.⁴⁶ The business-as-usual prediction is a far outlier of potential energy consumption scenarios—predicting more oil demand than even OPEC and the largest multi-national oil and gas companies.⁴⁷ It is also not reasonable to assume that laws in place three years prior to the date of the proposed lease sale will govern through the next four decades. Rather, in a rational climate future in which demand for oil and gas does not follow a business-as-usual trajectory—for example if the nation follows through on its climate commitments and implements needed

⁴³ Paris Agreement art. 2, ¶ 1(a).

⁴⁴ In the Paris Agreement, nations agreed to aim to “achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.” Paris Agreement art. 4, ¶ 1. Experts have calculated that for CO₂, net emissions must reach zero between 2045 and 2050 to have a greater than 50% chance of limiting warming to 1.5 °C and between 2060 and 2075 to stay within 2 °C warming. Olhoff, A. *et al.*, *The Emissions Gap Report 2015: A UNEP Synthesis Report* at 5-6 & Tbl. 2.1 (2015), http://uneplive.unep.org/media/docs/theme/13/EGR_2015_Technical_Report_final_version.pdf. In its individual commitments, the United States identifies economy-wide emission reductions of 80% or more by 2050, noting that this “target is part of a longer range, collective effort to transition to a low-carbon global economy as rapidly as possible.” U.S. Department of State, *United States Intended Nationally Determined Contribution* at PDF 2 (2015), <http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf>.

⁴⁵ See International Energy Agency, *World Energy Outlook 2012* at 25 (2012), https://www.iea.org/publications/freepublications/publication/WEO2012_free.pdf; IPCC *Synthesis Report* at 63.

⁴⁶ See 2017-2022 DPEIS at 4-130, Fig. 4.4.3-2 (graphing the effects of energy substitutes over 40 years); MarketSim 2015 at 2 (“The baseline supply and demand projections in MarketSim were obtained from a customized model run of EIA’s NEMS model.”); U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2015* at 2 (2015) (“The potential effects of proposed federal and state legislation, regulations, or standards . . . are not reflected in NEMS.”).

⁴⁷ See Carbon Tracker Initiative, *Lost in Transition: How the Energy Sector Is Missing Potential Demand Destruction* at 92, Fig. 8.113 (Oct. 2015), http://www.carbontracker.org/wp-content/uploads/2015/10/Lost-in-transition_Clean_Draft.pdf (showing EIA business-as-usual scenario forecasts highest oil consumption of all scenarios); see also *id.* at 31 (noting that EIA’s forecast is business-as-usual).

measures to sharply limit the amount of greenhouse gases that can be emitted into the atmosphere—there very likely will be less need for oil and gas.

Because it overlooks this probable scenario, the Draft EIS does not capture the potential climate benefits of the no-action alternative. As noted, a Stockholm Environment Institute report demonstrates that reducing the supply of oil from federal lands can affect global oil markets and reduce oil consumption and greenhouse-gas emissions.⁴⁸ The report further concludes that limiting supply in low-carbon scenarios, in which countries adopt normative limits on carbon supply and use, will have a larger effect on consumption and emissions than in a high-carbon scenario.⁴⁹ Thus, assuming the United States and other countries follow through on their climate commitments, the no-action alternative will lead to significant reductions in the consumption of oil and gas (and thus in emissions of greenhouse gases), beyond those of simply decreasing supply. The Draft EIS should disclose these foreseeable climate benefits.

III. BOEM MUST FULLY ASSESS THE PROPOSED ACTION'S CLIMATE EFFECTS

NEPA requires agencies to discuss cumulative impacts, *i.e.*, “the incremental impact[s] of the action when added to other past, present, and reasonably foreseeable future actions.”⁵⁰ “Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”⁵¹ Climate impacts fit this description well because they are caused by the incremental additions of greenhouse gases to the atmosphere from numerous sources.⁵² An EIS must therefore assess the proposed action’s greenhouse gas emissions and discuss their cumulative impacts on the climate in its analysis of the action’s effects.⁵³

In addition to estimating a proposed action’s direct contributions to climate change, agencies must analyze its indirect effects.⁵⁴ According to guidance from the Council on Environmental Quality (CEQ), these effects include emissions from “[a]ctivities that have a reasonably close causal relationship to the [proposed] action, such as those that may occur as . . . a consequence of the agency action.”⁵⁵ “NEPA reviews for proposed resource extraction and

⁴⁸ Erickson & Lazarus at 31-32.

⁴⁹ *Id.* at 37.

⁵⁰ 40 C.F.R. § 1508.7.

⁵¹ *Id.*

⁵² See *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”); see also Council on Environmental Quality, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews at 17 (2016) (CEQ Guidance) (“[T]he analysis of the effects of GHG emissions is essentially a cumulative effects analysis[.]”); cf. *Massachusetts v. EPA*, 549 U.S. 497, 524 (2007).

⁵³ *Ctr. for Biological Diversity*, 538 F.3d at 1217; CEQ Guidance at 17.

⁵⁴ See 40 C.F.R. § 1508.8(b) (defining indirect effects as those that are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable”).

⁵⁵ CEQ Guidance at 13.

development projects typically include the reasonably foreseeable effects of various phases in the process, such as . . . using the resource.”⁵⁶ CEQ specifically identifies the combustion of fossil fuels as an indirect effect of a lease sale on federal lands.⁵⁷

In addition to this analysis and given the potential magnitude of their indirect effects, BOEM must assess the lease sale decision in the context of the science that shows the majority of fossil fuels must be left undeveloped to avoid the worst effects of climate change and national and international commitments to keep climate warming well below 2 °C. CEQ’s guidance affirms the need for agencies to assess fossil fuel extraction decisions in the context of the nation’s climate goals, commitments, and policies. It directs agencies to “discuss relevant approved federal, regional, state, tribal, or local plans, policies, or laws for [greenhouse gas] emission reductions or climate adaptation to make clear whether a proposed project’s [greenhouse gas] emissions are consistent with such plans or laws.”⁵⁸ “This approach helps frame the policy context for the agency decision based on its NEPA review.”⁵⁹

BOEM also should assess the lease sale’s climate effects using the social cost of carbon. Developed by a federal interagency working group, the social cost of carbon is an estimate of the monetized damages from an incremental increase in carbon emissions in a given year, which includes—but is not limited to—climate-related changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services.⁶⁰ The social cost of carbon provides a harmonized, interagency metric that can give decision makers and the public useful information for their NEPA review.”⁶¹ Although NEPA does not require a cost-benefit analysis, where, as here, an agency chooses to quantify the economic advantages of

⁵⁶ *Id.* at 14; *see also Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549-50 (8th Cir. 2003) (concluding that it would be “irresponsible for the [agency] to approve a [railroad line providing access to coal mining areas] of this scope without first examining the effects that may occur as a result of the reasonably foreseeable increase in coal consumption”).

⁵⁷ *See* CEQ Guidance at 16 n.42; *see also High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1196-98 (D. Colo. 2014) (holding that NEPA requires an assessment of the climate consequences of the end use of coal from potential future mining under an exemption from the Colorado Roadless Rule).

⁵⁸ CEQ Guidance at 28-29. *See also* 40 C.F.R. §§ 1502.16(c), 1506.2(d) (where an inconsistency exists, agencies should describe the extent to which the agency will reconcile its proposed action with the plan or law).

⁵⁹ CEQ Guidance at 29.

⁶⁰ Interagency Working Group on Social Cost of Carbon, U.S. Government, Technical Support Document: - Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866 at 2 (July 2015 revision).

⁶¹ CEQ Guidance at 33 n.86. The Fourth Circuit recently upheld the Department of Energy’s use of the social cost of carbon in establishing energy efficiency standards for commercial refrigeration equipment. *See Zero Zone, Inc. v. U.S. Dep’t of Energy*, Nos. 14-2147, 14-2159 & 14-2334, 2016 WL 4177217, at *15-16 (4th Cir. Aug. 8, 2016).

the proposed action, it is arbitrary and inconsistent with NEPA's requirements to ignore the social cost of carbon emissions.⁶²

As described herein, BOEM makes no attempt to estimate the indirect effects of the proposed action on climate change, and it irrationally ignores existing policy direction and omits the social cost of carbon from a document that presents benefits in monetary terms. For these reasons, the agency fails to satisfy NEPA's requirements.

A. The Draft EIS fails to analyze the effects of the proposed action on climate change.

BOEM disavows its NEPA obligation to consider the indirect effects of the proposed action on climate change:

It is acknowledged that some portion of the oil and gas produced from Lease Sale 244 leases would be consumed as fuel; however, because end use consumption is not part of the Proposed Action, and because any attempt to quantify a marginal increase in national oil and gas consumption (much less resulting environmental effects) attributable to Lease Sale 244 oil and gas would be unduly speculative, this EIS does not attempt to quantitatively analyze or model environmental effects from the end use consumption of produced oil and gas.⁶³

It doubles down on this assertion in its discussion of the cumulative effects of the proposed action on air quality:

The cumulative impacts analysis does not analyze impacts associated with end use consumption of oil and gas resources which may be produced as a result of this lease sale. . . . NEPA does not require analysis of impacts that are not a direct, indirect or cumulative effect of the Proposed Action. Furthermore, current methods and models for predicting end use impacts are too speculative and unreliable to require inclusion in this EIS. Based upon analysis in the 2012-2017 Five Year Program, BOEM's best estimate is that even making the entire U.S. OCS unavailable for leasing would result in a decrease in consumption equivalent only to 2 months of current U.S. consumption over the course of 40-50 years. Where the qualities and quantities of fossil fuel to be produced are surrounded by so many unknowns, where no generally accepted methodology for reliably calculating end use impacts exists, and where BOEM's findings indicate

⁶² See *High Country Conservation Advocates*, 52 F. Supp. 3d at 1191 (noting that the agency had estimated the revenues, royalties, payroll, and local payment for goods and services that would be forgone under the no-action alternative but failed to account for the costs of carbon emissions).

⁶³ Draft EIS at 2-45; see also *id.* at 4-12 (making the same statement in the description of impact-producing factor of greenhouse gas emissions).

there would be little to no impact on fossil fuel consumption as a result of this lease sale, NEPA does not require an end use analysis.⁶⁴

Agencies must, however, analyze indirect effects that are by definition “not part of the Proposed Action.”⁶⁵ Further, cumulative impacts may be relatively minor when viewed in isolation yet significant in combination.⁶⁶ BOEM’s stated reasons for ignoring the effects of the consumption of oil and gas on climate change fall flat.

Nor would an assessment of the end-use impacts of oil and gas production prove “too speculative and unreliable.”⁶⁷ CEQ guidance recommends that, “[t]o compare a project’s estimated direct and indirect emissions with GHG emissions from the no-action alternative, agencies should draw on existing, timely, objective, and authoritative analyses,” or any other available information.⁶⁸ “[T]he level of effort should be proportionate to the scale of the emissions relevant to the NEPA review.”⁶⁹ As discussed above, a recent report by the Stockholm Environment Institute analyzes the effects on global consumption of forgoing production of oil on federal lands.⁷⁰ BOEM has already developed a scenario predicting the amount of oil that would be produced under the proposed action.⁷¹ Given this work, it would not be difficult for the agency to calculate the greenhouse gas emissions that would likely be caused by a lease sale in Cook Inlet.⁷² BOEM’s failure to do so in the draft EIS deprives the public and decision-makers of critical information about one of the proposed action’s most significant environmental impacts.

B. The Draft EIS fails to place the proposed action’s climate impacts in the context of relevant policy direction or to monetize these impacts’ costs.

The Draft EIS nowhere mentions the United States’ climate commitments, or how production of oil and gas from Cook Inlet would, or would not, be consistent with them. That overarching policy direction reflects an international scientific consensus that there is a limit to the amount of carbon we can introduce into the atmosphere and still have a chance of keeping warming below 1.5 to 2 °C. The proposed action will affect whether or how that carbon budget is met or exceeded, because meeting the budget—and avoiding the worst effects of climate change—potentially will require forgoing other fuel development. Thus, BOEM’s analysis will have to ask a set of questions about how the choice to pursue the oil and gas in the Cook Inlet OCS relates to the overall carbon budget and to decisions about whether to pursue other fossil fuels in light of the reality that a vast majority of already-discovered fossil fuels must be left

⁶⁴ *Id.* at 5-30.

⁶⁵ *See* 40 C.F.R. § 1508.8(b).

⁶⁶ *Id.* § 1508.7.

⁶⁷ Draft EIS at 5-30.

⁶⁸ CEQ Guidance at 16.

⁶⁹ *Id.* at 17.

⁷⁰ *See supra* note 25 & accompanying text.

⁷¹ *See* Draft EIS at 2-21 (estimating total oil production of 150 to 215 million barrels).

⁷² *See* CEQ Guidance at 11-13.

undeveloped. It must examine the project in the context of bringing the nation's supply-side energy policies in line with its international commitment to combat climate change.

Furthermore, because BOEM does not estimate the total greenhouse gas emissions that consumption of fossil fuels from the lease sale would cause, it also omits any accounting of the costs those emissions would impose on society. The agency monetizes the benefits of the proposed action, including direct and indirect earnings for each project year⁷³ and nearly \$11 billion in total government revenues from royalties and taxes.⁷⁴ Converting the range of global greenhouse gas emissions expected to be caused by the lease sale to a social cost, in dollars, would provide a useful comparator for these economic boons. The analysis as presented is skewed in favor of holding the sale, and it is therefore both arbitrary and contrary to NEPA's goals.⁷⁵

IV. BOEM DOES NOT ADEQUATELY DESCRIBE HOW CLIMATE CHANGE COULD WORSEN THE PROPOSED ACTION'S IMPACTS

NEPA requires that an EIS describe the environment that would be affected by the proposed action,⁷⁶ taking climate change into account. "The current and projected future state of the environment without the proposed action (i.e., the no action alternative) represents the reasonably foreseeable affected environment, and this should be described based on authoritative climate change reports."⁷⁷ Communities and ecosystems that are already experiencing climate-related stresses may be more susceptible to environmental harms.⁷⁸ BOEM must therefore explain in detail how climate change could exacerbate the proposed action's impacts.

In its discussion of cumulative impacts, the agency repeatedly glosses over the effects of climate change and fails to consider how climate change would interact with the impacts of oil and gas activities to produce additive or synergistic harms. For example, the Draft EIS observes that climate change will likely affect the habitat, behavior, abundance diversity, and distribution of fish and shellfish species, and that the proposed action could contribute to these effects.⁷⁹ It does not, however, discuss how climate change might worsen impacts previously disclosed, such as degradation of water quality. This omission is problematic, as a report by the United Nations Environment Programme concludes that climate change could "severely exacerbate the combined impacts of" other sources of ocean pollution.⁸⁰ Likewise, the Draft EIS notes several harmful effects of climate change on birds without meaningfully assessing interactions with the proposed action's impacts.⁸¹ Studies have shown, however, that pollution events such as oil

⁷³ Draft EIS at 4-171, Tbl. 4.3.2-22; *id.* at 4-172, Tbl. 4.3.2-24.

⁷⁴ *Id.* at 4-173.

⁷⁵ *See High Country Conservation Advocates*, 52 F. Supp. 3d at 1191.

⁷⁶ *See* 40 C.F.R. § 1502.15.

⁷⁷ CEQ Guidance at 20-21.

⁷⁸ *Id.* at 21.

⁷⁹ *See* Draft EIS at 5-41 to 5-42.

⁸⁰ Nellemann, C. *et al.*, In *Dead Water: Merging of Climate Change with Pollution, Over-Harvest, and Infestations in the World's Fishing Grounds* at 57 (2008).

⁸¹ *See* Draft EIS at 5-51.

spills “can act in combination with broad-scale oceanographic and climatic conditions to influence seabird demography.”⁸² The discussion of the cumulative effects of climate change on marine mammals,⁸³ coastal and estuarine habitats,⁸⁴ subsistence,⁸⁵ public health,⁸⁶ recreation and tourism,⁸⁷ archaeological and historic resources,⁸⁸ and environmental justice⁸⁹ is similarly superficial. BOEM must conduct a more thorough analysis of these effects to comply with NEPA.

V. BOEM OMITTS ESSENTIAL INFORMATION ABOUT THE IMPACTS OF THE PROPOSED ACTION ON MARINE MAMMALS

NEPA requires agencies to present in their EISs information “relevant to reasonably foreseeable significant adverse impacts” if that information is “essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant.”⁹⁰ Information about environmental impacts is “essential” if it is necessary to allow policymakers and the public to make an informed comparison of the alternatives⁹¹ or to permit development of alternatives that minimize impacts.⁹² At the lease sale stage, information is essential if it is needed to assess the effects of oil and gas development in different areas under consideration. Without that

⁸² Stephen C. Votier *et al.*, *Oil Pollution and Climate Have Wide-Scale Impacts on Seabird Demographics*, 8 *ECOLOGY LETTERS* 1157, 1161 (2005).

⁸³ Draft EIS at 5-44 to 5-45.

⁸⁴ *See id.* at 5-52 to 5-53.

⁸⁵ *See id.* at 5-61.

⁸⁶ *See id.* at 5-66 to 5-67.

⁸⁷ *See id.* at 5-68 to 5-70.

⁸⁸ *See id.* at 5-75 to 5-76.

⁸⁹ *See id.* at 5-83 to 5-84.

⁹⁰ 40 C.F.R. § 1502.22.

⁹¹ *See id.* § 1502.14 (requiring an EIS to “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public”); *see also Se. Alaska Conservation Council v. Fed. Highway Admin.*, 649 F.3d 1050, 1058 (9th Cir. 2011) (holding that an EIS that failed to consider a reasonable alternative violated NEPA because it “fail[ed] to provide policymakers and the public with sufficient information to make an informed comparison of the alternatives” (internal quotation marks and citation omitted)).

⁹² *See* 40 C.F.R. § 1502.1 (requiring an EIS to “inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment”); *see also Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 965 (9th Cir. 2005) (remanding decision to agency where lack of accurate information rendered an EIS unable to “inform[] decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts”) (internal quotation marks and citation omitted); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 810 (9th Cir. 1999) (noting that an EIS must analyze “effects of the actions in sufficient detail to be ‘useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.’”) (quoting *City of Carmel-by-the-Sea v. U.S. Dep’t of Transp.*, 123 F.3d 1142, 1160 (9th Cir. 1997)).

information, BOEM cannot effectively compare alternatives that offer different areas for leasing or develop alternatives that minimize adverse effects.⁹³

Information on the effects of active acoustic sources (*i.e.*, seismic airguns, acoustical positioning systems, subbottom profilers, and multibeam echosounders) on marine mammals in Cook Inlet is currently insufficient to allow a reasoned decision as to the areas, if any, that should be offered in this sale. The Draft EIS acknowledges that “there may be some incongruity between models and detailed field measurements,” but concludes that “[c]urrent models use the best available science to be applied at appropriate levels and without unnecessary costs and delays required for more detailed analysis.”⁹⁴ It then proceeds to list generic measurements of sound pressure levels and sound exposure levels for various configurations of sources.⁹⁵ This analysis is insufficient for several reasons.

First, it presents no modeling of sound propagation and its impacts on habitat within Cook Inlet. Although the Draft EIS maintains that modeling is a “powerful tool used in predictive assessment of acoustic impacts,” it does not reference any modeling in Cook Inlet.⁹⁶ Even if it had, it should have more fully disclosed the limitations of acoustic modeling: the sources cited in the Draft EIS indicate that “[u]nderwater sound propagation is complex and dependent on numerous factors, such as, but not limited to, water depth, bottom type and relief, surface reflection, [and] absorption and sound speed profile.”⁹⁷ Thus, modeling of the acoustic effects of active noise sources depends on area-specific environmental characteristics and is inherently imprecise.⁹⁸ In addition, it frequently does not reflect the phenomenon of reverberation, which may elevate sound above ambient levels between seismic airgun shots.⁹⁹ BOEM should have conducted modeling specific to Cook Inlet and presented the results in the Draft EIS, recognizing its limitations.

⁹³ Cf. *Pac. Rivers Council v. U.S. Forest Serv.*, 2012 WL 2333558, at *16-17 (9th Cir. June 20, 2012) (admonishing that “programmatically NEPA documents often play a ‘shell game’ of when and where deferred issues will be addressed” and holding early-stage EIS that deferred analysis of effects that were “reasonably possible” to analyze at this stage violated NEPA), *vacated and dismissed as moot sub nom., U.S. Forest Serv. v. Pac. Rivers Council*, 133 S. Ct. 2843 (2013). See *Rosenbloom v. Pyott*, 765 F.3d 1137, 1154 n.14 (9th Cir. 2014) (“decisions vacated for reasons unrelated to the merits may be considered for the persuasive [sic] of their reasoning”).

⁹⁴ Draft EIS at 4-37.

⁹⁵ See *id.*

⁹⁶ *Id.* at 4-37.

⁹⁷ L. A. M. Aerts & B. Streever, *Modeled and Measured Underwater Sound Isopleths and Implications for Marine Mammal Mitigation in Alaska*, in *The Effects of Noise on Aquatic Life* 9, 13 (A. N. Popper & A. Hawkins, eds. 2016), <http://www.ncbi.nlm.nih.gov/pubmed/26610939>.

⁹⁸ See *id.*

⁹⁹ M. Guerra *et al.*, *Quantifying Seismic Survey Reverberation Off the Alaskan North Slope*, 130 J. ACOUSTICAL SOC’Y AM. 3046, 3047 (2011) (Guerra *et al.*). The Navy has previously attempted to account for reverberation in site-specific modeling of sound propagation in an EIS for training activities. See U.S. Naval Facilities Engineering Command, Northwest, Northwest Training and Testing Activities Final Environmental Impact Statement/Overseas Environmental Impact Statement at App. I, at I-195 (Oct. 2015).

Actual measurements of acoustic impacts in Cook Inlet are also lacking. The Draft EIS presents data on the propagation of sound from two configurations of seismic airgun arrays previously used in Cook Inlet.¹⁰⁰ These data, however, do not capture the full effects of repeated blasts from seismic arrays within a partially enclosed basin such as Cook Inlet. As the preeminent scientists on marine mammal bioacoustics and behavioral ecology explain:

An example of the outdated impact assessment methodology is the use of the sound level of the seismic impulse itself as the cause for concern. It is now well known that, as a result of reflection and reverberation, energy from the impulse spreads into the time gaps between impulses and raises the background noise level by 30-45 dB throughout those gaps within at least 1 km of the survey and by 20-25 dB within 25-50 km from the survey. Furthermore, a rise in background noise level can extend out to >100 km from the seismic source, dramatically altering the low-frequency acoustic environment for the duration of the survey. Thus, restricting an assessment of a seismic survey to only the specific impulse (< 1 sec), within a restricted dB isopleth (160 dB) is simply wrong and scientifically unsound.¹⁰¹

The Draft EIS acknowledges the study the scientists reference, but there the seismic survey was conducted in the open water in the Beaufort Sea¹⁰²—not in a basin closed off on three sides. Additional, more-comprehensive measurements of both punctuated and background noise from a wide variety of seismic arrays and other equipment in Cook Inlet are needed to assess the impacts of potential oil and gas activities on the acoustic environment.

On a larger scale, the Draft EIS also fails to assess the combined effects of marine seismic surveys, geohazard surveys, acoustical positioning, and other activities. As the aforementioned scientists observe:

[I]t is scientifically indefensible that any current assessment of the environmental effects of a seismic survey considers only the individual activity (*e.g.* a single survey), rather than the aggregate of all activities that contribute to the acoustic environment. This single-activity approach applies simplistic methods based entirely on expected maximum sound exposure levels at points in time and uses decades-old guidelines. It does not adequately integrate the full extent of the impacts over time, over space or across frequency domains.¹⁰³

¹⁰⁰ Draft EIS at 4-81.

¹⁰¹ D. Nowacek *et al.*, Comment Letter regarding Notice of Receipt of Applications for Incidental Harassment Authorization (“IHA”) for Geophysical Surveys in the Atlantic Ocean at 2 (July 29, 2015) (undated) (Nowacek *et al.*).

¹⁰² See Guerra *et al.* at 3047.

¹⁰³ Nowacek *et al.* at 2.

The Draft EIS discloses that the proposed action would likely involve one to two deep-penetrating marine seismic surveys and four to five geohazard surveys,¹⁰⁴ but it does not analyze the aggregate effects of these activities. Rather, it concludes that “[i]mpacts from the active sound source will cease as soon as the survey is complete and full recovery of the acoustic environment to pre-survey conditions is expected.”¹⁰⁵ Instead of considering each activity in isolation, BOEM should assess their combined effects, taking into account likely timing, proximity, and similarity of frequencies.

Crucially, the discussion in the Draft EIS also fails to discuss in any depth the unknown effects of seismic and geohazard surveys and impacts on marine mammals. It notes that “prolonged or repeated airgun and sonar pulses on marine mammals might include . . . masking of natural sounds [and] behavioral disturbance,” but it does not assess the likelihood of these impacts using a contextual response analysis.¹⁰⁶ Nor does it address the effects of elevated background noise from reverberation,¹⁰⁷ which may reduce the “communication space” between animals.¹⁰⁸ Recently developed methods may allow the quantification of such effects,¹⁰⁹ and BOEM should apply those methods to analyze the potential impacts of seismic surveys on marine mammals in greater detail.

Likewise, the Draft EIS glosses over potentially serious effects of chronic noise from active sound sources on marine mammals. It notes that “[l]ong-term exposure to airgun noise is suspected to have effects on marine mammals, including hearing loss and elevated stress levels,” and that it could “elicit behavioral changes.”¹¹⁰ In a non sequitur, it downplays these impacts because “the likelihood of repeated exposures to pulsed noise from active airgun arrays remains very low since seismic vessels typically travel at 4-5 knots/hr, limiting the potential exposure to only a few pulses before the airgun noise drops below [NMFS’s Level A hearing-impairment thresholds].”¹¹¹ This statement ignores the growing but limited understanding of behavioral and physiological effects of long-term, low-level noise on marine mammals:

It is now well established that the sound level to which an animal is exposed, based either on empirical metrics or modeled estimates, is not the sole predictor of impact response, and that impact response is highly dependent on context. . . .

Level B takes . . . often occur well outside of our ability to directly observe the disruption, and typically outside the 1,000 m observation zones around such

¹⁰⁴ Draft EIS at 4-37.

¹⁰⁵ *Id.* at 4-38.

¹⁰⁶ See, e.g., W.T. Ellison *et al.*, *A New Context-Based Approach to Assess Marine Mammal Behavioral Responses to Anthropogenic Sound*, 26 CONSERVATION BIO. 21, 27-28 & Fig. 2 (2011).

¹⁰⁷ Draft EIS at 4-81.

¹⁰⁸ Guerra *et al.* at 3047.

¹⁰⁹ See generally C. W. Clark *et al.*, *Acoustic Masking in Marine Ecosystems: Intuitions, Analysis, and Implication*, 395 MARINE ECOLOGY PROGRESS SERIES 201 (2009).

¹¹⁰ Draft EIS at 4-80.

¹¹¹ *Id.* at 4-81.

disruptive activities. The best available science clearly shows that behavioral disruptions occur at vastly lower noise exposure levels than the current regulatory thresholds for Level B disturbances, and at much larger distances than on-board Marine Mammal Observers or passive acoustic monitoring can document.¹¹²

A recent study on bowhead whales revealed behavioral responses to seismic signals at great distances and relatively low sounds levels.¹¹³ These findings are transferable to related species such as right whales,¹¹⁴ and, to the extent that BOEM is not able to document behavioral and physiological effects of long-term active sound sources on all species of potentially affected marine mammals, it should generalize from the latest science.¹¹⁵

Finally, the Draft EIS does not sufficiently analyze the cumulative effects of sound from all sources in Cook Inlet on marine mammals. Sub-bottom profilers, support vessels, undersea communication systems, and shipping vessels all add to the aggregate sound field that can harm marine mammals.¹¹⁶ BOEM admits that such sources could directly affect marine mammals and that “[a]nthropogenic noise is ubiquitous in Cook Inlet,” but it makes no effort to analyze the effects of that sound on marine mammals.¹¹⁷ Tools are now readily available for modeling species’ responses to aggregated exposure,¹¹⁸ and BOEM should use these tools to assess the cumulative impacts of sound on marine mammals in the project area.

In sum, BOEM must provide a more complete analysis of the effects of active sound sources on both the acoustic environment and marine mammals in the FEIS. This information is “relevant to reasonably foreseeable significant adverse impacts,”¹¹⁹ as the Draft EIS admits that “marine seismic surveys [could cause] the loss of acoustic habitat availability due to noise”¹²⁰ and, similarly, that marine mammals would respond to ongoing seismic surveys.¹²¹ It is also “essential to a reasoned choice among alternatives,”¹²² several of which are specifically designed to address the impacts of noise on the endangered Cook Inlet beluga whale.¹²³ NEPA therefore

¹¹² Nowacek *et al.* at 3.

¹¹³ *Id.*; S. B. Blackwell *et al.*, *Effects of Airgun Sounds on Bowhead Whale Calling Rates: Evidence for Two Behavioral Thresholds*. 10 PLoS ONE 1, 20-21, 24 (2015).

¹¹⁴ Nowacek *et al.* at 5.

¹¹⁵ See 40 C.F.R. § 1502.22(b)(4).

¹¹⁶ Nowacek *et al.* at 6.

¹¹⁷ See Draft EIS at 5-43.

¹¹⁸ See, e.g., W. T. Ellison *et al.*, *Modeling the Aggregated Exposure and Responses of Bowhead Whales Balaena mysticetus to Multiple Sources of Anthropogenic Underwater Sound*, 30 ENDANGERED SPECIES RES. 95 (2016).

¹¹⁹ 40 C.F.R. § 1502.22(a).

¹²⁰ Draft EIS at 4-38.

¹²¹ *Id.* at 4-81.

¹²² 40 C.F.R. § 1502.22(a).

¹²³ See Draft EIS at 2-6 to 2-9.

requires that the agency obtain and disclose the information, or apply the best available science, before holding a lease sale.¹²⁴

VI. BOEM FAILS TO CONSIDER REASONABLE ALTERNATIVES AND MITIGATION MEASURES

The alternatives section is the “heart of the [EIS],”¹²⁵ and an agency is required to develop alternatives that would minimize harm to the environment.¹²⁶ An agency must also identify “appropriate mitigation measures not already included in the proposed action or alternatives,”¹²⁷ taking a “hard look” at these possible measures; a “perfunctory description” does not suffice.¹²⁸ The Draft EIS violates NEPA by omitting reasonable alternatives and mitigation measures that would reduce the impacts of oil and gas development in the project area.

As an initial matter, the alternative that BOEM intends to be the most protective of the endangered Cook Inlet beluga whale irrationally omits beneficial restrictions included in another alternative. Alternative 3C (beluga whale nearshore feeding areas mitigation) would apply Alternative 3B’s (beluga whale critical habitat mitigation) seasonal ban on seismic surveys in critical habitat to all lease blocks; it would also extend the ban to most of the summer, during beluga whale migration, in blocks within ten miles of major anadromous streams.¹²⁹

¹²⁴ See 40 C.F.R. § 1502.22. The agency cannot rely on protections under the Marine Mammal Protection Act (MMPA) or the Endangered Species Act to defer this analysis. As BOEM notes, the National Marine Fisheries Service has approved seismic surveys that rise to the level of behavioral harassment under the MMPA in the past, requiring further NEPA analysis. See Draft EIS at 4-81. Furthermore, as described below, NEPA prohibits BOEM from deferring analysis of mitigation measures to later processes; it requires the agency to identify and discuss mitigation in sufficient detail to ensure environmental consequences have been fairly evaluated.

¹²⁵ 40 C.F.R. § 1502.14; *Ilio’ulaokalani Coal. v. Rumsfeld*, 464 F.3d 1083, 1095 (9th Cir. 2006).

¹²⁶ *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 965 (9th Cir. 2005) (remanding decision to agency where lack of accurate information rendered an EIS unable to “inform[] decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts”) (quoting *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 993 (9th Cir. 2004)); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 809-10 (9th Cir. 1999) (EIS must analyze “effects of the actions in sufficient detail to be ‘useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.’” (quoting *City of Carmel-by-the-Sea*, 123 F.3d at 1160)); see also 40 C.F.R. § 1502.1 (binding NEPA regulations provide that an EIS must “inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment”); *id.* § 1500.2(e) (“Federal agencies shall to the fullest extent possible . . . [u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions . . .”).

¹²⁷ 40 C.F.R. § 1502.14(f); see also *id.* § 1502.16(h).

¹²⁸ *Okanogan Highlands All. v. Williams*, 236 F.3d 468, 473 (9th Cir. 2000).

¹²⁹ Draft EIS at 2-6.

Inexplicably, however, Alternative 3C does not prohibit exploration drilling at any time of year on any OCS blocks, whereas Alternative 3B does.¹³⁰ BOEM must consider the reasonable alternative of restricting both marine seismic surveys and exploration drilling on all OCS blocks during the winter, and on blocks near anadromous streams during the summer as well.

Further, the agency weakens Alternatives 3C (beluga whale nearshore feeding areas mitigation) and 4B (northern sea otter critical habitat mitigation) by allowing waivers to or variances from protective stipulations where lessees propose “commensurate” adaptive management strategies.¹³¹ Vague references to possible future mitigation measures do not satisfy NEPA’s requirements, however,¹³² and the agency should discuss in greater detail the types of strategies it might approve. The public and decision-makers must have an opportunity to evaluate the efficacy of potential mitigation when weighing the various leasing configurations the agency has proposed.

The agency should also include alternatives that would reduce the potential impacts on non-listed species within the project area. For example, the Draft EIS notes that there is a ten percent chance that a large oil spill could reach the Outer Kachemak Bay Important Bird Area under the proposed action, with potentially devastating death tolls on birds.¹³³ BOEM should discuss possible spatial alternatives that would lower the likelihood of these and other catastrophic effects of oil spills on wildlife, rather than limit the options considered to those that might benefit the two species with designated critical habitat within the project area.

Regarding mitigation, the Draft EIS discloses a recommendation made during the scoping period that BOEM restrict lease activities during migratory, breeding, and birthing periods, presumably of cetaceans such as the Cook Inlet beluga whale.¹³⁴ The agency responds that Alternatives 3B and 3C include restrictions on seismic and exploration activities, with the latter alternative imposing additional measures during fish-spawning season.¹³⁵ It observes that “[n]o other timing restrictions relevant to migratory, breeding, or birthing periods were identified.”¹³⁶ These statements not only fail to respond to the request for measures protecting *belugas*’ breeding and birthing periods, but also improperly shifts its responsibility to formulate mitigation measures to the public. BOEM must consider protections for beluga whales and other species

¹³⁰ *See id.*

¹³¹ *Id.* at 2-9, 2-10 to 2-11.

¹³² *See Pac. Coast Fed’n of Fishermen’s Ass’ns v. Blank*, 693 F.3d 1084, 1104 (9th Cir. 2012) (“Mitigation must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated.” (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989))); *cf. Protect Our Cmty’s Found. v. Jewell*, 825 F.3d 571, 582 (9th Cir. 2016) (holding that an agency’s “mitigation measures, including [an] 85-page Protection Plan, provide ample detail and adequate baseline data for the agency to evaluate the overall environmental impact of the Project”).

¹³³ Draft EIS at 4-156 to 4-157.

¹³⁴ *Id.* at 2-43, Tbl. 2.6.4-1.

¹³⁵ *Id.* This statement is somewhat misleading, however, because Alternative 3C does not limit activities other than marine seismic surveys.

¹³⁶ Draft EIS at 2-43, Tbl. 2.6.4-1.

during breeding and calving periods, especially where belugas use parts of Cook Inlet near the project area.¹³⁷

VII. BOEM DOES NOT TAKE A HARD LOOK AT THE LEASE SALE'S EFFECTS ON ENDANGERED COOK INLET BELUGA WHALES

Cook Inlet beluga whales are genetically distinct and geographically isolated and live only in Cook Inlet.¹³⁸ The population of Cook Inlet beluga whales has declined precipitously in the last 30 years. In 1979, the estimated population of Cook Inlet beluga whales was approximately 1,300.¹³⁹ By 2014, the population had dropped by more than 75% to only 340 whales.¹⁴⁰ Despite a cessation of subsistence hunting in 1999, the population of Cook Inlet beluga whales has not rebounded. In fact, it declined at an average rate of 0.4% per year over the past decade.¹⁴¹ In response to the whales' continuing decline, the National Marine Fisheries Service (NMFS) conducted an expert status review and concluded that Cook Inlet beluga whales had a 26% probability of extinction in 100 years and a 70% probability of extinction in 300 years.¹⁴² Based on that finding and evidence that human development—including oil and gas exploration—pose a serious threat to the whale's survival, NMFS listed the Cook Inlet beluga whale as an endangered species in 2008,¹⁴³ and designated 3,016 square miles of critical habitat in 2011.¹⁴⁴

NMFS recently reaffirmed the precarious state of Cook Inlet beluga whales when it proposed issuing a programmatic environmental impact statement that would analyze the multitude of anthropogenic activities (including the expected increase in activities) over multiple years, expressing "concern" about the "lack of recovery" of the whales. 79 Fed. Reg. 67616, 61617 (Oct. 14, 2014). NMFS has also admitted that "[i]t is not known what specific factor or combination of factors continue to limit [the Cook Inlet beluga] population's growth."¹⁴⁵

The Draft Recovery Plan for the Cook Inlet beluga whale, issued in 2015, lists ten threats to beluga whales, at least six of which will be magnified by the activities that would occur under Lease Sale 244: reduction in prey, pollution, noise, habitat loss or degradation, catastrophic events, and cumulative and synergistic effects of multiple stressors.¹⁴⁶ Despite the long list of

¹³⁷ See H. P. Huntington, *Traditional Knowledge of the Ecology of Belugas*, *Delphinapterus leucas*, in *Cook Inlet, Alaska*, 62 MARINE FISHERIES REV. 134, 137 (2000) (noting that Cook Inlet beluga whale calving areas include the northern side of Kachemak Bay in April and May).

¹³⁸ 76 Fed. Reg. 20180, 20181 (Apr. 11, 2011).

¹³⁹ NMFS, Conservation Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*) (2008) (NMFS, Conservation Plan).

¹⁴⁰ Shelden, K.E.W. *et al.*, Aerial Surveys of Beluga Whales (*Delphinapterus Leucas*) in Cook Inlet, Alaska, June 2014 (2015), <http://www.afsc.noaa.gov/Publications/ProcRpt/PR2015-03.pdf>.

¹⁴¹ *Id.*

¹⁴² 73 Fed. Reg. at 62927.

¹⁴³ *Id.*

¹⁴⁴ 73 Fed. Reg. 62919 (Oct. 22, 2008); 76 Fed. Reg. 20180 (Apr. 11, 2011).

¹⁴⁵ NMFS, Conservation Plan at 2.

¹⁴⁶ NMFS, Draft Recovery Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*) (May 15, 2015) (Draft Recovery Plan).

threats to Cook Inlet beluga whales and their uncertain future, the Draft EIS fails to take a hard look at how Lease Sale 244 will affect the whales. The Draft EIS does not analyze or disclose the myriad threats oil and gas exploration and development under Lease Sale 244 pose for beluga whales. Specifically, BOEM has failed to take a hard look at: (1) how the lease sale will impair beluga whales' critical habitat and hinder recovery; (2) the effects of noise from oil and gas activities on beluga whales; (3) the effects of oil spills on beluga whales; and (4) cumulative and synergistic effects on beluga whales. For all of these reasons, the Draft EIS is inadequate.

A. BOEM does not take a hard look at how the lease sale will impair beluga whales' critical habitat and hinder recovery.

Lease Sale 244 overlaps Cook Inlet beluga critical habitat and extends into non-critical habitat areas that were historically important to beluga whales and where they have been seen in recent years. According to the Marine Mammal Commission's 2014 comment letter on Lease Sale 244 scoping,

Historical records indicate that beluga whales used to be found throughout Cook Inlet (Laidre et al. 2000). However, since the mid 1990's their range has contracted to the upper portion of the inlet, north of East and West Foreland (Rugh et al. 2010). Nevertheless, there have been beluga whale sightings in recent years in the mid-inlet, in close proximity (50-60 km) to the Cook Inlet lease sale area. In May 2012, NMFS aerial survey observers spotted seven beluga whales southeast of West Foreland moving toward Trading Bay (Hobbs et al. 2012, Sheldon et al. 2013). Photo-identification surveys conducted in 2011-2013 encountered seven groups ranging in size from four to ten whales, including calves, in the Kenai River Delta, with whales observed feeding on salmon in the Delta on at least one occasion. Industry-conducted monitoring of oil and gas activities at the Cosmopolitan drilling site (near Anchor Point) detected one beluga whale in August 2013 (Owl Ridge Natural Resource Consultants 2014). Two other incidental sightings of beluga whales in the lower inlet were of a single animal in February 2013 in the Kenai River and a group south of Ninilchik in March 2013 (McGuire et al. 2014).¹⁴⁷

The Marine Mammal Commission therefore recommended BOEM either defer the lease sale or restrict it to areas south of Anchor Point.¹⁴⁸ Beluga whales historically ranged throughout Cook Inlet and presumably would extend their range again if their population began to rebound. Oil and gas activities in the mid-inlet would provide a barrier to such range extension. Although the Draft EIS recognizes the possibility that beluga whales may move back into the lease sale area as their numbers rebound, it asserts that oil and gas activities have the potential only to "have adverse effects on the health and fitness of a few individual beluga whales."¹⁴⁹ This

¹⁴⁷ Lent, R., Executive Director, Marine Mammal Commission, Comments to M. Rolland, BOEM (Dec. 8, 2014), http://www.mmc.gov/wp-content/uploads/EIS_CookInletLeas_120814.pdf.

¹⁴⁸ *Id.*

¹⁴⁹ Draft EIS at 4-102.

attempt at minimizing Lease Sale 244 as an impediment to beluga recovery does not meet NEPA's requirements that BOEM take a hard look at the effects of the action.

B. BOEM does not take a hard look at the effects of noise on beluga whales.

BOEM's analysis of seismic noise and other vessel disturbance to beluga whales is inadequate. Like all marine mammals, Cook Inlet beluga whales depend on sound for vital life functions—such as to navigate, find food, locate mates, avoid predators and communicate with each other. Artificial manmade noise introduced into their environment can disturb beluga whales and interfere with these important biological behaviors. NMFS has repeatedly warned that anthropogenic noise may impede the survival of Cook Inlet beluga whales.¹⁵⁰ The harmful effects of high-intensity anthropogenic noise include:

- strandings and other non-auditory physical injuries;
- temporary or permanent loss of hearing, which impairs an animal's ability to communicate, avoid predators, and detect and capture prey;
- avoidance behavior, which can lead to abandonment of habitat or migratory pathways;
- disruption of biologically important behaviors such as mating, feeding, nursing, or migration, or loss of efficiency in conducting those behaviors;
- aggressive (or agonistic) behavior, which can result in injury;
- masking of biologically meaningful sounds, such as the call of predators or potential mates;
- chronic stress, which can compromise viability, suppress the immune system, and lower the rate of reproduction;
- habituation, causing animals to remain near damaging levels of sound, or sensitization, exacerbating other behavioral effects; and
- declines in the availability and viability of prey species, such as fish.¹⁵¹

Although the Draft EIS summarizes some of the research on beluga whales and noise, it alternates between two contradictory rationales to say that Lease Sale 244's impacts will be

¹⁵⁰ 73 Fed. Reg. 63919, 62922 (Oct. 22, 2008) (“noise...may have some impact on this population...”); 74 Fed. Reg. 63080, 63087 (Dec. 2, 2009) (“Anthropogenic noise above ambient levels may cause behavioral reactions in whales (harassment) or mask communication between these animals...[noise] would be expected to have consequences to this DPS in terms of survival and recovery.”); NMFS, Conservation Plan at 5 (“This Conservation Plan reviews and assesses the known and possible threats influencing Cook Inlet beluga whales.... Potential human impacts include subsistence harvest, poaching, fishing, pollution, vessel traffic, tourism and whale watching, coastal development, *noise*, oil and gas activities, and scientific research.”) (emphasis added).

¹⁵¹ For a review of research on behavioral and auditory impacts of undersea noise, *see, e.g.*, Richardson, W.J. *et al.*, *Marine Mammals and Noise* (2005); National Research Council, *Ocean Noise and Marine Mammals* (2003); Whale and Dolphin Conservation Society, *Oceans of Noise* (2004); Hildebrand, J., *Impacts of anthropogenic sound*, in Ragen, T.J. *et al.*, *Marine Mammal Research: Conservation beyond Crisis* at 101-123 (2006).

minor. On one hand, BOEM asserts that seismic surveys' impacts on beluga whales will be "negligible to minor" because, in part, beluga whales "in other areas have demonstrated a 20 km (12.4 mi) avoidance of seismic surveys."¹⁵² In other words, beluga whales will not be harmed because they will avoid seismic surveys. This ignores the fact that avoidance itself can have negative impacts if it forces whales to abandon feeding, breeding, or other important activities. Moreover, this rationale contradicts BOEM's rationale for concluding that vessel traffic will not affect beluga whales: "Given the large number of vessels in Cook Inlet and the apparent habituation to vessels by Cook Inlet beluga whales and the other marine mammals that may occur in the area, vessel activity and noise from vessels are expected to have negligible to minor impacts to Cook Inlet beluga whales."¹⁵³ In other words, beluga whales will not be harmed because they will continue feeding, breeding, etc., regardless of oil and gas activity under Lease Sale 244. This ignores the fact that oil and gas activities generate high levels of noise that may harm beluga whales if they remain in the vicinity. While beluga whales may avoid certain activities at certain times and tolerate certain activities at certain times, neither avoidance nor habituation should lead to the conclusion that effects will be minor to negligible. BOEM's attempt to alternate between avoidance and habituation to rationalize its negligible effects conclusion is not persuasive and does not comply with NEPA.

C. BOEM does not take a hard look at the effects of oil spills on beluga whales.

The Draft Recovery Plan categorizes catastrophic events, such as oil spills, as a high level threat to beluga whales.¹⁵⁴ Yet the Draft EIS concludes that oil spills will have negligible effects on Cook Inlet beluga whales.¹⁵⁵ The Draft EIS's negligible effects conclusion is not rational because it relies on unsupported assumptions. First, the Draft EIS asserts that past oil spills have not affected Cook Inlet:

Over the decades since oil and gas development began in Cook Inlet there have been incidents of large spills occurring in Cook Inlet, and some were much larger than either of the assumed large spill sizes for platforms or pipelines in the Proposed Action (ADNR, 2016). The lack of any chronic or major effects from such spills suggests any additive effects from one of the assumed large spill types would likewise have no significant effect.¹⁵⁶

The Draft EIS provides no citation for this assertion, and it runs counter to a prevailing theory of beluga whale decline. As explained below, scientists believe that a combination of multiple stressors in Cook Inlet is contributing to beluga whale decline and failure to recover.¹⁵⁷ The accidental release of hydrocarbons into Cook Inlet is one of the stressors that may be affecting beluga whales.

¹⁵² Draft EIS at 4-102.

¹⁵³ *Id.*

¹⁵⁴ Draft Recovery Plan at 93-96.

¹⁵⁵ Draft EIS at 4-103.

¹⁵⁶ Draft EIS at 5-44.

¹⁵⁷ *See infra* pp. 25-26..

Second, the Draft EIS claims that although beluga whales could be harmed if they came in contact with spilled oil, “[i]n all likelihood an oil spill would be contained, partially recovered, and perhaps burned, such that it is unlikely any belugas would be contacted by the spilled materials. For these reasons small or large spills should have a negligible level of effects on Cook Inlet beluga whales.”¹⁵⁸ But all the evidence suggests just the opposite: current technology only allows for recovery of a small fraction of spilled oil, even under the best circumstances.¹⁵⁹ The Draft EIS’s conclusions regarding the impacts of oil spills on beluga whales therefore are not rationally connected to the science on oil spill recovery technology.

D. BOEM does not take a hard look at cumulative and synergistic effects on beluga whales.

BOEM’s cumulative impacts analysis is incomplete and inadequate. Although the Draft Recovery Plan recognizes that cumulative and synergistic effects are a high level threat to beluga whales, the Draft EIS does not even analyze the proposed action’s cumulative effects on beluga whales. Nor does it disclose any of the specific activities that may act cumulatively and synergistically to affect Cook Inlet beluga whales and other species in the project area.

The Draft EIS paints a picture of a whale that is habituated to anthropogenic activity and therefore not likely to be affected by additional activity in Cook Inlet.¹⁶⁰ Although BOEM is correct that Cook Inlet is highly industrialized, scientists recognize that this high level of human disturbance is likely contributing to beluga whales’ decline and failure to recover. There is no evidence to suggest that additional activities, such as those that will occur under Lease Sale 244, will not act on beluga whales in cumulative and synergistic ways. To the contrary, according to the Draft Recovery Plan,

Given the increase of human activities in Cook Inlet and the presence of contaminants in Cook Inlet and [Cook Inlet] belugas, the trend for cumulative and likelihood of synergistic effects is increasing over time, with a high probability that these effects will increase with time. Cumulative and synergistic effects are categorized as a high level threat for [Cook Inlet] belugas due to the following: 1) multiple stressors occur year-round and throughout range of the CI beluga population; 2) uncertainty regarding the magnitude of future cumulative effects; 3) uncertainty over the mechanisms of existing and future synergistic effects (if any); 4) difficulty in detecting impacts attributable to cumulative and synergistic mechanisms; and 5) difficulty in mitigating cumulative and synergistic effects due to multiple stressors.¹⁶¹

¹⁵⁸ Draft EIS at 4-103.

¹⁵⁹ See Nikiforuk, A. *Why We Pretend to Clean Up Oil Spills*, Smithsonian.com (July 12, 2016), <http://www.smithsonianmag.com/science-nature/oil-spill-cleanup-illusion-180959783/?no-ist>.

¹⁶⁰ E.g., Draft EIS at 4-102 (“Given high existing levels of vessel traffic in Cook Inlet . . . it is unlikely that this level of increased activity from the Proposed Action would result in discernible disturbance of any beluga whales in areas where such vessel traffic was already occurring.”).

¹⁶¹ Draft Recovery Plan at 99.

BOEM has failed to disclose and analyze the myriad activities in Cook Inlet that may act cumulatively and synergistically with the effects of the proposed action. For example, NMFS recently issued a 5-year Incidental Take Authorization under the Marine Mammal Protection Act to Apache Alaska to harass up to 30 Cook Inlet beluga whales a year pursuant to oil and gas seismic surveys.¹⁶² In addition to oil and gas development, a number of specific development projects are planned that would significantly increase encroachment, pollution, ship traffic and noise levels in Cook Inlet. Several of the actual or potential development projects include: the Pebble Mine Port and Marine Terminal in Iniskin Bay; Port of Anchorage expansion; Port MacKenzie expansion; Knik Arm Bridge; Chuitna Coal project with a marine terminal (including dumping mining waste and runoff); Seward Highway improvements along the Turnagain Arm; the south coastal trail extension in Anchorage; Diamond Point rock quarry near Iliamna and Cottonwood Bays; and the placement of a submarine fiber optic cable from Nikiski to Anchorage.

In order to comply with NEPA, BOEM must honestly assess how oil and gas activities conducted pursuant to Lease Sale 244 will act cumulatively and synergistically with the multitude of other ongoing and future activities in Cook Inlet that affect beluga whales.

VIII. BOEM FAILS TO EXAMINE THE DIFFICULTIES OF RECOVERING OIL, ESPECIALLY CHALLENGING IN COOK INLET

The Draft EIS fails to acknowledge the limits of oil spill clean-up and containment at sea, particularly in the cold, often ice-filled, and strongly tidal conditions that prevail in Cook Inlet. As a result, it impermissibly dismisses the potential harm such spills could cause. For example, it concludes “[i]n all likelihood an oil spill would be contained, partially recovered, and perhaps burned, such that it is unlikely any belugas would be contacted by the spilled materials. For these reasons small or large spills should have a negligible level of effects on Cook Inlet beluga whales.”¹⁶³ The agency’s dismissal of the threat of oil spills on the basis of effective containment and clean-up is unsupported. Indeed, the science, much of it the government’s own, points to the exact opposite conclusions.

To take but a few examples: The Bureau of Safety and Environmental Enforcement has acknowledged that “containment and recovery at sea rarely results in the removal of more than a relatively small proportion of a large spill, at best only 10 – 15 [percent] of the spilled oil and often considerably less.”¹⁶⁴ Elsewhere the agency explained that mechanical containment and

¹⁶² 81 Fed. Reg. 47,240 (July 20, 2016).

¹⁶³ Draft EIS at 4-103.

¹⁶⁴ Minerals Management Service, Technology Assessment & Research (TA&R) Project Categories, Mechanical Containment and Recovery at PDF 2-3 (Print screen of page as last updated on Apr. 21, 2010). After the *Deepwater Horizon*, BSEE removed with this statement from its website without explanation.

recovery in open water conditions typically recovers five to 30 percent of the spilled oil.¹⁶⁵ For example, in the Beaufort Sea Multiple-Sale Environmental Impact Statement, the agency explained that: “On average, spill-response efforts result in recovery of approximately 10-20 [percent] of the oil released to the ocean environment.”¹⁶⁶

The National Oceanic and Atmospheric Administration (NOAA) has cautioned that offshore mechanical containment and recovery rates rarely exceed 20 percent even under the best of circumstances. “Recovery rates of spilled oil in optimum situations (calm weather, in a harbor, rapid response) rarely exceed 20 percent, and response to spills in ice in remote areas is substantially more challenging.”¹⁶⁷ NOAA also cautioned that “[o]n-scene response efforts may take days to weeks to implement, and are rarely effective.”¹⁶⁸

Industry sources confirm this understanding. According to the International Tanker Owners Pollution Federation, “containment and recovery at sea rarely results in the removal of more than a relatively small proportion of a large [oil] spill, at best only 10 – 15 [percent] and often considerably less.”¹⁶⁹ After the *Exxon Valdez* disaster, for example, the recovery rate was closer to eight percent.¹⁷⁰ Even in the Gulf of Mexico, the mechanical recovery efforts during the *Deepwater Horizon* response only recovered three percent of the total amount of oil released.¹⁷¹

¹⁶⁵ U.S. Dept. of the Interior, Minerals Management Service, Arctic Oil Spill Response Research and Development Program: A Decade of Achievement at PDF 14 (2009) (Decade of Achievement), http://www.uscg.mil/iccopr/files/MMSArcticResearch_2009.pdf (“5 to 30% for open ocean response without broken ice”).

¹⁶⁶ Minerals Management Service, Alaska Outer Continental Shelf, Beaufort Sea Planning Area, Oil and Gas Lease Sales 186, 195, and 202, Final Environmental Impact Statement, at IV-17 (Feb. 2003), http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Environment/Environmental-Analysis/2003_001.aspx.

¹⁶⁷ Lubchenco, J., Under Secretary of Commerce for Oceans and Atmosphere, Letter to S. Elizabeth Birnbaum, Director, Minerals Management Service, at 6 (Sept. 21, 2009).

¹⁶⁸ *Id.*

¹⁶⁹ See International Tanker Owners Pollution Federation, Limitations of Containment & Recovery at PDF 1 (Print screen of page as last updated on July 20, 2011). A more recent version of the web site similarly states that “key challenges” for oil containment and recovery “commonly combine to limit the proportion of oil spilled that can be recovered to 10-15 [percent].” See International Tanker Owners Pollution Federation, Containment & Recovery, <http://www.itopf.com/knowledge-resources/documents-guides/response-techniques/containment-recovery/>.

¹⁷⁰ Wolfe, D.A. *et al.*, *The Fate of the Oil Spilled from the Exxon Valdez*, 28 ENV. SCI. & TECH. 13, 561A, at 563A (1994); *id.*, 567A (even total recovery and disposal constituted only 14 percent).

¹⁷¹ Lubchenco, J. *et al.*, BP Deepwater Horizon Oil Budget: What Happened to the Oil? (Aug. 4, 2010) Fig. 1, http://www.noaanews.noaa.gov/stories2010/PDFs/OilBudget_description_%2083final.pdf.

A November 2010 report entitled “Beaufort Sea Oil Spills State of Knowledge Review and Identification of Key Issues”¹⁷² reviewed the current state of the knowledge about oil spills. It explained that containment and recovery for spill response “has significant limitations when used for large spills in either temperate or Arctic locations” and noted “[t]here is a growing recognition of the limitations of [containment and recovery] for large spills.”¹⁷³ It described the challenges of “[e]ncounter rate limitations.”¹⁷⁴ In any large oil spill, the oil “rapidly spread[s] to form a thin layer on the water surface. The problem is worse for blowout spills, where the initial spill condition may be an average slick thickness in the range of 0.001 mm to 0.01 mm.”¹⁷⁵ These problems are exacerbated in cold-water and ice conditions that may prevail in Cook Inlet. According to the Bureau of Safety and Environmental Enforcement, in broken ice conditions, oil spill recovery rates drop dramatically to between “1 [percent] to 20 [percent] depending on the degree of ice coverage and if responding during freeze-up or spring break-up.”¹⁷⁶

Following spill exercises in the Beaufort Sea in 2000, the Nuka Research & Planning Group explained:

[T]he limit to mechanical recovery with containment booms and skimmers in ice-infested waters is generally considered to be 20-30% ice coverage (Figure 44). However, the 2000 offshore response exercises in the Alaska Beaufort Sea demonstrated that the actual operating limits were closer to 10%, and that during fall freeze-up, ice conditions as low as 1% constituted the operating limit for a barge-based mechanical recovery system using conventional boom and skimmers[.] In addition to ice coverage, the characteristics of the ice regime are an important determinant of response efficiency. The 2000 offshore exercises demonstrated that fall ice conditions (freeze-up) can be more challenging than spring break up (Robertson and DeCola 2001, NRC 2003a). Therefore, 10% ice coverage in fall may pose different limits than 10% coverage in spring.¹⁷⁷

After the *Deepwater Horizon* disaster, and roughly ten years after the Beaufort Sea oil spill exercises, Pew Environmental Group commissioned a report that reached the same

¹⁷² The authors of this report, SL Ross Environmental Research and DF Dickins Associates, have served as consultants for BSEE dating back twenty years. *See, e.g.*, <http://www.slross.com/publications/MMSStudiesNF.htm> (“Since 1988, SL Ross has been a major participant in the [BSEE] Technology Assessment & Research (TAR) program.”); DF Dickins, Oil Spill Projects, <http://www.dfdickins.com/oilspills.html>.

¹⁷³ SL Ross Environmental Research Ltd., DF Dickins Associates LLC., Envision Planning Solutions Inc. 2010, Beaufort Sea Oil Spills State of Knowledge Review and Identification of Key Issues, Environmental Studies Research Funds Report No. 177, at 29-30 (Nov. 2010) (Beaufort Knowledge Review), <http://www.esrfunds.org/pdf/177.pdf>.

¹⁷⁴ *Id.* at 30.

¹⁷⁵ *Id.*

¹⁷⁶ Decade of Achievement at PDF 14.

¹⁷⁷ Nuka Research & Planning Group, LLC., Oil Spill Response Mechanical Recovery Systems for Ice-Infested Waters: Examination of Technologies for the Alaskan Beaufort Sea at 58 (June 2007), <http://www.dec.state.ak.us/spar/ipp/docs/2007%20Mechanical%20Recovery%20Ice.pdf>.

troubling conclusions regarding mechanical cleanup in ice infested seas, in this case in the Arctic Ocean:

If a major blowout were to occur in the Arctic OCS, the same mechanical cleanup techniques [as those used in the Deepwater Horizon spill response] (boats with skimmers and booms) would be applied at a much less efficient recovery rate. Although some refinements have been made to adapt certain types of equipment for use in cold or ice-infested waters, there have been no breakthroughs in oil spill response technologies to significantly enhance the capacity to recover oil when sea ice is present. The National Academy of Sciences (NAS) determined that ‘no current cleanup methods remove more than a small fraction of oil spilled in marine waters, especially in the presence of broken ice’ (National Research Council-NAS 2003).¹⁷⁸

BOEM must account for the limits of oil spill response at sea in general and in the conditions that prevail in Cook Inlet in particular. Its failure to do so renders its impact conclusions arbitrary and in violation of NEPA.

IX. BOEM OVERLOOKS OR DISMISSES SEVERAL ADDITIONAL KEY ENVIRONMENTAL IMPACTS

EISs must “provide full and fair discussion of the significant environmental impacts of the proposed action.”¹⁷⁹ “The [agency’s] ‘hard look’ must be taken objectively and in good faith, not as an exercise in form over substance, . . . and the final EIS must include a ‘discussion of adverse impacts that does not improperly minimize negative side effects.’”¹⁸⁰ Furthermore, because the Administrative Procedure Act (APA) governs the agency’s preparation of an EIS, the agency must “articulate a rational connection between the facts put forth . . . and the choices made.”¹⁸¹ The Draft EIS fails to meet these standards in its discussion of a number of issues.

First, BOEM overlooks the harm that long-term noise may cause marine mammals in the form of increased stress levels. The Draft EIS notes that some cetaceans may be habituated to

¹⁷⁸ Nuka Research & Planning Group, LLC, *Oil Spill Prevention and Response in the U.S. Arctic Ocean: Unexamined Risks, Unacceptable Consequences* at 8 (Nov. 2010), <http://www.pewtrusts.org/~media/legacy/uploadedfiles/peg/publications/report/oil20spill20preventionpdf.pdf>.

¹⁷⁹ *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 487 (9th Cir. 2010) (quoting 40 C.F.R. § 1502.1).

¹⁸⁰ *Id.* at 491 (citations omitted).

¹⁸¹ *Id.* at 494-95; *see also id.* at 494 (quoting *Motor Vehicle Mfrs. Ass’n of the U.S. v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 42 (1983)).

dredging noise or tolerate slow-moving vessels,¹⁸² but it does not discuss any studies documenting physiological evidence of stress in environments with chronic noise, such as background underwater noise from ship traffic.¹⁸³ Rather, it generally concludes that “[n]oise levels [from drilling] are normally too low in frequency or decibel level to produce physiological effects on marine mammals.”¹⁸⁴ BOEM should provide a fuller discussion of the effects of a wider range of sources of long-term noise.

Along these lines, the Draft EIS repeatedly downplays the effects of oil and gas activities on cetaceans because these animals avoid areas where activities are happening.¹⁸⁵ Yet avoidance behavior and de facto loss of habitat (the extent of which is undisclosed in the Draft EIS) are themselves concerning effects on marine mammals. The agency’s analysis in this regard is illogical, taking the form of a Catch-22: animals have to swim close enough to activities in order to be harmed by them, but if they do swim that close BOEM assumes they are not harmed by them.¹⁸⁶ This rationale is irrational and therefore violates the APA and NEPA.

Similarly, BOEM reasons that seafloor disturbance would result in a negligible increase in overall impacts on archaeological and historic resources partly because the disturbance would take place away from other, cumulative actions in state waters.¹⁸⁷ That reasoning defies logic: the effects on archaeological and historic resources, as a set, should be greater when activities are more extensive. The agency should clarify or revise its analysis on this point to comply with statutory requirements.

The Draft EIS also fails to take a “hard look” at the potential effects of an oil spill on certain species. For example, the oil spill response analysis does not examine specific areas important to fishes “because fish and fish larvae are ubiquitous throughout the open water habitat.”¹⁸⁸ Likewise, it observes that a very large oil spill could harm the Western Distinct Population Segment of the Steller sea lion by reducing prey biomass and quality, yet it does not estimate the extent or likelihood of this harm.¹⁸⁹ Analytical omissions such as these render the Draft EIS inadequate.

¹⁸² See Draft EIS at 4-84, 4-85; see also *id.* at 4-102 (noting that beluga whales have a “small area of avoidance with other oil and gas activities”); *id.* (citing a study that concluded that “beluga whales have likely habituated to offshore oil and gas activities in central Cook Inlet”); *id.* at 4-106 (concluding that activities will have negligible effects on harbor porpoises that approach them out of curiosity).

¹⁸³ See, e.g., R. M. Rolland *et al.*, *Evidence That Ship Noise Increases Stress in Right Whales*, 279 PROC. ROYAL SOC’Y B 2363, 2364 (2012).

¹⁸⁴ Draft EIS at 4-110.

¹⁸⁵ See, e.g., *id.* at 4-101 (beluga whales); *id.* at 4-104 (orcas); *id.* at 4-110, 4-111 (humpback whales).

¹⁸⁶ See *supra* n. 111.

¹⁸⁷ See Draft EIS at 5-74.

¹⁸⁸ See *id.* at 4-69.

¹⁸⁹ See *id.* at 4-285. Future biological opinions prepared under the Endangered Species Act may contain this information, but BOEM must disclose it during the NEPA process as well.

On several occasions, the Draft EIS simply does not provide enough explanation to inform the reader how the agency arrived at its impact conclusions. For instance, it states that “[f]acilities would not be sited and operations would not occur where they could obstruct navigable waters or areas of particular recreational value”—without specifying what those areas are or how the agency would guarantee that they would be protected.¹⁹⁰ Relatedly, the Draft EIS concludes that only onshore pipelines would “detract from the overall viewer experience,” apparently overlooking platforms.¹⁹¹ BOEM should expand upon these points to allow the public to evaluate the full impacts of the proposed action on recreation.

Regarding impacts on public health and communities, the Draft EIS notes that air pollution could increase the incidences of respiratory and cardiovascular diseases but does not provide quantitative estimates of those effects.¹⁹² It similarly observes that oil spills can cause respiratory, endocrine, immunological, and genotoxic effects but does not indicate how widespread those harms would be if a large oil spill happened.¹⁹³ More broadly, BOEM expects that a large oil spill will disproportionately affect environmental justice communities “because these communities are more dependent on wild food production and distribution than the non-environmental justice communities in the proposed Lease Sale Area.”¹⁹⁴ According to CEQ guidance, however, the agency should also consider the fact that most communities within the project area are environmental justice communities, and it should develop alternatives that might avoid or reduce impacts on these communities.¹⁹⁵

For all these reasons, the Draft EIS does not meet NEPA’s requirement that it take a “hard look” at the potential consequences of the proposed action, and it violates the APA’s standards of reasoned decision-making.

X. BOEM DOES NOT SUFFICIENTLY ANALYZE THE CUMULATIVE AND INDIRECT EFFECTS OF THE PROPOSED ACTION

As discussed above in the context of climate change, NEPA requires agencies to discuss cumulative impacts, i.e., “the incremental impact[s] of the action when added to other past, present, and reasonably foreseeable future actions.”¹⁹⁶ “Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”¹⁹⁷

¹⁹⁰ *Id.* at 4-205.

¹⁹¹ *See id.* at 5-67 to 5-68.

¹⁹² *See id.* at 4-199.

¹⁹³ *Id.* at 4-201.

¹⁹⁴ *Id.* at 4-228.

¹⁹⁵ *See* Council on Environmental Quality, Environmental Justice: Guidance Under the National Environmental Policy Act at 15 (1997) (“When the agency has identified a disproportionately high and adverse human health or environmental effect on low-income populations, minority populations, or Indian tribes from either the proposed action or alternatives, the distribution as well as the magnitude of the disproportionate impacts in these communities should be a factor in determining the environmentally preferable alternative.”).

¹⁹⁶ 40 C.F.R. § 1508.7.

¹⁹⁷ *Id.*

Agencies must also analyze indirect effects, which are those that are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”¹⁹⁸ BOEM’s treatment of cumulative and indirect effects is deficient in several respects.

The Draft EIS disregards the cumulative effects of alternatives other than the proposed action “because all of the action alternatives are presumed to entail the same amount of oil and gas activity.”¹⁹⁹ That analytical shortcut prevents a comparison of the full impacts of the various alternatives proposed.²⁰⁰ (Moreover, if all of the alternatives in fact involve the same level of oil and gas activity, then the agency has not presented a reasonable range of alternatives from which to choose.²⁰¹) BOEM similarly treats the Cook Inlet lease sale that may be scheduled for 2021 as having the same effects as the proposed action,²⁰² even though the later lease sale’s effects would extend further into the future and potentially cause greater harm as the region continues to warm and ecosystems struggle to adapt. The agency’s choice not to analyze the cumulative effects of the lease sale together with those of other actions violates NEPA.

Finally, BOEM fails to consider increased vessel traffic outside the action area that might result from greater economic activity in the action area—even if most of the infrastructure and services can be provided locally and the oil and gas produced would be used in Alaska.²⁰³ Vessel strikes, especially of North Pacific right whales, might be a concern if oceangoing vessel traffic were to increase.²⁰⁴ The agency must remedy this defect before holding a lease sale.

¹⁹⁸ *Id.* § 1508.8(b).

¹⁹⁹ *See* Draft EIS at 5-1.

²⁰⁰ *Cf. Sierra Forest Legacy v. Sherman*, 646 F.3d 1161, 1183 (9th Cir. 2011) (“To comply with a NEPA alternatives analysis, [an agency] must consider . . . the cumulative impacts of the proposed action.” (internal quotation marks and citation omitted)).

²⁰¹ *Cf. Se. Alaska Conservation Council v. Fed. Highway Admin.*, 649 F.3d 1050, 1057 (9th Cir. 2011) (noting that, to satisfy NEPA, an EIS must “adequately examine[] a range of viable alternatives” (internal quotation marks and citation omitted)).

²⁰² *See* Draft EIS at 5-3.

²⁰³ *See id.* at 4-87.

²⁰⁴ *See* Draft EIS at 3-58; *see also* National Marine Fisheries Service, Final Recovery Plan for the North Pacific Right Whale (*Eubalaena japonica*) at I-19 (2013) (concluding that the severity of the threat of ship strikes to North Pacific right whales is “unknown but potentially high for the eastern population”).

* * * * *

In conclusion, the Draft EIS ignores the context of climate change in which the Cook Inlet lease sale decision is to be made, and it fails adequately to assess the effects of the proposed action on climate change and other environmental impacts. BOEM must conduct a more thorough analysis and fully disclose the results to the public. We believe a full assessment of the climate and other effects and risks of the lease sale will lead to the conclusion that the sale should be canceled. Oil and gas produced from the sale would likely be unburnable in a future in which we meet our commitments to limit climate change. BOEM should cancel Cook Inlet lease sale 244.

Respectfully,

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**Attachments to Alaska Community Action on Toxics *et al.* Comments on the
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