

March 30, 2015

Ms. Kelly Hammerle, Five Year Program Manager
Bureau of Ocean Energy Management
381 Elden Street - HM-3120
Herndon, Virginia 20170

Joint Comments of the Sabin Center for Climate Change Law on the 2017–2022 OCS Oil & Gas Leasing Draft Proposed Program and the Scope of the Programmatic Environmental Impact Statement, Docket IDs BOEM-2014-0085, BOEM-2014-0096

Ms. Hammerle,

The Sabin Center for Climate Change Law at Columbia Law School submits these joint comments on the Bureau of Ocean Energy Management (“BOEM”) 2017-2022 Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program (“DPP”), issued pursuant to the Outer Continental Shelf Lands Act (“OCSLA”), and on the scope of the Programmatic Environmental Impact Statement (“PEIS”) to be prepared for the 2017-2022 lease program pursuant to the National Environmental Policy Act (“NEPA”).

Under the administration of President Barack Obama the U.S. Department of the Interior (“DOI”) has done a laudable job in seeking to make fossil fuel energy production on public lands both cleaner and safer and to promote the development of renewable energy. The Department’s 2012 Programmatic Environmental Impact Statement for solar energy development, the Bureau of Land Management’s 2013 final rule facilitating rights-of-way applications for public lands with wind and solar energy development potential, and recent and forthcoming draft rules regulating hydraulic fracturing on public lands, methane emissions from oil and gas wells, and drilling in the Arctic are among DOI’s noteworthy efforts in this regard.

Yet, the DPP’s proposal to expand oil and gas production in the Gulf of Mexico and to open up new areas in the Beaufort and Chukchi seas and in the Atlantic Ocean to exploration and production activities runs counter not only to DOI’s professed interest in cutting carbon pollution on public lands but also to the Obama administration’s efforts to mitigate greenhouse gas emissions from mobile and stationary sources in the United States. As discussed below, BOEM should carefully review the potential impacts of expanded oil and gas leasing on global climate change to determine whether this proposal is consistent with federal climate policies and greenhouse gas (GHG) reduction targets.

For the purposes of these comments, the Sabin Center takes no position on the ultimate decision to lease new areas on the Outer Continental Shelf for oil and gas exploration and production activities, or on whether the DPP should be substantially altered before the Proposed Program is issued. Instead, these comments briefly address the failure of the DPP to fully consider the requisite factors under Section 18. In addition, since the NEPA scoping process is intended to help agencies identify significant issues for consideration, the Sabin Center focuses on two issues that were not identified in BOEM’s Notice of Intent to Prepare a Programmatic Environmental Impact Statement and Notice of Scoping (“NOI”) and that were either not identified or not adequately addressed in the DPP – the proper scope of greenhouse gas (“GHG”) emissions to consider under NEPA and the potential environmental effects of climate change impacts on the exploration and production activities and infrastructure that may result from the 2017-2022 lease program.

I. OCSLA Requires a Comprehensive Assessment of Environmental Risks and Economic Benefits at the Programmatic Leasing Stage

Section 18 of OCSLA sets forth specific principles and factors that BOEM must consider when deciding on the “size, timing, and location of leasing activity” in a programmatic plan. These include environmental, social and political considerations as well as economic considerations.

As a general matter, Section 18 requires that the OCS be managed “in a manner which considers economic, social, and environmental values of the renewable and nonrenewable resources contained in the outer Continental Shelf, and the potential impact of oil and gas exploration on other resource values of the outer Continental shelf and the marine, coastal, and human environments.”¹ Notably, the term “human environment” refers to “the physical, social, and economic components, conditions, and factors which interactively determine the state, condition, and quality of living conditions, employment, and health of those affected, *directly or indirectly*, by activities occurring on the outer Continental Shelf.”²

Section 18 also lists specific factors that BOEM must consider when developing the OCS leasing program. These include, *inter alia*,

- Environmental baseline data, including existing information concerning the geographical, geological, and ecological characteristics of the OCS areas; their relative environmental sensitivity and marine productivity; and the location of such regions with respect to other uses of the sea and seabed.³
- Relevant environmental and *predictive* information for different OCS areas.⁴
- Whether the oil and gas leasing program will result in “an equitable sharing of developmental benefits and environmental risks among the various regions” and whether it comports with the “laws, goals and policies of affected States.”⁵

Finally, when weighing these factors, Section 18 specifies that the Secretary shall, to the maximum extent practicable, “obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone.”⁶

On its face, the statute plainly requires BOEM to consider a broad range of environmental impacts and social considerations that extend beyond the geographic boundaries of the OCS. These include considerations relating to climate change. In particular, BOEM must assess the following impacts in order to conduct the analysis required under Section 18:

- (1) **The potential impacts of climate change on the OCS leasing areas.** This would constitute “relevant environmental and predictive information” that is necessary to

¹ 43 U.S.C. § 1344(a)(1).

² 43 U.S.C. § 1331(i) (*emphasis added*).

³ 43 U.S.C. § 1344(a)(2)(A), (C) and (G).

⁴ 43 U.S.C. § 1344(a)(2)(H).

⁵ 43 U.S.C. § 1344(a)(2)(B) and (F). OCSLA explicitly recognizes that affected states and, through such states, affected local governments, are “entitled to an opportunity to participate” in decisions relating to the exploration for, development and production of minerals from the OCS. 43 U.S.C. § 1332(4)(C). Thus, during the preparation of the DPP, BOEM must “invite and consider suggestions for such program from any Federal agency... and from the Governor of any State which may become an affected State under such proposed program.” 42 U.S.C. § 1344(c)(1).

⁶ 43 U.S.C. § 1344(a)(3).

assess the “the relative environmental sensitivity and marine productivity” of OCS areas.⁷

- (2) **The direct and indirect impacts of OCS leasing activities on global climate change.** Without a comprehensive analysis of such impacts, BOEM cannot adequately assess the “potential impact of oil and gas exploration on... the marine, coastal, and human environments” and ensure that the OCS leasing program strikes “the proper balance” between environmental and other considerations.⁸

The DPP does address this first issue, e.g., by applying a climate change index to the baseline sensitivity scores (although as discussed below BOEM should more thoroughly assess climate change impacts and adaptation opportunities as part of its NEPA review).

However, the DPP does not adequately account for the impact of the proposed leasing program on global climate change. The DPP acknowledges that air emissions from OCS leasing may “contribute broadly to the effects of global climate change” and that the “national risks” of the proposed leasing program include “threats to global climate health from damaged coastal and marine ecosystems and the introduction of additional GHGs into the atmosphere.”⁹ It also recognizes that this is an issue of public concern.¹⁰ But the DPP does not contain any substantive information on the sources and quantities of GHG emissions that would be reviewed as part of its assessment of environmental risks under OCSLA, nor does it specify a methodology that the agency will use to identify these emissions and assess their impact.

We recommend that BOEM address these deficiencies by incorporating the following items into its analysis of the 2017-2022 leasing program.

1. Establish Clear Parameters for Identifying and Quantifying GHG Emissions from OCS Oil and Gas Development

BOEM should clearly articulate the methodology that it will use to assess GHG emissions from oil and gas development on the OCS. This methodology should specify the scope of the GHG-emitting activities that will be analyzed and any baseline assumptions or uncertainty that will influence the analysis. Moreover, this analysis should also be as comprehensive as possible to ensure that the agency conducts a reasonable assessment of environmental risks as well as economic benefits. In particular, BOEM should assess “downstream” emissions from transporting, processing and consuming the oil and gas developed under the leasing program. As discussed in section II, such analysis is required by NEPA and thus there is no reason not to include it in the assessment required by OCSLA. Moreover, this analysis would undoubtedly contribute to better decision-making. Finally, as noted below, a comprehensive assessment of climate-related risks is consistent with federal and state climate policies.

The DPP suggests that it may be difficult to trace the impacts of climate change to oil and gas leasing activities:

[T]he risk is also one of national (and international) scale due to the fact that GHG emissions are one of the causes of climate change. Climate change is a global phenomenon driven by multiple factors including human and natural influences, so

⁷ 43 U.S.C. § 1344(a)(2)(G) and (H).

⁸ 43 U.S.C. § 1344(a)(1) and (4).

⁹ U.S. DEPT. OF INTERIOR, 2017-2022 OUTER CONTINENTAL SHELF OIL AND GAS LEASING DRAFT PROPOSED PROGRAM 6-36, 7-17 (Jan. 2015), *available at* <http://www.boem.gov/2017-2022-DPP/> [hereinafter DRAFT PROPOSED PROGRAM].

¹⁰ DRAFT PROPOSED PROGRAM at 6-36 (“Several groups also expressed concern about the contribution that new oil and gas leasing may have on global climate change”).

predicting climate change impacts requires consideration of large scale or even worldwide GHG emissions, not just local emissions. Climate change predictive capability (modeling) cannot estimate the impact of GHGs from a particular source or sources such as oil and gas activities associated with the Program. What their impact would be, if any, is determined not only by the emissions from the oil and gas activities themselves, but also by the GHG emissions of other sources throughout the world and whether these other emissions are expected to increase or decrease. In addition, because some GHGs like carbon dioxide can persist in the atmosphere for up to a century after emission, the potential impacts of any source may extend well beyond the active lifetime of the source or even the Program.¹¹

However, the inability to precisely predict impacts from the specific emissions is not an excuse to forgo analysis of the programmatic impacts on our nation's climate change policy and strategies for reducing GHG emissions. BOEM can still project the total quantity of GHG emissions from OCS leasing activities and, as discussed below, can provide context for these emissions by providing social cost estimates and discussing the relationship between these emissions and federal and state climate policies.¹²

2. *Quantify the Costs of GHG Emissions in Risk-Benefit Analysis*

As noted above, OCSLA requires BOEM to weigh both environmental risks and economic benefits when developing leasing programs. It is critically important that BOEM assign a cost value to GHG emissions from oil and gas development in the OCS, so that it can compare these costs to the economic benefits of oil and gas development.

Specifically, BOEM should use the federal government's Social Cost of Carbon to quantify the cost of these emissions. This tool was developed by the federal government for analyzing the costs and benefits of policy decisions like the 2017-2022 OCS leasing program.¹³ Moreover, as discussed in Section II, CEQ recommends that agencies use this tool when evaluating GHG impacts under NEPA. The Ninth Circuit has also overturned agency decisions for failing to monetize the economic benefits of GHG emissions reduction,¹⁴ and for failing to consider the Social Cost of Carbon when the federal government has provided such a clear and easy tool for quantifying those costs.¹⁵

In the DPP, BOEM reasons that the social cost of carbon need not be monetized in this process because "USDOJ does not yet have a policy in place concerning the monetization of the social cost of carbon." B-9. Yet, as BOEM points out in the very same paragraph, "[t]he U.S. Government's Interagency Working Group on the Social Cost of Carbon has developed an estimate of the economic costs associated with an increase on carbon dioxide emissions, i.e., the

¹¹ DRAFT PROPOSED PROGRAM at 7-15.

¹² BOEM can refer to the methodologies used by other agencies to: (i) quantify emissions in the context of uncertainty, (ii) contextualize their impact on the global climate, and (iii) use this information to compare alternatives. *See, e.g.*, NATIONAL HIGHWAY SAFETY ADMIN, FINAL EIS FOR CAFE PASSENGER CARS AND LIGHT TRUCKS, MODEL YEARS 2012-2016 (Feb. 2010) (quantifying the GHG impact of several possible fuel economy standards and the corresponding impact on global temperatures); U.S. DEPT. OF AGRICULTURE, FINAL ENVIRONMENTAL IMPACT STATEMENT: FEDERAL COAL LEASE MODIFICATIONS COC-1362 & COC-67232 (Aug. 2012) (quantifying downstream GHG emissions from transport and consumption of mined coal).

¹³ U.S. Env'tl. Protection Agency, *The Social Cost of Carbon*, CLIMATE CHANGE: WHAT EPA IS DOING, <http://www.epa.gov/climatechange/EPAactivities/economics/sc.html> (last visited Mar. 25, 2015).

¹⁴ *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1200-1203 (9th Cir. 2008).

¹⁵ *High Country Conservation Advocates v. U.S. Forest Service*, No. 13-CV-01723-RBJ, 2014 WL 2922751 (D. Colo. June 27, 2014).

social cost of carbon.” *Id.* Though such an analysis will suffer from a degree of uncertainty it nonetheless provides an important metric for social measurement.

3. Incorporate Social Cost of Carbon into Fair Market Value of Leases

In developing the methods and procedures for assuring the receipt of fair market value for lands leased under section 18(a)(4) of the OCS Lands Act¹⁶ BOEM sets lease fiscal and temporal terms, and other features relevant to bidding. In determining fair market value for the leases, BOEM should account for the environmental externalities associated with the development and use of the resource. Minimum bids, royalty rates and rental rates should all reflect the Social Cost of Carbon associated with the development and utilization of these resources.

4. Evaluate Whether the Proposed Leasing Program is Consistent with National Climate Policies and GHG Emissions Reduction Targets

The DPP seeks to investigate frontier areas in Alaska and to update data regarding resources available in the Mid-Atlantic and South Atlantic regions, and anticipates offering lease sales in these areas later in the five-year period. President Obama’s all-of-the-above approach to energy security has long been in tension with the President’s simultaneous all-of-the-above approach to reducing the U.S.’s carbon footprint and combating climate change. Exploring these new areas will perpetuate the fossil-fuel dependency by increasing the supply and lowering the cost of oil and gas resources.

BOEM estimates that the OCS contains undiscovered, technically recoverable oil and gas resources amounting to 89.93 billion barrels of oil and 404.52 trillion cubic feet of natural gas.¹⁷ The 2012-2017 lease plan has already opened up areas containing an estimated 75% of these still-in-the-ground resources,¹⁸ and according to Secretary Jewell, the 2017-2022 DPP will make nearly 80% of estimated oil and gas resources available for extraction.¹⁹

Although not all of these resources will be developed in the 5-year period, the annual GHG emissions from the extraction and consumption of these resources will be nonetheless substantial. For example, a recent assessment of GHG emissions from offshore oil and gas resources that were extracted in 2012 found that the combustion of these resources generated over 315 million metric tons (MMT) of CO_{2e}.²⁰ This figure does not include emissions from exploration and extraction of the resources, which BOEM estimated at 74.18-147.89 MMT of CO_{2e} over the course of the 2012-2017 leasing program.²¹ Based on these figures, we can extrapolate that the total GHG emissions associated with the oil and gas extracted under the proposed 2017-2022 program would likely exceed 1,650 MMT of CO_{2e}.²² To provide some

¹⁶ 43 U.S.C. § 1344(a)(4).

¹⁷ 79 Fed. Reg. 34,349 (June 16, 2014).

¹⁸ *Id.*

¹⁹ U.S. Dept. of Interior, *Press Release: Interior Department Announces Draft Strategy for Offshore Oil and Gas Leasing* (Jan. 27, 2015), <http://www.doi.gov/news/pressreleases/interior-department-announces-draft-strategy-for-offshore-oil-and-gas-leasing.cfm>.

²⁰ Stratus Consulting, *Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters: An Update* (Dec. 23, 2014).

²¹ U.S. DEPT. OF INTERIOR, BUREAU OF OCEAN ENERGY MANAGEMENT (BOEM), FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT: 2012-2017 OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM, 4-212 (July 2012) [hereinafter 2012-2017 PROGRAMMATIC EIS].

²² The calculation underlying this estimate is as follows: [BOEM’s lowest projection of exploration and extraction emissions from the 2012-2017 DDP (74.18 MMT)] + [2012 consumption emissions (315 MMT), multiplied by 5 years (total: 1575 MMT)] = 1649.18 MMT. We anticipate that actual emissions from the proposed 2017-2022 program would actually be higher than this figure for three reasons: (i) this figure does

context, this would constitute nearly 29% of total U.S. emissions in 2012 (5,742.7 MMT),²³ and 31% of the anticipated emissions reductions from the proposed Clean Power Plan (5,344 MMT).²⁴

BOEM should assess whether the expansion of national oil and gas development on the OCS is consistent with national climate policies and GHG emission reductions targets. On its face, the proposal appears to be inconsistent with the internationally agreed upon target of limiting global warming to 2° Celsius (C). As noted by the International Energy Agency (IEA), “[n]o more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2 °C goal.”²⁵ We are already off track to meet this target due to the recent surge in unconventional oil and gas development, and expanding our offshore activities will push us further from this goal. Indeed, BOEM should explicitly acknowledge and analyze the fact that in order to meet the 2 °C goal the U.S. will have to leave some quantity of fossil fuel resources in the ground.

The proposal also appears to be inconsistent with numerous declarations of federal climate policy and our emerging regulatory scheme for reducing GHG emissions. Since 2009, the President Obama has repeatedly called upon federal agencies to disclose and reduce GHG emissions and otherwise prepare for the impacts of climate change.²⁶ Just last week, President Obama issued the most ambitious executive order to date, directing federal agencies to reduce their direct GHG emissions by 40% by 2025.²⁷ In addition, the Obama Administration has announced a nationwide emissions reduction target of 26-28% below 2005 levels by 2025.²⁸ This is one component of the President’s plan to “lead international efforts to combat global climate change and prepare for its impacts.”²⁹ It is difficult, if not impossible, to reconcile the DPP with these initiatives and goals.

not include the transportation and processing of OCS gas and oil; (ii) we are using BOEM’s lowest projection of emissions from exploration and extraction during the 2012-2017 program; and (iii) BOEM is proposing an expansion of oil and gas leasing activities for the next five year plan.

²³ U.S. ENVTL. PROTECTION AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2011, EPA 430-R-13-001 (April 2013).

²⁴ Natural Resources Defense Council, *NRDC Summary of EPA’s Clean Power Plan: Carbon Pollution Standards for Existing Power Plants* (June 2, 2014), available at <http://www.nrdc.org/air/pollution-standards/files/pollution-standards-epa-plan-summary.pdf>. See also U.S. ENVTL. PROTECTION AGENCY, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED CARBON POLLUTION GUIDELINES FOR EXISTING POWER PLANTS AND EMISSION STANDARDS FOR MODIFIED AND RECONSTRUCTED POWER PLANTS, EPA-452/R-14-002, ES-6 (June 2014) (projecting that the annual CO₂ emissions reductions from the Clean Power Plan will be -371 MMT in 2020, -501 MMT in 2025, and -545 MMT in 2030).

²⁵ International Energy Agency, *World Energy Outlook 2012* (Nov. 12, 2012), available at <http://www.worldenergyoutlook.org/publications/weo-2012/>.

²⁶ See, e.g., Exec. Order No. 13,514, *Federal Leadership in Environmental, Energy, and Economic Performance* (Oct. 5, 2009); Exec. Order No. 13,653, *Preparing the United States for the Impacts of Climate Change* (Nov. 1, 2013); Exec. Order, *Planning for Federal Sustainability in the Next Decade* (Mar. 19, 2015).

²⁷ Exec. Order, *Planning for Federal Sustainability in the Next Decade* (Mar. 19, 2015).

²⁸ The Administration has stated that it will submit this to the UNFCCC as the U.S. “Intended nationally Determined Contribution” no later than the first quarter of 2015. See *Fact Sheet: U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation*, <https://www.whitehouse.gov/the-press-office/2014/11/11/fact-sheet-us-china-joint-announcement-climate-change-and-clean-energy-c> (last visited Mar. 25, 15).

²⁹ EXECUTIVE OFFICE OF THE PRESIDENT, *THE PRESIDENT’S CLIMATE ACTION PLAN 5* (June 2013).

5. *Meaningfully Review and Address Comments from State Governors*

BOEM must also address any climate-related policies or considerations that are raised by state and local governments as part of the coordination and consultation required under Section 19 of OCSLA. Specifically, OCSLA allows state and local governments to submit recommendations on the DPP, and specifies that BOEM “shall” accept such recommendations from state governors upon a determination that “they provide for a reasonable balance between the national interest and the well-being of the citizens of the affected State.”³⁰ The Bureau “may” accept local recommendations after making the same determination.³¹

However, the DPP does not address any of the concerns raised by state governors in response to the Request for Information (“RFI”) that was circulated as part of the DPP planning process. The RFI called for interested parties to submit “information associated with the economic, social, and environmental values of all OCS resources, as well as the potential impact of oil and gas exploration and development on other resource values of the OCS and the marine, coastal and human environments.”³² In response, numerous commenters pointed to the inconsistency of leasing OCS areas for new exploration and production activities with federal and state climate change policies.³³ The DPP does nothing to address this inconsistency.

II. NEPA Requires BOEM to Take a “Hard Look” at Any Reasonably Foreseeable GHG Emissions and the Environmental Effects of Climate Impacts on Oil- and Gas-related Activities in the PEIS

BOEM should assess any reasonably foreseeable GHG emissions and the potential environmental effects of climate change impacts on oil- and gas-related activities at the programmatic planning stage. PEISs for long-range energy and resource management programs provide the best level for analysis of GHG emissions and other climate impacts, because they allow the reviewing agency to assess these impacts on a broad scale and at the earliest possible stage of development.³⁴ It is at this stage that BOEM is best equipped to make decisions about how OCS oil and gas leasing should be structured so as to comport with the objectives of OCSLA and national policies on energy and climate. The programmatic analysis of GHG emissions can also be relied upon in subsequent, tiered analyses of specific proposed actions as necessary, thus making the tiered review more efficient.³⁵

Addressing GHG emissions and climate impacts at this stage is not only pragmatic; it is also legally required by NEPA and its implementing regulations. Specifically, the regulations require that agencies “prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning in decision-making.”³⁶ PEISs are subject to the same NEPA requirements as a project-or-site specific document, and thus a

³⁰ 43 U.S.C. § 1345(c).

³¹ *Id.*

³² 79 Fed. Reg. 34,349 (June 16, 2014).

³³ DRAFT PROPOSED PROGRAM at A-2 – A-3, A-5, A-12, A-13, A-16 – A-18, A-20, A-51.

³⁴ CEQ notes that Programmatic EISs are an ideal tool for providing a “broad view of environmental impacts and benefits for a proposed decision,” such as the impact of an oil and gas leasing program on climate change. Michael Boots, U.S. Council on Env’tl. Quality, *Memorandum for Heads of Federal Departments and Agencies: Effective use of Programmatic NEPA Reviews* 6 (Dec. 18, 2014) [hereinafter *Programmatic EIS Guidance*].

³⁵ See 40 C.F.R. §§ 1502.20, 1508.28; Council on Environmental Quality, *Guidance Regarding NEPA Regulations*, 48 Fed. Reg. 34,263 (July 28, 1983); *Programmatic EIS Guidance*.

³⁶ 40 C.F.R. § 1502.4(b).

decision-maker cannot defer the analysis of foreseeable direct, indirect and cumulative impacts from the action (and any connected or cumulative actions) in a PEIS.³⁷ The analysis of such impacts in a PEIS “should be commensurate with the nature and extent of potential impacts of the decision being made.”³⁸ At minimum, the analysis must be sufficiently detailed to allow the agency to take a “hard look” at those impacts, and to enable the public to “understand and meaningfully consider the factors involved.”³⁹

The Council on Environmental Quality (CEQ) issued final guidance on the effective use of programmatic NEPA reviews which further clarifies both the practical advantages of analyzing GHG emissions and climate change impacts at this stage and the legal requirement that the PEIS do so. According to CEQ, some of the considerations that should guide the analysis of environmental impacts in a PEIS include:

- **Integrated and Holistic Planning:** By providing a broad view of environmental impacts, a PEIS can influence the nature of subsequent decisions and provide for “an integrated and sustainable planning framework, or program.”⁴⁰
- **Transparent and Effective Decision-Making:** Programmatic NEPA reviews “should result in clearer and more transparent decision-making, as well as provide a better defined and more expeditious path toward decisions on proposed actions.”⁴¹ For example, an adequate evaluation of impacts at the programmatic stage allows for more robust public participation.⁴² It also ensures that the agency will not hinder public participation by structuring the review process such that it is “too early to raise issues in the broader programmatic analysis and then too late to raise them in any subsequent tiered analysis.”⁴³
- **Alternatives and Mitigation Measures:** Programmatic NEPA reviews must contain “sufficient discussion of the relevant issues and opposing viewpoints to enable the decision-maker to take a ‘hard look’ at the environmental effects and make a reasoned choice among alternatives.”⁴⁴ The discussion of alternatives and mitigation measures in a PEIS is particularly important, because by identifying the potential environmental impacts at the planning stage, agencies can “modify aspects of the proposal and subsequent tiered proposals to avoid or otherwise mitigate those impacts.”⁴⁵
- **Cumulative Impacts:** A PEIS is an ideal tool for assessing cumulative impacts of multiple agency activities that fall within the purview of the program being analyzed. By reviewing cumulative impacts at this stage, the agency can avoid[] repetitive broad

³⁷ *Programmatic EIS Guidance* at 19.

³⁸ *Id.* at 32.

³⁹ *Id.* (citing *Baltimore Gas and Electric Co. v. NRDC*, 462 U.S. 87 (1983)).

⁴⁰ *Id.* at 11.

⁴¹ *Id.* at 7.

⁴² “When the public has a chance to see the big picture early it can provide fresh perspectives and new ideas before determinations are made that will shape the programmatic review and how those determinations affect future tiered proposals and NEPA reviews.” *Id.* at 25.

⁴³ *Id.*

⁴⁴ *Id.* at 32 (citing *Natural Resources Defense Council v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972)).

⁴⁵ *Id.* at 35 (noting also that “A thoughtful and broad-based approach to planning for future development can include best practices, standard operating procedures, adaptive management practices, and comprehensive mitigation measures that address impacts on a broad programmatic scale (e.g., program-, region-, or nation-wide)”).

level analysis in subsequent tiered NEPA reviews and provide[] a more comprehensive picture of the consequences of multiple proposed actions.”⁴⁶

- **Managing uncertainty:** Finally, programmatic NEPA reviews can support policy- and planning-level decisions when there are informational constraints and uncertainty regarding the timing, location, and environmental impacts of subsequent implementing actions.⁴⁷ For example, the agency can use a PEIS to predict the “reasonably foreseeable consequences” of a program based on a range of different scenarios, and use those predictions to make broad program decisions and establish parameters for subsequent analysis.⁴⁸

CEQ also notes that the scope and depth of analysis in a PEIS should be informed by specific considerations relating to the above goals. First, the agency should address environmental issues at the most effective and meaningful decision point (e.g., the cumulative impact of leasing decisions on the climate should be considered when the program is being developed, rather than when each individual lease is issued).⁴⁹ Second, the scope of the assessment at the programmatic level should match the geographic and temporal scale of the proposed program or activity.⁵⁰ Third, the particular effects of a proposed action should be analyzed at a broader scale if this would facilitate analysis and or decision-making at a more refined (i.e., tiered) level.⁵¹ Fourth, the agency should not use a tiered NEPA analysis to “segment” any issues in a manner that would unreasonably constrict the scope of environmental review or the analysis of alternatives and mitigation measures.⁵²

Finally, CEQ’s guidance explicitly recognizes the value of using programmatic NEPA reviews to assess federal energy and climate policy: a programmatic EIS “may serve as an efficient mechanism to describe Federal agency efforts to adopt sustainable practices for energy efficiency, reduce or avoid greenhouse gas emissions, reduce petroleum product use, and increase the use of renewable energy including bioenergy, as well as other sustainability practices.”⁵³

In addition to the guidance on programmatic environmental review, CEQ’s revised draft guidance on considering climate change during NEPA reviews also recommends that federal agencies use programmatic analysis to ensure that GHG emissions and climate-related impacts are discussed at a level that is most useful for decision-makers and the public.⁵⁴ The revised draft guidance specifically recognizes the advantages of programmatic review in the context of long-range energy and resource management actions as well as specific oil and gas leasing decisions.⁵⁵

⁴⁶ *Programmatic EIS Guidance* at 10.

⁴⁷ *Id.* at 11.

⁴⁸ *Id.* at 11.

⁴⁹ *Id.* at 17 (citing 40 CFR § 1502.4(b)).

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.* at 16. *See also* *Piedmont Environmental Council v. F.E.R.C.*, 558 F.3d 304, 316 (4th Cir. 2009); *Nat’l Wildlife Fed’n v. Appalachian Reg’l Comm’n*, 677 F.2d 883, 888-89 (D.C. Cir. 1981) (an agency may not attempt to segment the program and its environmental impacts by analyzing those impacts in individual EISs; a programmatic EIS should be prepared to evaluate the impacts as a whole).

⁵³ *Programmatic EIS Guidance* at 18.

⁵⁴ U.S. Council on Env’tl. Quality, *Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews*, 79 Fed. Reg. 77,802 (Dec. 24, 2014) [hereinafter *Revised Draft Climate Guidance*].

⁵⁵ *Revised Draft Climate Guidance*, 79 Fed. Reg. at 77,830.

1. The PEIS's Analysis of GHG Emissions and Climate Change Impacts Should Encompass All Reasonably Foreseeable Consequences of the Proposed Leasing Program

In accordance with the regulations and guidance documents, BOEM should assess the proposed oil and gas leasing program's GHG emissions and impact on global climate change at the programmatic planning stage.⁵⁶ This is the most “meaningful decision point” for assessing the climate-related implications of oil and gas development in the OCS. If BOEM were to defer such analysis, it would risk segmenting the consideration of these impacts for decision-makers and the public. It would also be illogical to contemplate these impacts *after* making programmatic decisions about how to manage these resources, since this is the stage at which BOEM can most easily understand the full range of consequences associated with OCS oil and gas leasing and develop alternatives or mitigation measures to address those consequences.

To the extent that there is uncertainty about the actual emissions that will be generated from specific leasing decisions, BOEM can highlight any information gaps and assumptions in the PEIS and provide tentative emissions projections for a range of scenarios. Specifically, CEQ recommends that agencies address uncertainty by “focusing on a bounded range of potential activities and their impacts” when analyzing environmental consequences and mitigation opportunities in a PEIS.⁵⁷ These projections can be updated in the tiered EISs prepared for subsequent stages of the leasing decision.

BOEM must assess the direct, indirect and cumulative effects of the 2017-2022 leasing program. Indirect effects include “reasonably foreseeable future actions such as induced growth and its effects on air and water and other natural systems,” and cumulative effects are those which “result[] from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency... or person undertakes such other actions.”⁵⁸ BOEM must assess these impacts in the context of several different types of actions:

- **Connected actions** that are closely related to the proposed action and should therefore be discussed in the same impact statement. Actions are connected if they automatically trigger other actions; or cannot or will not proceed unless a previous or simultaneous action is taken; or are interdependent parts of a larger action and depend on the larger action for justification.⁵⁹
- **Cumulative actions**, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.⁶⁰
- **Similar actions**, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental

⁵⁶ The full scope of emissions and impacts that should be included is discussed below, in Section II.

⁵⁷ *Programmatic EIS Guidance* at 34.

⁵⁸ 40 C.F.R. §§ 1508.7, 1508.8.

⁵⁹ 40 C.F.R. §§ 1508.25(a)(1) and 1508.25(a)(1)(iii). The scope of impacts from connected actions that should be considered is expansive, especially in the context of a broad program like the OCS oil and gas leasing program. As an example, CEQ notes that the NEPA analysis for a proposed open pit mine should include the reasonably foreseeable emissions from different components of the mining process, such as clearing land for extraction, building access roads, transporting the extracted resource, refining or processing the resource, and consuming the resource. This last item is especially significant: it means, for example, that the NEPA analysis of a coal mine would include the GHG emissions from the combustion of the coal in power plants. *Revised Draft Climate Guidance*, 79 Fed. Reg. at 77,825-26.

⁶⁰ 40 CFR § 1508.25(a)(2).

consequences together, such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.⁶¹

These requirements are applicable in the context of programmatic NEPA reviews as well as project- or site-specific reviews.

BOEM's analysis of greenhouse gas emissions and climate change impacts associated with the 2017-2022 OCS Oil and Gas Leasing program should encompass the following activities and impacts:

Sources of GHG Emissions From OCS Oil and Gas Leasing Program	
Direct Effects of the Proposed Program	<ul style="list-style-type: none"> • Exploration: emissions from vessels, helicopters, and machinery engaged in exploration activities in the OCS. • Construction: emissions generated from vessels and machinery engaged in the construction of oil and gas wells within the OCS. • Operation: emissions generated during the operation of oil and gas wells, including emissions from the wellhead, machinery, and vessels operating within the OCS. • Decommissioning: emissions from the decommissioning of oil and gas wells.
Indirect / Cumulative Effects and Connected Actions	<ul style="list-style-type: none"> • Induced Trips: GHG emissions generated from the transport of materials and resources to and from the leased areas, but occurring outside of the OCS. • Fuel Processing: GHG emissions from refining or otherwise processing oil and gas resources extracted under the leasing program. • Oil and Gas Consumption: GHG emissions from the consumption of oil and gas produced by wells that were authorized under the leasing program (the consumption of these resources cannot occur if they are not extracted, and thus this constitutes a connected action that must be reviewed).

This list reflects a broader range of GHG emitting activities than what was covered in the PEIS for the 2012-2017 leasing program, which only encompassed emissions from exploration, construction, operation and decommissioning of oil and gas wells.⁶² Although the U.S. Court of Appeals for the D.C. Circuit has interpreted OCSLA as not requiring analysis of emissions from the consumption of extracted oil and gas, this interpretation did not extend to NEPA and its implementing requirements.⁶³ To the contrary, federal courts have consistently held that NEPA

⁶¹ 40 CFR § 1508.25(a)(3).

⁶² 2012-2017 PROGRAMMATIC EIS §4.4.4.

⁶³ See *Center for Biological Diversity v. Department of Interior*, 563 F.3d 466 (2009) (holding that OCSLA does not require consideration of the impact of OCS oil and gas leasing program on the consumption of fossil fuels, but declining to address whether NEPA requires such analysis). See also *Center for Sustainable Economy v. Jewell*, No. 12-1431, 5 ELR 20046 (D.C. Cir., Mar. 6, 2015) (declining to address the scope of NEPA requirements for the 2012-2017 leasing program).

does require consideration of downstream impacts, such as induced growth and consumption of extracted resources.⁶⁴ CEQ has also interpreted NEPA as requiring an analysis of downstream emissions, including emissions from the combustion of fossil fuels extracted in accordance with a federal program subject to NEPA review:

When assessing direct and indirect climate change effects, agencies should take account of the proposed action—including ‘connected’ actions—subject to reasonable limits based on feasibility and practicality. In addition, emissions from activities that have a reasonably close causal relationship to the Federal action, such as those that may occur as a predicate for the agency action (often referred to as upstream emissions) and as a consequence of the agency action (often referred to as downstream emission) should be accounted for in the NEPA analysis.⁶⁵

To illustrate this point, CEQ notes that an agency may need to address the following “reasonably foreseeable” activities when analyzing GHG emissions from a proposed open pit mine: clearing land for the extraction, building access roads, transporting the extracted resource, refining or processing the resource, and using the resource.⁶⁶

Given the potential scale of the proposed program, the emissions from all of these activities should be clearly delineated and quantified in the PEIS.⁶⁷ To quantify these emissions, BOEM can use existing informational tools, such as the World Resources Institute (WRI)’s GHG Protocol.⁶⁸ This protocol is the most widely used international accounting tool for quantifying and reporting GHG emissions, and it serves as the foundation for The Climate Registry and accounting mechanisms promulgated by the International Organization for Standardization (ISO).⁶⁹ WRI has also recently introduced a draft protocol for calculating the potential GHG emissions from fossil fuel reserves, includes recommendations which are directly relevant to the assessment of climate impacts from the 2017-2022 leasing program.⁷⁰ Uncertainty should not be a major barrier to this analysis, as BOEM is already projecting the potential yield of OCS oil and gas resources under the program.

Finally, BOEM’s analysis of how the program will contribute to climate change should not be limited to a quantification of GHG emissions. Merely quantifying emissions does not provide decision-makers or the public with a clear sense of the impact that those emissions will have on our global climate and environmental resources. To avoid a cursory consideration of GHG emissions, CEQ recommends that federal agencies provide a frame of reference for both the decision-maker and the public when discussing GHG emissions and climate-related impacts.

⁶⁴ *See, e.g.*, *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520 (8th Cir. 2003) (cannot approve project (280 miles of new rail line and upgrade to nearly 600 miles of existing rail) without first examining the effects that may occur as a result of the reasonably foreseeable increase in coal consumption); *Barnes v. U.S. Dep't of Transp.*, 655 F.3d 1124, 1136-39 (9th Cir. 2011) (even if the stated purpose of the project is to increase safety and efficiency, the agencies must analyze the impacts of the increased demand attributable to the additional runway as growth-inducing effects falling under the purview of 40 C.F.R. § 1508.8(b)); *Border Power Plant Working Grp. v. Dep't of Energy*, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (EIS must consider GHG emissions from power plant that would be connected to transmission line project).

⁶⁵ *Revised Draft Climate Guidance*, 79 Fed. Reg. at 77,825-26

⁶⁶ *Id.* at 77,826.

⁶⁷ CEQ recommends that emissions be quantified if they will exceed 25,000 tons of CO_{2e} annually. *Revised Draft Climate Guidance*, 79 Fed. Reg. 77,827.

⁶⁸ World Resources Institute (WRI), *Greenhouse Gas (GHG) Protocol*, <http://www.ghgprotocol.org/> (last visited March 13, 2015).

⁶⁹ *About the GHG Protocol*, <http://www.ghgprotocol.org/about-ghgp> (last visited March 18, 2015).

⁷⁰ World Resources Institute (WRI), *Calculating and Reporting the Potential GHG Emissions from Fossil Fuel Reserves: Draft Recommendations* (Feb. 10, 2015).

Specifically, agencies can incorporate by reference any applicable emissions standards developed by federal, state or local regulators and discuss how the proposed action will contribute to or interfere with the attainment of those standards. In addition, CEQ recommends that agencies conducting a cost-benefit analysis use the federal social cost of carbon to assign a monetary value to emissions generated or avoided by the project.⁷¹

OCSLA requires BOEM to: (i) conduct a cost-benefit analysis, and (ii) account for the “laws, goals and policies of affected States” when developing oil and gas leasing programs.⁷² BOEM can thus fulfill its obligations under both OCSLA and NEPA by including the following items in the PEIS for the 2017-2022 OCS Leasing Program:

- A projection of economic costs from GHG emissions (using the federal government’s social cost of carbon as a protocol for assigning economic value to those emissions).
- A discussion of how the GHG emissions generated from OCS oil and gas development will either contribute to or interfere with national, state and local climate and energy policies.⁷³

These quantitative and qualitative discussion items will help BOEM and the public better understand the consequences of the leasing program with respect to global climate change.

2. The PEIS Should Analyze the Environmental Effects of Climate Change Impacts on Lease Program Activities and the Potential for Adaptation Measures to Mitigate those Effects

Pursuant to its obligations under NEPA, BOEM must consider the potential for significant adverse environmental effects of sea level rise, storm surge, and increased severe storm impacts on oil and gas activities resulting from BOEM’s OCS lease sales. As noted above, NEPA’s implementing regulations provide that agencies must consider reasonably foreseeable indirect and cumulative environmental impacts.⁷⁴ The Department of Interior’s (“DOI”) Climate Change Adaptation Plan specifies that bureaus should incorporate consideration of climate change impacts as a component of cumulative impacts.⁷⁵ The Bureau also must consider sea level

⁷¹ *Revised Draft Climate Guidance*, 79 Fed. Reg. at 77,827. This aspect of the guidance accords with a decisions from the 9th Circuit Court of Appeals and the District Court of Colorado, holding that BLM had violated NEPA by failing to consider the costs of GHG emissions from a coal mining lease modification when the federal government had provided a clear protocol for conducting this analysis: the social cost of carbon. *See* *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008) (where substantive statute requires cost benefit analysis, arbitrary and capricious not to consider cost of carbon when conducting that CBA and integrating it with NEPA analysis); *High Country Conservation Advocates v. U.S. Forest Service*, --- F.Supp.3d --- (2014 WL 2922751) (U.S. District Court, D. Colorado, June 27, 2014) (BLM violated NEPA by failing to consider the costs of GHG emissions from a coal mining lease modification when the federal government had provided a clear protocol for conducting this analysis: the social cost of carbon).

⁷² 43 U.S.C. § 1344(2)(F).

⁷³ At a minimum, BOEM should consider all of the laws and policies noted by state and local governments in their submissions under OCSLA, as well as national energy and climate policy as discussed in Section I.

⁷⁴ *See* 40 C.F.R. §§ 1508.7 (defining “cumulative impact”), 1508.8 (defining “effects” as including direct and reasonably foreseeable indirect effects), 1508.25(c) (providing that EISs must consider direct, indirect, and cumulative impacts); *see also* CEQ, *Considering Cumulative Effects under the National Environmental Policy Act* (1997) [hereinafter “*Considering Cumulative Effects under NEPA*”], available at http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf.

⁷⁵ U.S. DEPT. OF INTERIOR, CLIMATE CHANGE ADAPTATION PLAN (2014), at 20, available at www.doi.gov/greening/sustainability_plan/upload/2014_DOI_Climate_Change_Adaptation_Plan.pdf.

rise, storm surge, and increased severe storm events as future baseline environmental conditions. As CEQ guidelines clarify, agencies must define an appropriate threshold against which to compare projected environmental impacts, and this threshold should incorporate future environmental conditions.⁷⁶

Federal law supports consideration of climate change adaptation in the PEIS. CEQ's revised draft guidance calls for EISs prepared under NEPA to consider future climate impacts on projects.⁷⁷ The proposed guidance clarifies that climate change adaptation and resilience are important considerations and instructs agencies to identify the affected environment for the expected lifespan of the proposed project based on available climate change projections.⁷⁸ In addition, the guidance directs agencies to consider whether climate change will have implications for the environmental effects of a proposed action (e.g., sea level rise and flooding could increase the risk of chemical releases from hazardous waste management facilities, a chemical storage facility, or a nuclear power plant).⁷⁹

Other federal agencies have already begun to incorporate climate change adaptation concerns into their environmental review process. For example, FERC recently required consideration of climate change impacts in connection with a proposed LNG export facility in flood-prone coastal Louisiana (the "Mississippi River LNG Project").⁸⁰ After the applicant for the Mississippi River LNG Project submitted draft resource reports to the Commission, FERC directed the applicant to supplement the reports with information regarding potential impacts of sea level rise and storm impacts for the design life of the facility.⁸¹

In addition, President Obama has issued an executive order regarding adaptation, which directs agencies to prepare for the impacts of climate change by integrating consideration of climate change into agency operations and overall mission objectives.⁸² More recently, President Obama signed an executive order directing federal agencies to adopt new flood elevation standards, taking climate change into account, for the siting, design, and construction of federal projects.⁸³ Federal agencies are responding accordingly. FEMA issued draft guidelines implementing the executive order.⁸⁴ The Department of Defense ("DOD") intends to adapt to the risks of climate change by "integrating climate change considerations into [the DOD's] plans, operations, and training across the Department...."⁸⁵ Relatedly, the Securities and Exchange

⁷⁶ Considering Cumulative Effects under NEPA, *supra* note 74, at 41; 40 C.F.R. 1502.15 (defining "affected environment"); *Revised Draft Climate Guidance*, 79 Fed. Reg. 77,802.

⁷⁷ *Revised Draft Climate Guidance*, 79 Fed. Reg. at 77,828.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ Louisiana LNG Energy, LLC, Proposed Mississippi River LNG Project (PF14-17-000).

⁸¹ Letter to Louisiana LNG Energy, LLC providing comments on Draft Resource Reports 2 through 9 re the Mississippi River LNG Project under PF14-17 (Nov. 24, 2014).

⁸² Exec. Order No. 13,653, *Preparing the United States for the Impacts of Climate Change*, 78 Fed. Reg. 66,817 (Nov. 1, 2013).

⁸³ Exec. Order No. 13,690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, 80 Fed. Reg. 6,424 (Jan. 30, 2015).

⁸⁴ Revised Guidelines for Implementing Executive Order 11988, Floodplain Management, FEMA (2015), available at <http://www.fema.gov/media-library-data/1422653213069-9af488f43e1cf4a0a76ae870b2dcde9/DRAFT-FFRMS-Implementating-Guidelines-1-29-2015r2.pdf>.

⁸⁵ Department of Defense, *Climate Change Adaptation Roadmap* (2014), available at <http://www.scribd.com/doc/242845848/Read-DoD-report-2014-Climate-Change-Adaptation-Roadmap>.

Commission (“SEC”) has issued guidance regarding publicly traded companies’ obligation to disclose the impacts that climate change may have on their operations.⁸⁶

DOI’s Climate Change Adaptation Plan, which was issued in 2014 to implement Executive Order 13,653 and DOI Policy 523 DM 1, recognizes that sea level rise, higher storm surge, and extreme weather events such as hurricanes may damage offshore and coastal oil and gas infrastructure and cause oil spills.⁸⁷ DOI’s adaptation plan aims to protect coastal and offshore resources from the impacts of climate change by using the best available science to inform decision-making.⁸⁸ As a bureau within the DOI, BOEM should ensure the sustainability of the DOI’s energy development leasing activities by integrating climate change adaptation into its planning efforts.⁸⁹

BOEM should analyze climate change impacts to oil and gas infrastructure in the PEIS, rather than waiting until it performs environmental review for individual leases. While more refined research and analysis may be performed at the specific lease sales stage, BOEM’s analysis of climate change impacts in the PEIS will inform its evaluation of individual lease applications and help the Bureau identify appropriate baseline standards for leases issued as part of the 2017-2022 Oil and Gas Leasing Program. Where uncertainty regarding potential climate change impacts exists, the PEIS can highlight the need for further research or location-specific analysis. Indeed, the Bureau has recognized that considering climate change impacts in the PEIS will allow it to make informed decisions about potential geographic exclusions and restrictions on leasing activities.⁹⁰

There is little question that climate change presents significant risks to infrastructure associated with oil and gas exploration and production activities in the OCS and the transport of extracted resources to coastal communities.⁹¹ In the Beaufort and Chukchi Seas in Alaska, artificial islands and causeways built for offshore energy development are expected to become increasingly vulnerable to inundation from sea level rise and damage from storm surges.⁹² In the Gulf Coast, sea level rise is likely to undermine the potential for energy resource development in the OCS as capacity to maintain onshore and offshore support facilities and transportation

⁸⁶ SEC, *Commission Guidance Regarding Disclosure Related to Climate Change* (2010) (“Significant physical effects of climate change... have the potential to affect a registrant’s operations and results. For example, severe weather can cause catastrophic harm to physical plants and facilities and can disrupt manufacturing and distribution processes.... Registrants whose businesses may be vulnerable to severe weather or climate related events should consider disclosing material risks of, or consequences from, such events in their publically filed disclosure documents.”), available at <http://www.sec.gov/rules/interp/2010/33-9106.pdf>.

⁸⁷ U.S. DEPT OF INTERIOR, CLIMATE CHANGE ADAPTATION PLAN, *supra* note 75, at 9-10; *see also* Exec. Order No. 13,653, *supra* note 82; U.S. Dept. of Interior, 523 Department Manual 1: Climate Change Adaptation Policy (2012), available at http://www.fws.gov/mountain-prairie/science/documents/Climate%20Change%20Policy_DM_523.pdf.

⁸⁸ *Id.* at 12, 16.

⁸⁹ *See id.* at 26.

⁹⁰ DRAFT PROPOSED PROGRAM at 6-39 (stating that “[t]he PEIS will... address the issue of climate change at the programmatic level...[and] consider potential geographic exclusions and restrictions on leasing activities for the 2017–2022 Program.”)

⁹¹ V. Burkett, *Global climate change implications for coastal and offshore oil and gas development*, 39 ENERGY POLICY 7719 (2011); U.S. ENERGY SECTOR VULNERABILITIES TO CLIMATE CHANGE AND EXTREME WEATHER, U.S. Department of Energy, 28-29 (Craig Zamuda et al., 2013) [hereinafter “DOE”].

⁹² AN EVALUATION OF THE SCIENCE NEEDS TO INFORM DECISIONS ON OUTER CONTINENTAL SHELF ENERGY DEVELOPMENT IN THE CHUKCHI AND BEAUFORT SEAS, ALASKA, U.S. Geological Survey Circular 1370, 102 (Leslie Holland-Bartels & Brenda Pierce eds., 2011).

networks is compromised.⁹³ Severe storms have damaged offshore platforms and drastically reduced oil and gas production.⁹⁴ The Atlantic seaboard, which is expected to experience sea level rise and increased hurricane activity, is similarly at risk of damage to energy infrastructure.⁹⁵

Many sources provide current and credible data regarding sea level rise, storm surge, and severe storm impacts. As relevant examples, SCCCL points the BOEM's attention to:

- Intergovernmental Panel on Climate Change ("IPCC"), Chapter 2.2.3 Ocean, cryosphere and sea level. In *Climate Change 2014 Synthesis Report, Fifth Assessment Report*, at 65, available at http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_LONGERREPORT_Corr2.pdf.⁹⁶
- IPCC, Chapters 5.3.3.1 Severe Storms and 5.3.3.2 Extreme Sea Levels. In *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap5_FINAL.pdf.⁹⁷
- The National Climate Assessment, at 371-395 (Northeast), 396-417 (Southeast), and 514-536 (Alaska), available at <http://nca2014.globalchange.gov/>.
- Climate Central, *Surging Seas: Sea Level Rise Analysis*, available at <http://sealevel.climatecentral.org>; Climate Central, *Surging Seas: Sea level rise, storms & global warming's threat to the US coast (2012)*, available at <http://slr.s3.amazonaws.com/SurgingSeas.pdf>; Climate Central *Surging Seas State Fact Sheets for: Virginia*,⁹⁸ *North Carolina*,⁹⁹ *South Carolina*,¹⁰⁰ *Georgia*,¹⁰¹ *Florida*,¹⁰² *Alabama*,¹⁰³ *Mississippi*,¹⁰⁴ *Louisiana*,¹⁰⁵ and *Texas*.¹⁰⁶

⁹³ CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT. U.S. GLOBAL CHANGE RESEARCH PROGRAM, 119, 401 (Jerry Melillo, Terese Richmond & Gary Yohe eds., 2014) (citing Burkett, *supra* note 91) [hereinafter "National Climate Assessment"].

⁹⁴ DOE, at 3, 32 (discussing damage to oil and gas infrastructure and impact on production from Hurricanes Isaac, Gustave, Ike, Katrina, and Rita).

⁹⁵ National Climate Assessment at 9, 41-42, 45; DOE at 4.

⁹⁶ J. A. Church et al., *Sea Level Change*, in CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS. CONTRIBUTION OF WORKING GROUP I TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [T.F. Stocker et al., eds., Cambridge University Press 2013].

⁹⁷ P. P. Wong et al., *Coastal systems and low-lying areas*, in CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY. PART A: GLOBAL AND SECTORAL ASPECTS, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change 361-409 (C. B. Field et al. eds., Cambridge University Press 2014).

⁹⁸ Climate Central, *Facts and findings: Sea Level rise and storm surge threats for Virginia*, <http://slr.s3.amazonaws.com/factsheets/Virginia.pdf>.

⁹⁹ Climate Central, *Facts and findings: Sea level rise and storm surge threats for North Carolina*, http://slr.s3.amazonaws.com/factsheets/North_Carolina.pdf.

¹⁰⁰ Climate Central, *Facts and findings: Sea level rise and storm surge threats for South Carolina*, http://slr.s3.amazonaws.com/factsheets/South_Carolina.pdf.

¹⁰¹ Climate Central, *Facts and findings: Sea level rise and storm surge threats for Georgia*, <http://slr.s3.amazonaws.com/factsheets/Georgia.pdf>.

¹⁰² Climate Central, *Facts and findings: Sea level rise and storm surge threats for Florida*, <http://slr.s3.amazonaws.com/factsheets/Florida.pdf>.

¹⁰³ Climate Central, *Facts and findings: Sea level rise and storm surge threats for Alabama*, <http://slr.s3.amazonaws.com/factsheets/Alabama.pdf>.

¹⁰⁴ Climate Central, *Facts and findings: Sea level rise and storm surge threats for Mississippi*, <http://slr.s3.amazonaws.com/factsheets/Mississippi.pdf>.

Using these and other sources, BOEM should assess the projected range of sea level rise and storm surge, and the projected likelihood of severe storms, throughout the life of the oil and gas infrastructure that will be built as a result of new lease sales and identify ways to prepare for climate change-related risks.

While climate change was addressed in the PEIS for the 2012-2017 leasing program, BOEM did not analyze the potential impacts of climate change on oil and gas infrastructure and the potential environmental effects that could result. The PEIS for the 2017-2022 leasing program should include an updated analysis of climate change impacts, and it should specifically discuss potential adverse impacts on the oil and gas activities likely to be performed under new leases issued by BOEM. For example, the PEIS should address whether sea level rise and severe storms will damage platforms or disrupt transportation networks in the OCS of Alaska, the Gulf of Mexico, and the Atlantic Ocean.¹⁰⁷

In sum, sea level rise, increased storm surge, and severe storm events due to climate change pose foreseeable risks to the oil and gas infrastructure that will be built as a result of BOEM's lease sales. However, the 2017-2022 Oil and Gas Leasing Program NOI does not identify climate change adaptation as a significant issue for analysis in the proposed EIS. BOEM must consider such impacts to adequately protect the infrastructure built as a result of oil and gas lease sales from future climate change impacts and to fulfill its obligations under NEPA.

* * * * *

Thank you for the opportunity to submit these joint comments on the DPP and the scope of the PEIS. Please feel free to contact SCCCL with any questions.

Sincerely,

/s/ Michael Burger

Michael Burger, Esq.
Executive Director
Sabin Center for
Climate Change Law
212-854-2372
michael.burger@law.columbia.edu

¹⁰⁵ Climate Central, *Facts and findings: Sea level rise and storm surge threats for Louisiana* <http://slr.s3.amazonaws.com/factsheets/Louisiana.pdf>.

¹⁰⁶ Climate Central, *Facts and findings: Sea level rise and storm surge threats for Texas* <http://slr.s3.amazonaws.com/factsheets/Texas.pdf>.

¹⁰⁷ See Burkett, *supra* note 91.