



BEFORE THE PRESIDENT OF THE UNITED STATES
PETITION TO END FEDERAL OFFSHORE OIL AND GAS LEASING OF THE
UNITED STATES OUTER CONTINENTAL SHELF TO ADDRESS CLIMATE CHANGE

March 29, 2016



“[U]ltimately, if we’re going to prevent large parts of this Earth from becoming not only inhospitable but uninhabitable in our lifetimes, we’re going to have to keep some fossil fuels in the ground rather than burn them and release more dangerous pollution into the sky.” President Barack Obama¹

I. Executive Summary

Petitioners request that the President exercise his authority to end new oil and gas leasing of unleased Outer Continental Shelf (OCS) lands to prevent dangerous climate change.

The requested action is necessary to address the serious threats to climate, health, safety, and biodiversity posed by greenhouse gas emissions from new extraction and combustion of oil and gas from the federal offshore mineral estate, and to preserve a reasonable likelihood of limiting global warming to 1.5°C or 2°C above pre-industrial levels consistent with the Paris Agreement adopted at the 2015 United Nations Framework Convention on Climate Change Conference of the Parties (Paris Agreement).² The President has acknowledged that “this agreement sends a powerful signal that the world is firmly committed to a low-carbon future.”³

Specifically, we petition the President to order a withdrawal of all federal offshore areas for oil and gas leasing as follows:

Consistent with the principles of responsible public stewardship entrusted to this office, I hereby declare:

(1) It is the policy of the United States that federal Outer Continental Shelf lands should be managed for the benefit of the people of the United States to avoid the most dangerous impacts of climate change; and to promote a rapid transition to a clean energy economy by keeping fossil fuels in the ground; and

(2) I order the withdrawal from oil and gas leasing all areas of the Outer Continental Shelf not already subject to a valid oil and gas lease pursuant to the Outer Continental Shelf Lands Act, 43 U.S.C. § 1341(a). The Secretary of the Interior shall not issue a new lease for the exploration, development, or production of oil, natural gas, or any other fossil fuel in —

(A) the Arctic Ocean;

(B) the Atlantic Ocean, including the Straits of Florida;

¹ President Barack Obama, Statement by the President on the Keystone XL Pipeline (Nov. 6, 2015), <https://www.whitehouse.gov/the-press-office/2015/11/06/statement-president-keystone-xl-pipeline>.

² The Paris Agreement commits all signatories to an articulated target to hold the long-term global average temperature “to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.” Paris Agreement Art. 2.

³ See Paris Agreement; Executive Office of the President, Statement by the President on the Paris Climate Agreement (Dec. 12, 2015), <https://www.whitehouse.gov/the-press-office/2015/12/12/statement-president-paris-climate-agreement>.

- (C) the Pacific Ocean;
- (D) the Gulf of Mexico; or
- (E) any other area of the outer Continental Shelf.⁴

Immediate and aggressive greenhouse gas emissions reductions are necessary to limit warming to a 1.5°C rise above pre-industrial levels. Put simply, there is only a finite amount of CO₂ that can be released into the atmosphere without rendering the goal of meeting the 1.5°C (or even a 2°C) target virtually impossible. Globally, proven fossil fuel reserves, let alone additional recoverable resources,⁵ if extracted and burned, would release enough CO₂ to exceed this limit several times over.⁶ Consequently, the vast majority of fossil fuels must remain in the ground. The physical question of what amount of fossil fuels can be extracted and burned without negating a realistic chance of meeting a 1.5°C or even 2°C target is relatively easy to answer. The Fifth Assessment Report of the International Panel on Climate Change (IPCC) and other expert assessments have established global carbon budgets, or the total amount of remaining carbon that can be burned while maintaining some probability of staying below a given temperature target. According to the IPCC, total cumulative anthropogenic emissions of CO₂ must remain below about 1,000 gigatonnes (GtCO₂) from 2011 onward for a 66% probability of limiting warming to 2°C above pre-industrial levels.⁷ The Paris Agreement aim of limiting the temperature increase to 1.5°C requires a more stringent carbon budget of only 400 GtCO₂ from

⁴ See S. 2238: Keep It in the Ground Act of 2015.

⁵ According to the Congressional Research Service, “[p]roved reserves are those amounts of oil, natural gas, or coal that have been discovered and defined at a significant level of certainty, typically by drilling wells or other exploratory measures, and which can be economically recovered. In the United States, proved reserves are typically measured by private companies, who report their findings to the Securities and Exchange Commission because those reserves are considered capital assets. Because proved reserves are defined by strict rules, they do not include all of the oil or gas in a region, but only those amounts that have been carefully confirmed. . . . Undiscovered resources are amounts of oil and gas estimated to exist in unexplored areas. Estimates of undiscovered resources for the United States are made by the U.S. Geological Survey for resources on land, and by the Bureau of Ocean Energy Management Regulation and Enforcement (formerly the Minerals Management Service) [now simply the Bureau of Ocean Energy Management] for resources offshore. These assessments are based on observation of geological characteristics similar to producing areas and many other factors. Reported statistics for undiscovered resources may vary greatly in precision and accuracy (determined retrospectively), which are directly dependent upon data availability, and their quality may differ for different fuels and different regions.” Whitney, Gene *et al.*, Cong. Research Serv., R40872, U.S. Fossil Fuel Resources: Terminology, Reporting and Summary 4-5 (2010).

⁶ See, e.g., IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change at 64 & Table 2.2 [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)] at 63-64 & Table 2.2. (“IPCC AR5 Synthesis Report”); Marlene Cimon, Keep It In the Ground 6 (Sierra Club *et al.*, Jan. 25, 2016).

⁷ IPCC, 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; Summary for Policymakers at 27 (“IPCC AR5 Physical Science Basis”). See also IPCC AR5 Synthesis Report at 63-64 & Table 2.2. Higher probabilities of success require stricter carbon limits; to have an 80% probability of staying below the 2°C target, the budget from 2000 is 890 GtCO₂, with less than 430 GtCO₂ remaining. See Meinshausen, M. *et al.*, Greenhouse gas emission targets for limiting global warming to 2 degrees Celsius, 458 Nature 1158–1162 (2009) (“Meinshausen *et al.* 2009”) at 1159; Carbon Tracker Initiative, Unburnable Carbon – Are the world’s financial markets carrying a carbon bubble? available at <http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf>.

2011 onward (of which more than 100 GtCO₂ has already been emitted)⁸ for a 66% probability of limiting warming to 1.5°C above pre-industrial levels.⁹ Increasing the odds of meeting these targets requires meeting even stricter carbon budgets.¹⁰ Given that global CO₂ emissions in 2014 alone totaled 36 GtCO₂,¹¹ humanity is rapidly consuming the remaining burnable carbon budget needed to have even a 66% chance of meeting the 1.5°C temperature limit.

For the world to stay within a carbon budget consistent with a 1.5°C temperature limit, significant fossil fuels around the world need to be left in the ground. The United States alone contains enough recoverable fossil fuels, split about evenly between federal and non-federal resources, that if extracted and burned, would approach the entire global carbon budget for a 2°C target, and exceed the remaining budget for a 1.5°C limit.¹² Clearly, even if the rest of the world somehow reduced its carbon emissions to near zero, the United States still could not safely burn all of its own fossil fuel resources. The majority of United States fossil fuels simply must be kept in the ground.

The Outer Continental Shelf is the vast area of ocean and seabed, managed by the federal government, between three miles from the coast and the two-hundred mile limit of federal jurisdiction, and contains more than half of all currently-unleased federal oil and gas. It includes highly sensitive coastal regions and marine ecosystems off Alaska's Arctic coast, the Atlantic coast, the Pacific coast, and in the Gulf of Mexico.¹³

⁸ From 2012-2014, 107 GtCO₂ was emitted (*see* Annual Global Carbon Emissions at <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>). Given additional emissions in 2015, the remaining carbon budget for 1.5°C would now be well below 300 GtCO₂ (approximately 450 Gt CO₂e).

⁹ IPCC AR5 Synthesis Report at 64 & Table 2.2.

¹⁰ *See* Meinshausen *et al.* at 1159; Carbon Tracker Initiative 2013, Unburnable Carbon.

¹¹ *See* Global Carbon Emissions, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>.

¹² *See* Mulvaney, Dustin *et al.*, The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels 4 (EcoShift Consulting 2015).

¹³ *See* Bureau of Ocean Energy Management, 2017-2022 OCS Oil and Gas Leasing Program at 1-2.



Withdrawing unleased offshore lands will keep up to 62 Gt CO₂e of potential U.S. greenhouse gas emissions safely in the ground. Recent analysis shows that the potential emissions from all federal fossil fuel resources are between 349 and 492 GtCO₂e, with unleased fossil fuels comprising 91% of these potential emissions.¹⁴ The Outer Continental Shelf accounts

¹⁴ *Id.* Using a metric of CO₂e (which also includes the radiative or climate forcing potential of non-CO₂ greenhouse gases such as methane), Mulvaney *et al.*'s study calculated that extraction and combustion of total U.S. fossil fuels would produce 697 to 1070 GtCO₂e of emissions, with federal fossil fuels responsible for between 349 and 492

for 64% of all unleased federal natural gas and 72% of all unleased federal oil, for an estimated total of between 52 and 62 Gt CO₂e.¹⁵ In other words, unleased federal fossil fuels, if extracted and burned, would consume between roughly 70 and 100% of a *global* budget of 450 GtCO₂e, the amount remaining at the start of 2016 under a budget scenario that itself has only a 66% chance of limiting temperature increase to 1.5°C.¹⁶ Unleased OCS oil and gas subject to OCSLA Section 12 alone would consume between 11.6% and 13.8% of that *global* budget. Under a more cautionary budget (i.e., one with a higher probability of success), unleased federal fossil fuels alone could exceed the entire global budget. Continued leasing of these fossil fuels, without examining the climate consequences of such action, is incompatible with any reasonable domestic and international path to limiting warming to 1.5°C or even 2°C.

The constitution grants the President executive authority in the conduct of federal agencies, and OCSLA, 43 U.S.C. § 1341(a), reserves to the President the explicit legal authority to withdraw any unleased OCS lands from availability for leasing at any time. The best available science justifies a moratorium on continued fossil fuel leasing because the United States must leave the vast majority of its fossil fuels in the ground to reach the global goal of limiting warming to 2°C, much less 1.5°C. This is part of the United States' legal, political, and moral duty to U.S. communities and those of the world. Petitioners, on behalf of a greater climate and environmental justice movement domestically and abroad, urge the President to use his legal authority under OCSLA to pause leasing of new public OCS lands from availability for oil and gas leasing to address the emergency of climate change.

Through this petition, Petitioners request that the President exercise his authority to withdraw from availability for oil and gas leasing all unleased lands of the OCS, at least until such time as the United States implements coordinated domestic and international measures to reduce global emissions and stabilize atmospheric CO₂ at levels sufficient to limit average global surface warming to 1.5°C above preindustrial levels.

Withdrawing federal offshore areas from oil and gas leasing is consistent with the aims set forth in the President's Climate Action Plan, which states:

While no single step can reverse the effects of climate change, we have a moral obligation to future generations to leave them a planet that is not polluted and

GtCO₂e. The potential GHG emissions of unleased federal fossil fuel resources range from 319 to 450 492 GtCO₂e. *et al.*

¹⁵ *Id.* at 18, 24-25 (offshore crude oil potential emissions of 27.65-31.50 GtCO₂e, offshore natural gas potential emissions of 24.07-30.05 GtCO₂e).

¹⁶ *Id.* The emission potential of unleased federal fossil fuels are estimated at 319-450 GtCO₂e. The global carbon budget at the start of 2015 for a 66% chance of limiting temperature increase to 1.5°C was approximately 300 GtCO₂ which is equivalent to ~450 GtCO₂e, meaning that the potential emissions of unleased federal fossil fuels would consume 70 to 100% of this global budget. There is no single universally applicable factor for converting between CO₂ and CO₂e because the ultimate radiative forcing potential of fossil fuel extraction and combustion depends on a number of assumptions regarding the production and use of those fuels. In this Petition we use a conversion factor of 1 GtCO₂ = 1.5 GtCO₂e based on Table 1 in Meinshausen *et al.* 2009.

damaged. Through steady, responsible action to cut carbon pollution, we can protect our children's health and begin to slow the effects of climate change so that we leave behind a cleaner, more stable environment.¹⁷

Given the scope of the threat posed to health, safety, well-being, and biological diversity by climate change, the President has an acknowledged responsibility and opportunity to "lead at the federal level,"¹⁸ by immediately ceasing to offer any additional submerged lands of the Outer Continental Shelf for oil and gas leasing.

As set forth below, extraction and combustion of fossil fuels sourced from federal submerged lands is a significant contribution to domestic greenhouse gas emissions, and the best available information demonstrates that the combustion of even already-leased federal fossil fuel reserves would be dramatically inconsistent with any reasonable path to limiting global temperatures' rise to 1.5°C over pre-industrial levels.¹⁹ The withdrawal of unleased Outer Continental Shelf lands from availability for oil and gas leasing would also have the significant collateral benefit of sharply limiting direct impacts from drilling, hydraulic fracturing, production, and spills to the nation's waters, coasts, and wildlife.

II. Notice of Petition

Through this petition, the Center for Biological Diversity, Food and Water Watch, Friends of the Earth, Greenpeace, Oil Change International, Rainforest Action Network, Waterkeeper Alliance, Alaska Inter-Tribal Council, Alaska Rising Tide, Altamaha Riverkeeper, Apalachicola Riverkeeper, Assateague Coastal Trust, Atchafalaya Basinkeeper, Cahaba Riverkeeper, California Coastal Protection Network, Chesapeake Climate Action Network, Clean Ocean Action, Cook Inletkeeper, Courage Campaign, Crystal Coast Waterkeeper, Emerald Coastkeeper, Environmental Defense Center, Environmental Youth Council, Eyak Preservation Council, Friends of Matanzas, Gulf Restoration Network, Institute for Fisheries Resources, Kootenai Environmental Alliance, Living Rivers, Louisiana Bucket Brigade, Matanzas Waterkeeper, Miami Waterkeeper, Native Conservancy (Land Trust), Ocean Conservation Research, Pacific Coast Federation of Fishermen's Associations, Preserve Our Wildlife, Prince William Soundkeeper, Resisting Environmental Destruction on Indigenous Lands (REDOIL), Riverkeeper, Sea Turtle Oversight Protection, Seneca Lake Guardian, Suncoast Waterkeeper, Turtle Island Restoration Network, Wabash Riverkeeper Network, Whale and Dolphin Conservation, WILDCOAST, and WildEarth Guardians request that the President issue an order immediately withdrawing all unleased lands of the Outer Continental Shelf from availability for any new oil and gas leases. Such action is necessary in order to address the serious threat to climate, health, safety, and biodiversity posed by greenhouse gas emissions from

¹⁷ Executive Office of the President, The President's Climate Action Plan 4 (June 2013) (hereinafter Climate Action Plan). Available at <https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>

¹⁸ Climate Action Plan *supra* note 2 at 11.

¹⁹ Paris Agreement Art. 2.

fossil fuel extraction and combustion.

Specifically, in light of the grave threat of climate change and Department of the Interior Secretarial Order No. 3338 which imposed a moratorium on most new leasing of federal coal, the President should immediately withdraw all unleased oil and gas deposits of the Outer Continental Shelf from availability for new oil and gas leasing. The President's exercise of this discretionary authority is needed to respond effectively to the imminent threat of global climate change, and is consistent with the United States' goal of holding global warming "well below 2°C above pre-industrial levels" and pursuing efforts to "limit the temperature increase to 1.5°C above pre-industrial levels," as articulated in the Paris Agreement adopted at the 2015 United Nations Framework Convention on Climate Change Conference of the Parties (Paris Agreement)."²⁰ As detailed in this petition, and reflected in recent actions by the administration related to coal, the President's legal authority to withdraw Outer Continental Shelf lands from availability for oil and gas leasing is clear and undisputed. In light of the United States' international obligations under the U.N. Framework Convention on Climate Change and the acknowledged need to keep the vast majority of fossil fuels in the ground to have any realistic chance of avoiding the worst consequences of catastrophic warming, the scientific and ethical case for withdrawal is equally clear.

The already severe impacts of global warming on the United States and the rest of the world from *current* atmospheric carbon dioxide (CO₂) levels highlight the urgency of staying below the 1.5°C target so as to avoid truly catastrophic impacts to people and planet.²¹ As CO₂ levels continue to rise past 400 parts per million (ppm),²² the consequent effects of global warming are becoming ever more apparent. Extreme weather events, such as severe droughts, floods, and heat waves, and other climate disruptions are responsible for an estimated 400,000 deaths globally each year on average, with hundreds of millions of additional people adversely affected.²³ Arctic sea ice loss, rising seas, growing food insecurity, bleaching of coral reefs, and biodiversity loss are mounting worldwide. The United States has experienced similar devastation at home, with coastal communities and the country's most vulnerable populations of the poor, the elderly, the sick and children bearing the brunt of public health effects, property damage, and food insecurity. Indeed, the U.S. Environmental Protection Agency (EPA) concluded in April

²⁰ See United Nations Framework Convention on Climate Change, Conference of the Parties Nov. 30-Dec. 11, 2015, Adoption of the Paris Agreement Art. 2, U.N. Doc. FCCC/CP/2015/L.9 (Dec. 12, 2015), available at <http://unfccc.int/resource/docs/2015/cop21/eng/109.pdf> ("Paris Agreement").

²¹ A target of 1.5°C, while obviously more protective of the climate than a 2°C target, may itself be too high. Dr. James Hansen and colleagues have recommended limiting warming to 1°C to "stabilize climate and avoid potentially disastrous impacts on today's young people, future generations, and nature". See Hansen, J.M. *et al.*, Assessing "dangerous climate change": required reduction of carbon emissions to protect young people, future generations and nature, 8 PLoS ONE 8 e81648 (2013).

²² See National Oceanic and Atmospheric Administration, Recent Monthly Average Mauna Loa CO₂, <http://www.esrl.noaa.gov/gmd/ccgg/trends/> (Dec. 2015 concentration of 401.85 ppm).

²³ DARA and the Climate Vulnerability Forum. (2012) *Climate Vulnerability Monitor, 2nd Edition: A Guide to the Cold Calculus of a Hot Planet*. DARA Internacional, Madrid, 62 pp. <http://www.daraint.org/wp-content/uploads/2012/10/CVM2-Low.pdf> ("DARA").

2009 that “the evidence provides compelling support for finding that greenhouse gas air pollution endangers the public welfare of both current and future generations. The risk and the severity of adverse impacts on public welfare are expected to increase over time.”²⁴

Here, because of the grave and imminent threat of climate change and the urgent need to stem new fossil fuel leasing, Petitioners request issuance of a Presidential Order immediately withdrawing all hereto-unleased lands of the Outer Continental Shelf from availability for oil and gas leasing. Such a withdrawal should remain in place at least until such time as the United States implements coordinated domestic and international measures to reduce global emissions and stabilize atmospheric CO₂ at levels reasonably certain to limit average global surface warming to 1.5°C above pre-industrial levels.

Specifically, we petition the President to order a withdrawal of all federal offshore areas for oil and gas leasing as follows:

Consistent with the principles of responsible public stewardship entrusted to this office, I hereby declare:

(1) It is the policy of the United States that federal Outer Continental Shelf lands should be managed for the benefit of the people of the United States to avoid the most dangerous impacts of climate change; and to promote a rapid transition to a clean energy economy by keeping fossil fuels in the ground; and

(2) I order the withdrawal from oil and gas leasing all areas of the Outer Continental Shelf not already subject to a valid oil and gas lease pursuant to the Outer Continental Shelf Lands Act, 43 U.S.C. § 1341(a). The Secretary of the Interior shall not issue a new lease for the exploration, development, or production of oil, natural gas, or any other fossil fuel in—

- (A) the Arctic Ocean;
- (B) the Atlantic Ocean, including the Straits of Florida;
- (C) the Pacific Ocean;
- (D) the Gulf of Mexico; or
- (E) any other area of the outer Continental Shelf.

²⁴ U.S. Environmental Protection Agency, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,498-99 (Dec. 15, 2009) (“Final Endangerment Finding”).

The right of an interested party to petition the federal government is a freedom guaranteed by the first amendment: “Congress shall make no law ... abridging the ...right of people ... to petition the Government for redress of grievances.”²⁵

III. Petitioners

The Center for Biological Diversity hereby submits this Petition on behalf of Petitioners Center for Biological Diversity, Food and Water Watch, Friends of the Earth, Greenpeace, Oil Change International, Rainforest Action Network, Waterkeeper Alliance, Alaska Inter-Tribal Council, Alaska Rising Tide, Altamaha Riverkeeper, Apalachicola Riverkeeper, Assateague Coastal Trust, Atchafalaya Basinkeeper, Cahaba Riverkeeper, California Coastal Protection Network, Chesapeake Climate Action Network, Clean Ocean Action, Cook Inletkeeper, Courage Campaign, Crystal Coast Waterkeeper, Emerald Coastkeeper, Environmental Defense Center, Environmental Youth Council, Eyak Preservation Council, Friends of Matanzas, Gulf Restoration Network, Institute for Fisheries Resources, Kootenai Environmental Alliance, Living Rivers, Louisiana Bucket Brigade, Matanzas Waterkeeper, Miami Waterkeeper, Native Conservancy (Land Trust), Ocean Conservation Research, Pacific Coast Federation of Fishermen’s Associations, Preserve Our Wildlife, Prince William Soundkeeper, Resisting Environmental Destruction on Indigenous Lands (REDOIL), Riverkeeper, Sea Turtle Oversight Protection, Seneca Lake Guardian, Suncoast Waterkeeper, Turtle Island Restoration Network, Wabash Riverkeeper Network, Whale and Dolphin Conservation, WILDCOAST, and WildEarth Guardians.

Contact Information:

Any response and all correspondence related to this petition should be directed to the Center for Biological Diversity. The Center for Biological Diversity’s mailing contact information for the purposes of this Petition is:

Center for Biological Diversity
1536 Wynkoop Street, Suite 421
Denver, CO 80202
Email: msaul@biologicaldiversity.org
Phone: 303-915-8308

IV. Statutory Background

Outer Continental Shelf lands are those submerged lands and areas of seabed that lie between the outer boundaries of state jurisdiction and the international marine jurisdiction of the

²⁵ U.S. Const., Amend I. *See also United Mine Workers v. Illinois State Bar Ass’n*, 389 U.S. 217, 222 (1967) (right to petition for redress of grievances is among most precious of liberties without which the government could erode rights).

United States, generally between 3 and 200 miles off the coasts. 43 U.S.C. § 1331(a). The framework for oil and gas leasing of OCS lands is governed by OCSLA, 43 U.S.C. § 1331 *et seq.* OCSLA charges the U.S. Department of the Interior with overseeing the “expeditious and orderly development [of offshore oil and gas resources], subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs.” 43 U.S.C. § 1332(3). OCSLA further establishes a multi-stage process for leasing, permitting and development, involving five-year schedules for proposed lease sales, 43 U.S.C. § 1344, a lease auction process, 43 U.S.C. § 1337, review of exploration plans, 43 U.S.C. § 1340, and finally review of development and production plans, 43 U.S.C. § 1351. This entire multi-stage administrative program, however, is subject to the broad reservation of lands and rights in 43 U.S.C. § 1341(a), which provides that “[t]he President of the United States may, from time to time, withdraw from disposition any of the unleased lands of the outer Continental Shelf.” While OCSLA prescribes specific criteria for Interior’s consideration in implementing OCSLA’s five-year leasing programs, 43 U.S.C. § 1344(a),²⁶ the President’s reserved authority under 43 U.S.C. § 1341(a) is not so constrained. By reserving to the President the right to withdraw “from time to time, any of the unleased lands” of the OCS, Congress has reserved to the executive the greatest possible scope of discretion.²⁷

Past Presidents have periodically exercised their authority to remove areas from the leasing pool.²⁸ President George H.W. Bush in 1990 issued a Presidential Directive that established a moratorium on oil and gas leasing off Florida and most of California, and instructing the Secretary of the Interior to delay leasing and development in several other areas of the Outer Continental Shelf and to defer or cancel proposed lease sales.²⁹ President Clinton extended the moratorium from 1998 until 2012.³⁰ However, President George W. Bush rescinded the moratorium in 2009 so that only areas designated as marine sanctuaries were withdrawn from disposition.³¹ One year later, President Obama announced a revision of the 2007-2012 Five Year Plan for offshore leasing that withdrew Bristol Bay from disposition through June 30, 2017,³² a

²⁶ See *Center for Biological Diversity v. U.S. Dep’t of Interior*, 563 F.3d 466, 484-85 (D.C. Cir. 2009).

²⁷ Compare 43 U.S.C. § 1341(a) (reserving Presidential authority to withdraw OCS lands from leasing) with 43 U.S.C. § 1714 (setting forth criteria for withdrawal of onshore federal public lands).

²⁸ See Statement on Outer Continental Shelf Oil and Gas Development, 26 Weekly Comp. Pres. Doc. 1006 (June 26, 1990); Memorandum on Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition, 34 Weekly Comp. Pres. Doc. 1111 (June 12, 1998); Memorandum on Modification of the Withdrawal of Areas of the United States Outer Continental Shelf from Leasing Disposition, 44 Weekly Comp. Pres. Doc. 986 (July 14, 2008).

²⁹ Statement on Outer Continental Shelf Oil and Gas Development, 26 Weekly Comp. Pres. Doc. 1006 (June 26, 1990).

³⁰ Memorandum on Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition, 34 Weekly Comp. Pres. Doc. 1111 (June 12, 1998).

³¹ Memorandum on Modification of the Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition. 44 Weekly Comp. Pres. Doc. 986 (July 14, 2008).

³² Presidential Memorandum—United States Outer Continental Shelf. March 31, 2010. Available at <http://www.whitehouse.gov/the-press-office/presidential-memorandum-united-states-outer-continental-shelf>.

withdrawal that he extended indefinitely on December 16, 2014.³³ In 2015, President Obama, “[c]onsistent with principles of responsible public stewardship entrusted to this office, with due consideration of the critical importance of certain areas within the Beaufort and Chukchi Seas to subsistence use by Alaska Natives as well as for marine mammals, other wildlife, and wildlife habitat, and to ensure that the unique resources of these areas remain available for future generations,” withdrew additional areas of the Chukchi Sea and Beaufort Sea from leasing disposition.³⁴

OCSLA, 43 U.S.C. § 1344(a)(1), requires Secretarial consideration of “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.” OCSLA’s legislative history demonstrates that Congress expected the proper balance to shift away from intensive extraction of oil and gas. In 1978, when OCSLA section 18(a) was enacted, Congress sought to promote “orderly and efficient exploitation” of “almost untapped domestic oil and gas resources.” Continental Shelf Lands Act, Pub. L. No. 95-372, 3 U.S.C.C.A.N. 1450, 1460 (1978). Congress has recognized that this was more a stop-gap measure than a long-term solution to the nation’s energy needs:

Development of our OCS resources will afford us needed time – as much as a generation – within which to develop alternative sources of energy before the inevitable exhaustion of the world’s traditional supply of fossil fuels. It will provide time to bring on-line, and improve energy technologies dealing with, solar, geothermal, oil shale, coal gasification and liquefaction, nuclear, and other energy forms.³⁵

Indeed, one Court of Appeals has also recognized that “[t]he weight of [OCSLA section 18(a)] elements may well shift with changes in technology, in environment, and in the nation’s energy needs, meaning that the proper balance for 1980-85 may differ from the proper balance for some subsequent five-year period.”³⁶ Reflecting the nation’s shifting needs, Congress also amended OCSLA in August 2005 via the Energy Policy Act, to provide Interior with the authority to develop renewable energy such as wind, wave, and solar in the OCS. (AR 13779); Energy Policy Act, P.L. 109-58, 119 Stat. 594 (Aug. 8, 2005), codified at 43 U.S.C. § 1337(p)(1)(C).

Congress has plainly reserved to the President discretionary authority under 43 U.S.C. § 1341(a) to withdraw any (or all) unleased OCS lands from lease disposition. Because Section 12

³³ Presidential Memorandum—Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition. December 16, 2014. Available at <http://www.whitehouse.gov/the-press-office/2014/12/16/presidential-memorandum-withdrawal-certain-areas-united-states-outer-con>.

³⁴ Presidential Memorandum—Withdrawal of Certain Areas of the United States Outer Continental Shelf Offshore Alaska from Leasing Disposition. Jan. 27, 2015. Available at <https://www.whitehouse.gov/the-press-office/2015/01/27/presidential-memorandum-withdrawal-certain-areas-united-states-outer-con>.

³⁵ H.R. Rep. No. 95-590, at 53 (1977).

³⁶ *California by Brown v. Watt*, 668 F.2d 1290, 1317 (D.C. Cir. 1981).

provides that the President “may, from time to time, withdraw from disposition any of the unleased lands,” the President retains that authority to withdraw all unleased OCS lands from the operation of the OCSLA oil and gas leasing process. Withdrawal of unleased OCS lands for oil and gas leasing meets the declared Congressional purpose of OCSLA, which recognizes the “national interest in the effective management of the marine, coastal, and human environments,”³⁷ and declares a policy of developing Outer Continental Shelf resources “subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs.”³⁸

V. The Threat of Climate Change Demands Immediate Action to Halt the Leasing of Public Fossil Fuels

A. Climate Change Poses a Well-Documented Threat to the United States and the World

On December 12, 2015, nearly 200 governments, including the United States, agreed to the commitments enumerated in the Paris Agreement to “strengthen the global response to the threat of climate change”³⁹ The Paris Agreement codified the international consensus that the climate crisis is an urgent threat to human societies and the planet, with the parties recognizing that:

Climate change represents an *urgent and potentially irreversible threat to human societies and the planet* and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions (emphasis added).⁴⁰

Numerous authoritative scientific assessments have established that climate change is causing grave harms to human society and natural systems, and these threats are becoming increasingly dangerous. The Intergovernmental Panel on Climate Change, in its 2014 Fifth Assessment Report, stated that: “[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased” and that “[r]ecent climate changes have had widespread impacts on human and natural systems.”⁴¹

The United States’ 2014 Third National Climate Assessment, prepared by a panel of non-governmental experts and reviewed by the National Academy of Sciences and multiple federal

³⁷ 43 C.F.R. § 1332(4).

³⁸ 43 C.F.R. § 1332(3).

³⁹ Paris Agreement, Art. 2(1).

⁴⁰ Paris Agreement, Decision, Recitals.

⁴¹ IPCC AR5 Synthesis Report at 2.

agencies similarly stated “[t]hat the planet has warmed is ‘unequivocal,’ and is corroborated though multiple lines of evidence, as is the conclusion that the causes are very likely human in origin”⁴² and “[i]mpacts related to climate change are already evident in many regions and are expected to become increasingly disruptive across the nation throughout this century and beyond.”⁴³ The United States National Research Council similarly concluded that: “[c]limate change is occurring, is caused largely by human activities, and poses significant risks for—and in many cases is already affecting—a broad range of human and natural systems.”⁴⁴

The IPCC and National Climate Assessment further decisively recognize the dominant role of fossil fuels in driving climate change:

While scientists continue to refine projections of the future, observations unequivocally show that climate is changing and that the warming of the past 50 years is primarily due to human-induced emissions of heat-trapping gases. These emissions come mainly from burning coal, oil, and gas, with additional contributions from forest clearing and some agricultural practices.⁴⁵

...

CO₂ emissions from fossil fuel combustion and industrial processes contributed about 78% to the total GHG emission increase between 1970 and 2010, with a contribution of similar percentage over the 2000–2010 period (*high confidence*).⁴⁶

These impacts of fossil fuels are harming the United States in myriad ways, with the impacts certain to worsen over the coming decades absent deep reductions in domestic and global GHG emissions. EPA recognized these threats in its 2009 Final Endangerment Finding under Clean Air Act Section 202(a), concluding that greenhouse gases endanger public health and welfare: “the body of scientific evidence compellingly supports [the] finding” that “greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare.”⁴⁷ In finding that climate change endangers public health and welfare, EPA has acknowledged the overwhelming evidence of the observed and projected effects of climate change upon the nation:

⁴² Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: Climate Change Impacts in the United States: The Third National Climate Assessment (U.S. Global Change Research Program). doi:10.7930/J0Z31WJ2 (Third National Climate Assessment) at 61 (quoting IPCC, 2007: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, Eds., Cambridge University Press, 1-18.).

⁴³ Third National Climate Assessment at 10.

⁴⁴ National Research Council, Advancing the Science of Climate Change (2010), available at www.nap.edu. (“Advancing the Science of Climate Change”) at 2.

⁴⁵ Third National Climate Assessment at 2.

⁴⁶ IPCC AR5 Synthesis Report at 46.

⁴⁷ Final Endangerment Finding, 74 Fed. Reg. at 66,497.

Effects on air quality: “The evidence concerning adverse air quality impacts provides strong and clear support for an endangerment finding. Increases in ambient ozone are expected to occur over broad areas of the country, and they are expected to increase serious adverse health effects in large population areas that are and may continue to be in nonattainment. The evaluation of the potential risks associated with increases in ozone in attainment areas also supports such a finding.”⁴⁸

Effects on health from increased temperatures: “The impact on mortality and morbidity associated with increases in average temperatures, which increase the likelihood of heat waves, also provides support for a public health endangerment finding.”⁴⁹

Increased chance of extreme weather events: “The evidence concerning how human induced climate change may alter extreme weather events also clearly supports a finding of endangerment, given the serious adverse impacts that can result from such events and the increase in risk, even if small, of the occurrence and intensity of events such as hurricanes and floods. Additionally, public health is expected to be adversely affected by an increase in the severity of coastal storm events due to rising sea levels.”⁵⁰

Impacts to water resources: “Water resources across large areas of the country are at serious risk from climate change, with effects on water supplies, water quality, and adverse effects from extreme events such as floods and droughts. Even areas of the country where an increase in water flow is projected could face water resource problems from the supply and water quality problems associated with temperature increases and precipitation variability, as well as the increased risk of serious adverse effects from extreme events, such as floods and drought. The severity of risks and impacts is likely to increase over time with accumulating greenhouse gas concentrations and associated temperature increases.”⁵¹

Impacts from sea level rise: “The most serious potential adverse effects are the increased risk of storm surge and flooding in coastal areas from sea level rise and more intense storms. Observed sea level rise is already increasing the risk of storm surge and flooding in some coastal areas. The conclusion in the assessment literature that there is the potential for hurricanes to become more intense (and even some evidence that Atlantic hurricanes have already become more intense) reinforces the judgment that coastal communities are now endangered by human-induced climate change, and may face substantially greater risk in the future. Even if there is a low probability of raising the destructive power of hurricanes, this threat is enough to support a finding that coastal communities are endangered by greenhouse gas air pollution. In addition, coastal areas face other adverse impacts from sea level rise such as land loss due to inundation, erosion, wetland submergence, and habitat loss. The increased risk associated with these adverse

⁴⁸ Final Endangerment Finding, 74 Fed. Reg. at 66,497

⁴⁹ Final Endangerment Finding, 74 Fed. Reg. at 66,497

⁵⁰ Final Endangerment Finding at 66,497-98.

⁵¹ Final Endangerment Finding at 66,498.

impacts also endangers public welfare, with an increasing risk of greater adverse impacts in the future.”⁵²

Impacts to energy, infrastructure, and settlements: “Changes in extreme weather events threaten energy, transportation, and water resource infrastructure. Vulnerabilities of industry, infrastructure, and settlements to climate change are generally greater in high-risk locations, particularly coastal and riverine areas, and areas whose economies are closely linked with climate-sensitive resources. Climate change will likely interact with and possibly exacerbate ongoing environmental change and environmental pressures in settlements, particularly in Alaska where indigenous communities are facing major environmental and cultural impacts on their historic lifestyles.”⁵³

Impacts to wildlife: “Over the 21st century, changes in climate will cause some species to shift north and to higher elevations and fundamentally rearrange U.S. ecosystems. Differential capacities for range shifts and constraints from development, habitat fragmentation, invasive species, and broken ecological connections will likely alter ecosystem structure, function, and services, leading to predominantly negative consequences for biodiversity and the provision of ecosystem goods and services.”⁵⁴

In addition to these EPA-acknowledged impacts on public health and welfare generally, climate change is causing and will continue to cause serious impacts on natural resources that the Department of Interior is specifically charged with safeguarding.⁵⁵

Impacts to public lands: Climate change is causing and will continue to cause specific impacts to public lands and resources. Although public lands provide a variety of public benefits, one recent Forest Service attempt at quantification estimates the public land ecosystem services at risk from climate change at between \$14.5 and \$36.1 billion annually.⁵⁶ In addition to the general loss of public land resources, irreplaceable species and aesthetic and recreational treasures are at risk of permanent destruction. High temperatures are causing loss of glaciers in Glacier National Park; the Park’s glaciers are expected to disappear entirely by 2030, with ensuing warming of stream temperatures and adverse effects to aquatic ecosystems.⁵⁷ With effects of warming more pronounced at higher latitudes, tundra ecosystems on Alaska public lands face serious declines, with potentially serious additional climate feedbacks from melting

⁵² Final Endangerment Finding at 66,498

⁵³ Final Endangerment Finding at 66,498

⁵⁴ Final Endangerment Finding at 66,498 *see also* Third National Climate Assessment at 195-219.

⁵⁵ *See* Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701(a)(8), 1712(c)(1); Multiple-Use Sustained Yield Act of 1960, 16 U.S.C. § 528; National Environmental Policy Act of 1969, 42 U.S.C. §§ 4331-4332.

⁵⁶ Esposito, Valerie *et al.*, Climate Change and Ecosystem Services: The Contribution and Impacts on Federal Public Lands in the United States, USDA Forest Service Proceedings RMRS-P-64 at 155-164 (2011).

⁵⁷ U.S. Environmental Protection Agency, Climate Change and Public Lands (1999).

permafrost.⁵⁸ In Florida, the Everglades face severe ecosystem disruption from already-occurring saltwater incursion.⁵⁹ Sea level rise will further damage freshwater ecosystems and the endangered species that rely on them.

Impacts to biodiversity and ecosystems: Across the United States ecosystems and biodiversity, including those on public lands, are directly under siege from climate change—leading to the loss of iconic species and landscapes, negative effects on food chains, disrupted migrations, and the degradation of whole ecosystems.⁶⁰ Specifically, scientific evidence shows that climate change is already causing changes in distribution, phenology, physiology, genetics, species interactions, ecosystem services, demographic rates, and population viability: many animals and plants are moving poleward and upward in elevation, shifting their timing of breeding and migration, and experiencing population declines and extirpations.⁶¹ Because climate change is occurring at an unprecedented pace with multiple synergistic impacts, climate change is predicted to result in catastrophic species losses during this century. For example, the IPCC concluded that 20% to 30% of plant and animal species will face an increased risk of extinction if global average temperature rise exceeds 1.5°C to 2.5°C relative to 1980-1999, with an increased risk of extinction for up to 70% of species worldwide if global average temperature exceeds 3.5°C relative to 1980-1999.⁶²

Impacts to oceans: Oceans have absorbed the vast bulk of warming to date, and will continue to suffer increasingly severe impacts on temperature, acidity, circulation, and marine ecosystems from climate change.⁶³ A recent survey of science regarding climate change impacts to the world's oceans finds that:

⁵⁸ See National Climate Assessment at 48; MacDougall, A. H., *et al.*, Significant contribution to climate warming from the permafrost carbon feedback, 5 *Nature Geoscience* 719-721 (2012), doi:10.1038/ngeo1573.

⁵⁹ See National Climate Assessment at 592; Foti, R., *Met al.*, Signs of critical transition in the Everglades wetlands in response to climate and anthropogenic changes, 110 *Proceedings of the National Academy of Sciences* 6296-6300, (2013), doi:10.1073/pnas.1302558110.

⁶⁰ National Climate Assessment at 13.

⁶¹ See Parmesan, C. and G. Yohe, A globally coherent fingerprint of climate change impacts across natural systems, 421 *Nature* 37-42 (2003); Root, T. *et al.*, Fingerprints of global warming on wild animals and plants, 421 *Nature* 57-60 (2003); Chen, I. *et al.*, Rapid range shifts of species associated with high levels of climate warming, 333 *Science* 1024-1026 (2011).

⁶² IPCC, 2007: *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* 48 [Core Writing Team, Pachauri, R.K and Reisinger, A.(eds.)]. Other studies have predicted similarly severe losses: 15%-37% of the world's plants and animals committed to extinction by 2050 under a mid-level emissions scenario, see Thomas *et al.*, Extinction risk from climate change, 427 *Nature* 145-8 (2004)); the potential extinction of 10% to 14% of species by 2100 if climate change continues unabated, see Maclean, I. M. D. and R. J. Wilson, Recent ecological responses to climate change support predictions of high extinction risk, 108 *Proceedings of the National Academy of Sciences of the United States of America* 12337-12342 (2011); and the loss of more than half of the present climatic range for 58% of plants and 35% of animals by the 2080s under the current emissions pathway, in a sample of 48,786 species, see Warren, R. J. *et al.*, Increasing Impacts of Climate Change Upon Ecosystems with Increasing Global Mean Temperature Rise, 106 *Climatic Change* 141-77 (2011)..

⁶³ See National Climate Assessment at 558-59.

Marine ecosystems are centrally important to the biology of the planet, yet a comprehensive understanding of how anthropogenic climate change is affecting them has been poorly developed. Recent studies indicate that rapidly rising greenhouse gas concentrations are driving ocean systems toward conditions not seen for millions of years, with an associated risk of fundamental and irreversible ecological transformation. The impacts of anthropogenic climate change so far include decreased ocean productivity, altered food web dynamics, reduced abundance of habitat-forming species, shifting species distributions, and a greater incidence of disease. Although there is considerable uncertainty about the spatial and temporal details, climate change is clearly and fundamentally altering ocean ecosystems. Further change will continue to create enormous challenges and costs for societies worldwide, particularly those in developing countries.⁶⁴

The IPCC's Fifth Assessment Report on Climate Change Impacts, Adaptation, and Vulnerability similarly summarizes the state of scientific research on foreseeable impacts to marine systems and reaches the following conclusions:

Due to projected climate change by the mid 21st century and beyond, global marine-species redistribution and marine-biodiversity reduction in sensitive regions will challenge the sustained provision of fisheries productivity and other ecosystem services (*high confidence*). Spatial shifts of marine species due to projected warming will cause high-latitude invasions and high local-extinction rates in the tropics and semi-enclosed seas (*medium confidence*). Species richness and fisheries catch potential are projected to increase, on average, at mid and high latitudes (*high confidence*) and decrease at tropical latitudes (*medium confidence*). . . . The progressive expansion of oxygen minimum zones and anoxic “dead zones” is projected to further constrain fish habitat. Open-ocean net primary production is projected to redistribute and, by 2100, fall globally under all RCP scenarios. Climate change adds to the threats of over-fishing and other non-climatic stressors, thus complicating marine management regimes (*high confidence*).

For medium- to high-emission scenarios (RCP 4.5, 6.0, and 8.5), ocean acidification poses substantial risks to marine ecosystems, especially polar ecosystems and coral reefs, associated with impacts on the physiology, behavior, and population dynamics of individual species from phytoplankton to animals (*medium to high confidence*). Highly calcified mollusks, echinoderms, and reef-building corals are more sensitive than crustaceans (*high confidence*) and fishes (*low confidence*), with potentially detrimental

⁶⁴ Ove Hoegh-Guldberg et al., The Impact of Climate Change on the World's Marine Ecosystems, *Science* 328, 1523 (2010), DOI: 10.1126/science.1189930

consequences for fisheries and livelihoods. . . . Ocean acidification acts together with other global changes (e.g. warming, decreasing oxygen levels) and with local changes (e.g. pollution, eutrophication) (*high confidence*). Simultaneous drivers, such as warming and ocean acidification, can lead to interactive, complex, and amplified impacts for species and ecosystems.⁶⁵

The Third National Climate Assessment likewise has identified five significant ways in which climate change will adversely affect U.S. oceans and marine resources:

1. The rise in ocean temperature over the last century will persist into the future, with continued large impacts on climate, ocean circulation, chemistry, and ecosystems.
2. The ocean currently absorbs about a quarter of human-caused carbon dioxide emissions to the atmosphere, leading to ocean acidification that will alter marine ecosystems in dramatic yet uncertain ways.
3. Significant habitat loss will continue to occur due to climate change for many species and areas, including Arctic and coral reef ecosystems, while habitat in other areas and for other species will expand. These changes will consequently alter the distribution, abundance, and productivity of many marine species.
4. Rising sea surface temperatures have been linked with increasing levels and ranges of diseases in humans and marine life, including corals, abalones, oysters, fishes, and marine mammals.
5. Climate changes that result in conditions substantially different from recent history may significantly increase costs to businesses as well as disrupt public access and enjoyment of ocean areas.⁶⁶

Impacts from ocean acidification: The ocean's absorption of anthropogenic CO₂ has already resulted in more than a 30% increase in the acidity of ocean surface waters, at a rate likely faster than anything experienced in the past 300 million years, and ocean acidity could increase by 150% to 200% by the end of the century if CO₂ emissions continue unabated.⁶⁷

⁶⁵ IPCC, 2014: Summary for Policymakers 17, 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* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.

⁶⁶ National Climate Assessment at 558.

⁶⁷ Orr, J. C., V. J. Fabry, O. Aumont, L. Bopp, S. C. Doney, R. a Feely, A. Gnanadesikan, N. Gruber, A. Ishida, F. Joos, R. M. Key, K. Lindsay, E. Maier-Reimer, R. Matear, P. Monfray, A. Mouchet, R. G. Najjar, G.-K. Plattner, K. B. Rodgers, C. L. Sabine, J. L. Sarmiento, R. Schlitzer, R. D. Slater, I. J. Totterdell, M.-F. Weirig, Y. Yamanaka, and A. Yool. 2005. Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying

Ocean acidification negatively affects a wide range of marine species by hindering the ability of calcifying marine creatures to build protective shells and skeletons and by disrupting metabolism and critical biological function.⁶⁸ The adverse effects of ocean acidification are already being observed in wild populations, including reduced coral calcification rates,⁶⁹ reduced shell weights of foraminifera in the Southern Ocean,⁷⁰ and mass die-offs of larval Pacific oysters in the Pacific Northwest.⁷¹

Coral reef ecosystems, which are estimated to harbor one-third of marine species and which support the livelihoods of a half billion people, are particularly threatened by ocean acidification. Some corals are already experiencing reduced calcification.⁷² Due to the synergistic impacts of ocean acidification, mass bleaching, and other stresses, reefs are projected to experience “rapid and terminal” declines worldwide at atmospheric CO₂ concentrations of 450 ppm.⁷³ Prominent coral scientists have called for reducing atmospheric CO₂ to less than 350 ppm to protect coral reefs from collapse.⁷⁴

Numerous U.S. and international scientific and policy bodies have identified ocean acidification as an urgent threat to ocean ecosystems, food security, and society.⁷⁵ The United

organisms. *Nature* 437:681–6; . Feely, R., S. Doney, and S. Cooley. 2009. Ocean acidification: Present conditions and future changes in a high CO₂ world. *Oceanography* 22:36–47; Hönlisch, B., A. Ridgwell, D. N. Schmidt, E. Thomas, S. J. Gibbs, A. Sluijs, R. Zeebe, L. Kump, R. C. Martindale, S. E. Greene, W. Kiessling, J. Ries, J. C. Zachos, D. L. Royer, S. Barker, T. M. Marchitto, R. Moyer, C. Pelejero, P. Ziveri, G. L. Foster, and B. Williams. 2012. The geological record of ocean acidification. *Science* 335:1058–63.

⁶⁸ Fabry, V., B. Seibel, R. Feely, and J. Orr. 2008. Impacts of ocean acidification on marine fauna and ecosystem processes. *ICES Journal of Marine Science* 65:414–432; Feely et al 2009; Kroeker, K.J, R.L. Kordas, R. Crim, I.E. Hendriks, L. Ramajo, G.S. Singh, C.M. Duarte, and J-P Gattuso. 2013. Impacts of ocean acidification on marine organisms: quantifying sensitivities and interactions with warming. *Global Change Biology* 19: 1884-1896.

⁶⁹ De’ath, G., J. M. Lough, and K. E. Fabricius. 2009. Declining coral calcification on the Great Barrier Reef. *Science* 323:116–119.

⁷⁰ Moy, A. D., W. R. Howard, S. G. Bray, and T. W. Trull. 2009. Reduced calcification in modern Southern Ocean planktonic foraminifera. *Nature Geoscience* 2: 276-280

⁷¹ Barton, A., B. Hales, G. G. Waldbusser, C. Langdon, and R. A. Feely. 2012. The Pacific oyster, *Crassostrea gigas*, shows negative correlation to naturally elevated carbon dioxide levels: Implications for near-term ocean acidification effects. *Limnology and Oceanography* 57:698–710.

⁷² Cooper, T. F., G. De’Ath, K. E. Fabricius, and J. M. Lough. 2008. Declining coral calcification in massive Porites in two nearshore regions of the northern Great Barrier Reef. *Global Change Biology* 14:529–538; Gledhill, D. K., R. Wanninkhof, F. J. Millero, and M. Eakin. 2008. Ocean acidification of the greater Caribbean region 1996–2006. *Journal of Geophysical Research* 113:C10031; De’ath et al. 2009; Bates, N., A. Amat, and A. Andersson. 2010. Feedbacks and responses of coral calcification on the Bermuda reef system to seasonal changes in biological processes and ocean acidification. *Biogeosciences* 7:2509–2530.

⁷³ Veron, J. E. N., O. Hoegh-Guldberg, T. M. Lenton, J. M. Lough, D. O. Obura, P. Pearce-Kelly, C. R. C. Sheppard, M. Spalding, M. G. Stafford-Smith, and A. D. Rogers. 2009. The coral reef crisis: the critical importance of <350 ppm CO₂. *Marine Pollution Bulletin* 58:1428–36.

⁷⁴ Veron et al. 2009; Frieler, K., M. Meinshausen, A. Golly, M. Mengel, K. Lebek, S.D. Donner, and O. Hoegh-Guldberg. Limiting global warming to 2°C is unlikely to save most coral reefs. *Nature Climate Change*. Published Online. doi: 10.1038/NCLIMATE1674.

⁷⁵ NRC. 2010. Ocean Acidification: A National Strategy to Meet the Challenges of a Changing Ocean. National Academies Press; UNEP. 2010. UNEP Emerging Issues: Environmental Consequences of Ocean Acidification: A Threat to Food Security; Rogers, A. D., and D. d’A. Laffoley. 2011. International Earth system expert workshop on ocean stresses and impacts Summary Report. IPSO Oxford.

Nations Environment Programme concluded that ocean acidification's impact on marine organisms poses a threat to food security and the billions of people that rely on a marine-based diet.⁷⁶ Moreover, a recent study estimated that the damage our oceans will face from emissions-related problems will amount to \$428 billion a year by 2050 and nearly \$2 trillion per year by the century's end.⁷⁷

In sum, climate change, driven primarily by the combustion of fossil fuels, poses a severe and immediate threat to the health, welfare, ecosystems and economy of the United States. These impacts are felt across the nation, including upon the public lands and oceans. A rapid and deep reduction of emissions generated from fossil fuels is essential if such threats are to be minimized and their impacts mitigated.

B. The 2015 Paris Agreement and the Underlying U.N. Framework Convention on Climate Change Commit the United States to Addressing the Global Climate Emergency and Limiting Fossil Fuel Extraction

International consensus and commitments acknowledge the global climate emergency and demand decisive action to limit fossil fuel extraction. On December 12, 2015, 197 nation-state and supra-national organization parties meeting in Paris at the 2015 United Nations Framework Convention on Climate Change Conference of the Parties consented to an agreement (Paris Agreement) committing its parties to take action to avoid dangerous climate change.⁷⁸ As the Paris Agreement opens for signature in April 2016⁷⁹ and the United States is expected to sign the treaty⁸⁰ as a legally binding instrument through executive agreement,⁸¹ the Paris Agreement commits the United States to critical goals—both binding and aspirational—that mandate bold action on the United States' domestic policy to rapidly reduce greenhouse gas emissions.⁸²

The United States and other parties to the Paris Agreement recognized “the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge.”⁸³ The Paris Agreement articulates the practical steps necessary to obtain its goals: parties including the United States have to “reach global peaking of greenhouse gas emissions *as soon as possible* . . . and to *undertake rapid reductions* thereafter in

⁷⁶ UNEP 2010.

⁷⁷ Noone, K., R. Sumaila, and R. Diaz. 2012. Valuing the Ocean : Executive Summary, Stockholm Environment Institute. Stockholm Environment Initiative

⁷⁸ Paris Agreement, Art. 2.

⁷⁹ Paris Agreement, Art. 20(1).

⁸⁰ For purposes of this Petition, the term “treaty” refers to its international law definition, whereby a treaty is “an international law agreement concluded between states in written form and governed by international law” pursuant to article 2(a) of the Vienna Convention on the Law of Treaties, 1155 U.N.T.S. 331, 8 I.L.M. 679 (Jan. 27, 1980).

⁸¹ See U.S. Department of State, Background Briefing on the Paris Climate Agreement, (Dec. 12, 2015), <http://www.state.gov/r/pa/prs/ps/2015/12/250592.htm>.

⁸² Although not every provision in the Paris Agreement is legally binding or enforceable, the U.S. and all parties are committed to perform the treaty commitments in good faith under the international legal principle of *pacta sunt servanda* (“agreements must be kept”). Vienna Convention on the Law of Treaties, Art. 26.

⁸³ *Id.*, Recitals.

accordance with *best available science*,”⁸⁴ imperatively commanding that developed countries specifically “should continue taking the lead by undertaking economy-wide absolute emission reduction targets”⁸⁵ and that such actions reflect the “highest possible ambition.”⁸⁶

The Paris Agreement codifies the international consensus that climate change is an “urgent threat” of global concern,⁸⁷ and commits all signatories to achieving a set of global goals. Importantly, the Paris Agreement commits all signatories to an articulated target to hold the long-term global average temperature “to *well below* 2°C above pre-industrial levels and to *pursue efforts to limit the temperature increase to 1.5°C* above pre-industrial levels”⁸⁸ (emphasis added).

In light of the severe threats posed by even limited global warming, the Paris Agreement established the international goal of limiting global warming to 1.5°C above pre-industrial levels in order to “prevent dangerous anthropogenic interference with the climate system,” as set forth in the UNFCCC, a treaty which the United States has ratified and to which it is bound.⁸⁹ The Paris consensus on a 1.5°C warming goal reflects the findings of the IPCC and numerous scientific studies that indicate that 2°C warming would exceed thresholds for severe, extremely dangerous, and potentially irreversible impacts.⁹⁰ Those impacts include increased global food and water insecurity, the inundation of coastal regions and small island nations by sea level rise and increasing storm surge, complete loss of Arctic summer sea ice, irreversible melting of the Greenland ice sheet, increased extinction risk for at least 20-30% of species on Earth, dieback of the Amazon rainforest, and “rapid and terminal” declines of coral reefs worldwide.⁹¹ As scientists noted, the impacts associated with 2°C temperature rise have been “revised upwards,

⁸⁴ *Id.*, Art. 4(1).

⁸⁵ *Id.*, Art. 4(4).

⁸⁶ *Id.*, Art. 4(3).

⁸⁷ *Id.*, Recitals.

⁸⁸ *Id.*, Art. 2.

⁸⁹ See U.N. Framework Convention on Climate Change, Cancun Agreement. Available at <http://cancun.unfccc.int/> (last visited Jan 7, 2015); United Nations Framework Convention on Climate Change, Copenhagen Accord. Available at http://unfccc.int/meetings/copenhagen_dec_2009/items/5262.php (last accessed Jan 7, 2015). The United States Senate ratified the UNFCCC on October 7, 1992. See <https://www.congress.gov/treaty-document/102nd-congress/38>.

⁹⁰ See Paris Agreement, Art. 2(1)(a); U; U.N. Framework Convention on Climate Change, Subsidiary Body for Scientific and Technical Advice, Report on the structured expert dialogue on the 2013-15 review, No. FCCC/SB/2015/INF.1 at 15-16 (June 2015); IPCC AR5 Synthesis Report at 65 & Box 2.4.

⁹¹ See Jones, C. et al, Committed Terrestrial Ecosystem Changes due to Climate Change, 2 *Nature Geoscience* 484, 484–487 (2009); Smith, J. B. *et al.*, Assessing Dangerous Climate Change Through an Update of the Intergovernmental Panel on Climate Change (IPCC) ‘Reasons for Concern’, 106 *Proceedings of the National Academy of Sciences of the United States of America* 4133, 4133–37 (2009); ; Veron, J. E. N. *et al.*, The Coral Reef Crisis: The Critical Importance of <350 ppm CO₂, 58 *Marine Pollution Bulletin* 1428, 1428–36, (2009); ; Warren, R. J. *et al.*, Increasing Impacts of Climate Change Upon Ecosystems with Increasing Global Mean Temperature Rise, 106 *Climatic Change* 141–77 (2011); Hare, W. W. *et al.*, Climate Hotspots: Key Vulnerable Regions, *Climate Change and Limits to Warming*, 11 *Regional Environmental Change* 1, 1–13 (2011); ; Frieler, K. M. *et al.*, Limiting Global Warming to 2°C is Unlikely to Save Most Coral Reefs, *Nature Climate Change*, Published Online (2013) doi: 10.1038/NCLIMATE1674; ; M. Schaeffer *et al.*, Adequacy and Feasibility of the 1.5°C Long-Term Global Limit, *Climate Analytics* (2013).

sufficiently so that 2°C now more appropriately represents the threshold between ‘dangerous’ and ‘extremely dangerous’ climate change.”⁹² Consequently, a target of 1.5°C or less temperature rise is now seen as essential to avoid dangerous climate change and has largely supplanted the 2°C target that had been the focus of most climate literature until recently. The question of what level of risk of not meeting the target is acceptable, along with the questions of *which* fossil fuels can be burned and by *whom*, are inherently political and ethical questions. But, as demonstrated below, under *any* formulation, the majority of United States fossil fuels, particularly federal fossil fuels, must stay in the ground.

It has been widely agreed among the world’s climate scientists that the vast majority of fossil fuels must stay in the ground in order to limit the global temperature rise to 2°C of warming above pre-industrial levels.⁹³ As described above, it is also widely recognized that a limit of 2°C of warming is woefully insufficient to protect the world’s most vulnerable populations and natural systems, with an upper limit of 1.5°C or less warming required to reduce the risks and impact to human and ecological communities.⁹⁴ While staying “well below” 2°C of warming will itself require immediate and ambitious measures, to meet the scientifically dictated and ecologically, economically and ethically required target of 1.5 °C warming or less, measures even more ambitious than those aimed at a 2°C target are necessary. That which is clearly required to meet a 2°C target becomes an absolute imperative to meet a 1.5°C target. One such measure, straightforward, practical, consistent with the Paris Agreement, and within the existing authority of the executive branch of the United States government, is a moratorium on new fossil fuel leasing on the Outer Continental Shelf.

C. Staying Below a 1.5 or 2°C Temperature Target Requires Adherence to a Strict Carbon Budget with the Vast Majority of Fossil Fuels Left in the Ground

Immediate and aggressive greenhouse gas emissions reductions are necessary to keep warming below a 1.5° or 2°C rise above pre-industrial levels. Put simply, there is only a finite amount of CO₂ that can be released into the atmosphere without rendering the goal of meeting the 1.5°C target virtually impossible. A slightly larger amount could be burned before meeting a 2°C limit became an impossibility. Globally, fossil fuel reserves, if all were extracted and burned, would release enough CO₂ to exceed this limit several times over.⁹⁵

The question of what amount of fossil fuels can be extracted and burned without negating a realistic chance of meeting a 1.5 or 2°C target is relatively easy to answer, even if the answer is

⁹² Anderson, K. and A. Bows, Beyond ‘Dangerous’ Climate Change: Emission Scenarios for a New World, 369 Philosophical Transactions, Series A, Mathematical, Physical, and Engineering Sciences 20, 20–44 (2011).

⁹³ McGlade, Christophe & Ekins, Paul. The geographic distribution of fossil fuels unused when limiting global warming to 2°C, 517 Nature 187 (Jan. 2015).

⁹⁴ U.N. Subsidiary Body for Scientific and Technological Advice, Report on the structured expert dialogue on the 2013-2015 review (2015), FCCC/SB/2015/INF.1 (2014), <http://unfccc.int/resource/docs/2015/sb/eng/inf01.pdf>.

⁹⁵ Cmons at 6, 33 n.2.

framed in probabilities and ranges. The IPCC Fifth Assessment Report and other expert assessments have established global carbon budgets, or the total amount of remaining carbon that can be burned while maintain some probability of staying below a given temperature target. According to the IPCC, total cumulative anthropogenic emissions of CO₂ must remain below about 1,000 gigatonnes (GtCO₂) from 2011 onward for a 66% probability of limiting warming to 2°C above pre-industrial levels.⁹⁶ Given more than 100 GtCO₂ have been emitted since 2011,⁹⁷ the remaining portion of the budget under this scenario is well below 900 GtCO₂. To have an 80% probability of staying below the 2°C target, the budget from 2000 is 890 GtCO₂, with less than 430 GtCO₂ remaining.⁹⁸

To have even a 50% probability of achieving the Paris Agreement goal of limiting warming to 1.5°C above pre-industrial levels equates to a carbon budget of 550-600 GtCO₂ from 2011 onward,⁹⁹ of which more than 100 GtCO₂ has already been emitted. To achieve a 66% probability of limiting warming to 1.5°C requires adherence to a more stringent carbon budget of only 400 GtCO₂ from 2011 onward,¹⁰⁰ of which less than 300 GtCO₂ remained at the start of 2015. An 80% probability budget for 1.5°C would have far less than 300 GtCO₂ remaining. Given that global CO₂ emissions in 2014 alone totaled 36 GtCO₂,¹⁰¹ humanity is rapidly consuming the remaining burnable carbon budget needed to have even a 50/50 chance of meeting the 1.5°C temperature goal.¹⁰²

1. Global and United States Fossil Fuels Exceed any Rational Carbon Budget

The science is clear that the vast majority of the world's fossil fuels must remain in the ground in order to maintain any reasonable hope of limiting global warming to 1.5° or even 2°C above pre-industrial levels. Global fossil fuel reserves and resources far exceed the carbon budgets needed to stay below a 1.5° or 2°C temperature target.¹⁰³

⁹⁶ IPCC AR5 Physical Science Basis at 27; IPCC AR5 Synthesis Report at 63-64 & Table 2.2.

⁹⁷ From 2012-2014, 107 GtCO₂ was emitted (*see* Annual Global Carbon Emissions at <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>).

⁹⁸ Carbon Tracker Initiative at 6; Meinshausen *et al.* 2009 at 1159

⁹⁹ IPCC AR5 Synthesis Report at 64 & Table 2.2.

¹⁰⁰ *Id.*

¹⁰¹ *See* Global Carbon Emissions, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>

¹⁰² In addition to limits on the *amount* of fossil fuels that can be utilized, emissions pathways compatible with a 1.5 or 2°C target also have a significant temporal element. Leading studies make clear that to reach a reasonable likelihood of stopping warming at 1.5° or even 2°C, global CO₂ emissions must be phased out by mid-century and likely as early as 2040-2045. *See, e.g.* Joeri Rogelj *et al.*, Energy system transformations for limiting end-of-century warming to below 1.5°C, 5 Nature Climate Change 519, 522 (2015). United States focused studies indicate that we must phase out fossil fuel CO₂ emissions even earlier—between 2025 and 2040—for a reasonable chance of staying below 2°C. *See, e.g.* Climate Action Tracker, <http://climateactiontracker.org/countries/usa>. Issuing new legal entitlements to explore for and extract federal fossil fuels for decades to come is wholly incompatible with such a transition.

¹⁰³ Analyses by the Carbon Tracker Initiative estimated that 80% of proven fossil fuel reserves must be kept in the ground to have a reasonable probability (75-80%) of staying below even 2°C. This estimate includes only the fossil

Two recent studies estimated that global oil, gas, and coal resources considered currently economically recoverable contain potential greenhouse gas emissions estimated at 2,900 GtCO₂¹⁰⁴ and 4196 GtCO₂¹⁰⁵ respectively. Other sources estimate even greater global fossil fuel reserves at 3,677 to 7,120 GtCO₂.¹⁰⁶ When considering all fossil fuel resources (defined as those recoverable over all time with both current and future technology irrespective of current economic conditions), potential combustion emissions have been estimated at nearly 11,000 GtCO₂¹⁰⁷ upwards to 31,353 and 50,092 GtCO₂.¹⁰⁸

Even the lowest of these estimates (2,900 GtCO₂) is more than three times greater than the most generous carbon budget nominally consistent with a 2°C temperature limit (~900 GtCO₂), while the largest (50,092 GtCO₂) is over 160 times greater than the remaining budget for a 66% probability of not exceeding a 1.5°C limit (<300 GtCO₂).

As stated by one study, “the disparity between what resources and reserves exist and what can be emitted while avoiding a temperature rise greater than the agreed 2C limit is therefore stark.”¹⁰⁹ Another recent report on global carbon reserves found that:

The reserves of coal, oil and natural gas outlined in this report contain enough carbon to rocket the planet far beyond the 2 °C limit. Warming from fossil fuels puts other carbon sinks at risk. As permafrost melts and peat bogs dry, they emit enormous quantities of carbon dioxide, furthering a chain reaction where the release of carbon results in a warmer world, which in turn releases more carbon.¹¹⁰

While global carbon budgets provide a straightforward and relatively objective framework for determining the total *amount* of fossil fuels that can be combusted consistent with pathways to meeting our climate targets, the question of what level of risk of not meeting the target is acceptable, along with the questions of *which* fossil fuels can be burned and by *whom*, are inherently political and ethical questions. But, under *any* formulation, the vast majority of United States fossil fuels, must stay in the ground if we are to have any realistic hope of staying below 1.5°C, or even 2°C of warming.

fuel reserves that are considered currently economically recoverable with a high probability of being extracted. See Carbon Tracker Initiative at 2, 6.

¹⁰⁴ McGlade and Ekins at 187-192.

¹⁰⁵ Raupach, M. *et al.*, Sharing a quota on cumulative carbon emissions. 4 Nature Climate Change 873-879 (2014) at Figure 2.

¹⁰⁶ IPCC, 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change at Table 7.2 [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. (“IPCC AR5 Mitigation of Climate Change”)

¹⁰⁷ McGlade and Ekins at 188.

¹⁰⁸ IPCC AR5 Mitigation of Climate Change at Table 7.2.

¹⁰⁹ McGlade and Ekins at 188.

¹¹⁰ Ciments at 6.

A recent detailed analysis found that the United States alone contains enough recoverable fossil fuels, split about evenly between federal and non-federal resources, which if extracted and burned, would generate enough greenhouse emissions (median estimate 840 GtCO₂e) to consume more than half the entire global carbon budget for a 2°C target (~900 GtCO₂, equivalent to ~1350 GtCO₂e), and greatly exceed the remaining budget for a 1.5°C target (~300 GtCO₂ equivalent to ~450 GtCO₂e).¹¹¹ Clearly, even if the rest of the world somehow reduced its carbon emissions to near zero, the United States still could not safely burn all of its own fossil fuels.

This analysis highlights the impossibility of reconciling continued leasing of federal fossil fuels with a pathway to keeping warming from exceeding 1.5°C. Total remaining fossil fuel resources in the United States, including both federal and non-federal resources, are estimated to equate to 697 to 1070 GtCO₂e of emissions.¹¹² Federal fossil fuels represent about half (46-50%) of that total at between 349 and 492 GtCO₂e of potential emissions,¹¹³ and the vast majority (91%) of federal fossil fuels are still unleased.¹¹⁴ Overall the potential greenhouse gas emissions of unleased federal fossil fuel resources are enormous, estimated at 319 to 450 GtCO₂e, with offshore oil and gas alone estimated at 52 to 62 GtCO₂e. In other words, unleased federal fossil fuels, if extracted and burned, would consume between 70 and 100% of a *global* budget of 300 GtCO₂ (equivalent to ~450 GtCO₂e), the amount remaining at the start of 2015 under a budget scenario that itself has only a 66% chance of limiting temperature increase to 1.5°C.

Unleased OCS oil and gas subject to OCSLA Section 12 alone would consume between 11.6% and 13.8% of that *global* budget. Continued leasing of these resources, without examining the climate consequences of such action, is incompatible with any reasonable path to limiting warming to 1.5°C or even 2°C. Various efforts have been made to ascribe portions of the global carbon budget to specific countries or regions, based on factors ranging from equity to economics.¹¹⁵ One medium-range estimate of a U.S. carbon quota allocates 158 GtCO₂ to the U.S., equivalent to 11% of the global carbon budget needed for a 50% chance of limiting warming to 2°C.¹¹⁶ Potential emissions from unleased federal fossil fuels (319 to 450 GtCO₂e)

¹¹¹ See Mulvaney *et al.* at 4. Using a metric of CO₂e (which also includes conservative estimates for the radiative forcing potential of non-CO₂ greenhouse gases such as methane, compare Mulvaney *et al.* at Table A12 with IPCC AR5 Physical Science Basis at 714 & Table 8.7), this study calculated that extraction and combustion of total U.S. recoverable fossil fuels would produce 697 to 1070 GtCO₂e of emissions, with a median estimate of 840 GtCO₂e. To compare these emissions to the global carbon budgets for 1.5°C and 2°C, we converted these carbon budgets from to GtCO₂ to GtCO₂e by applying a conversion factor of 1 GtCO₂ = 1.5 GtCO₂e based on Table 1 in Meinshausen *et al.* 2009.

¹¹² Mulvaney *et al.* 19 Table 2.

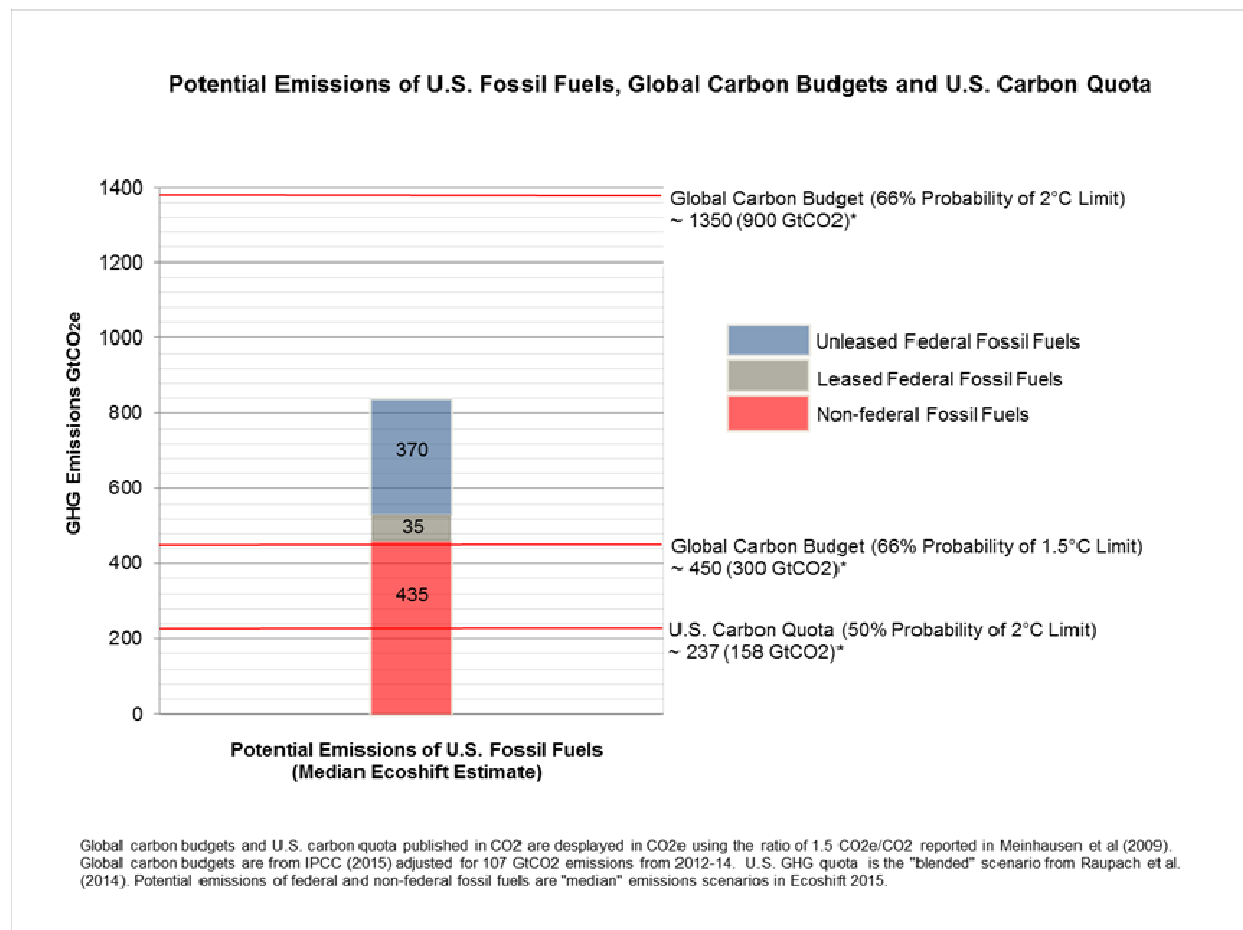
¹¹³ *Id.* at 18.

¹¹⁴ *Id.*

¹¹⁵ See, e.g. Raupach, M. *et al.*, Sharing a quota on cumulative carbon emissions. 4 Nature Climate Change 873-879 (2014).

¹¹⁶ Raupach *et al.* at 875. We use a mid-range estimate of the U.S. carbon quota (158 GtCO₂) from Raupach *et al.* (2014). This mid-range estimate was calculated using a “blended” scenario of sharing principles for allocating the global carbon budget among countries. The “blended” scenario is midway between an “inertia” approach (sharing based on current emissions) and “equity” approach (sharing based on population). Raupach *et al.* (2014) estimates

vastly exceed even this highly non-precautionary U.S. carbon budget. Significantly, however, just the share of unleased Outer Continental Shelf oil and gas resources subject to OCSLA Section 12(a) comprise between 52 and 62 Gt CO₂e¹¹⁷ — i.e., between 11.6% and 13.8% of the estimated *global* carbon budget for maintaining at 66% chance of limiting warming to 1.5°C.



*Figure 1: Relationship of United States Fossil Fuel Resources and Global Carbon Budgets for 1.5 and 2°C Emissions Pathways.*¹¹⁸

the U.S. carbon quota using a “blended” sharing approach at 158 GtCO₂ which is 11% of the global carbon budget of 1400 GtCO₂ for a 50% chance of staying below 2°C. See Raupach *et al.* (2014) at Supplementary Figure 7. This Petition employs the United States emissions quotas in Raupach *et al.* for illustration purposes only; this Petition does not endorse the equity assumptions made therein.

¹¹⁷ *Id.* at 18, 24-25 (offshore crude oil potential emissions of 27.65-31.50 GtCO₂e, offshore natural gas potential emissions of 24.07-30.05 GtCO₂e).

¹¹⁸ Figure 1 illustrates the relationship between potential United States greenhouse gas emissions from federal and non-federal fossil fuels resources (per the median estimate from Mulvaney *et al.* 2014, in GtCO₂e) and three representative carbon budgets: (1) 66% probability of limiting warming to 2°C, per IPCC AR5 (2014) (1000 Gt from 2011-2100, less 107 Gt emitted 2012-14); (2) 66% probability of limiting warming to 2°C, per IPCC AR5 (2014) (400 Gt from 2011-2100, less 107 Gt emitted 2012-14); (3) a representative United States allocation, under a “blended” equity scenario, for a 50% probability of limiting warming to 2°C, per Raupach *et al.* (2014). For purposes of this comparison, GtCO₂ estimates from IPCC and Raupach *et al.* have been converted to GtCO₂e at a ratio of GtCO₂ to 1.5 GtCO₂e, per Meinhausen *et al.* 2009, Table 1.

As described above and illustrated in Figure 1, United States resources greatly exceed the *entire* global budget for a 66% chance of limiting warming to 1.5°C. Emissions from use of the median estimate of non-federal fossil fuels (435 GtCO₂e) themselves would use up almost the entire global budget, while unleased fossil fuels alone (370 GtCO₂e) would utilize over 80% of that budget. Even under a carbon budget in which great risk to human health, prosperity, and stability and the planet's natural systems is tolerated (only 50% chance of staying below 2°C) the United States still cannot utilize the entirety of its non-federal fossil fuel resources, much less those under direct federal control. Because decisions as to whether or not these non-federal fossil fuels are developed are in part beyond direct federal management under existing law,¹¹⁹ and therefore they are more likely to be developed, it is difficult to formulate a scenario that leaves room for any significant new development of federal fossil fuels.¹²⁰

New federal offshore oil and gas leasing is not needed to meet current energy demands or provide for an orderly transition to a low-carbon energy future. For example, a 2012 report by the Department of the Interior determined that more than two-thirds of U.S. federal offshore oil and gas leases remain idle, meaning that they are not producing, or subject to approved or pending exploration or development plans. According to the report, nearly 70% of offshore acreage under lease in the Gulf of Mexico, 98% in the Arctic, and half of federal onshore leases are idle.¹²¹ This means that there are approximately 26 million leased acres offshore with 11 billion barrels of oil and 50 trillion cubic feet of natural gas that are already potentially available for oil and gas production, thus having already committed significant fossil fuels to development and greenhouse gases to the atmosphere.¹²² Likewise, 22 million acres of current leases onshore are also idle.¹²³

2. The United States' Path to 1.5°C Necessarily Begins With Addressing Federal Fossil Fuel Leasing

Absent a global or economy-wide price or limit on greenhouse gas emissions, the most immediate and effective path to making significant U.S. fossil fuels legally unburnable starts

¹¹⁹ While the federal government may lack direct land management authority as to whether non-federal fossil fuels are extracted, the federal government does have significant authority under the Clean Air Act and other statutes to dictate if and how they are combusted. Still, oversight and control of federal fossil fuels is inherently greater than for the non-federal estate.

¹²⁰ Because any reasonable carbon budget necessarily limits future development to a small portion of even existing declared, proven fossil fuel reserves, such budgets render completely superfluous the further exploration of recoverable resources to establish additional proved reserves. *See* IPCC AR5 Synthesis Report at 64 & Table 2.2; Ciments at 5-6. Under any pathway to 1.5° or even 2°C, new reserves that could be established by leasing and exploration of additional resources are simply unburnable.

¹²¹ U.S. Department of the Interior, "Oil and Gas Utilization, Onshore and Offshore: Updated Report to the President" (May 2012), *available at* <https://www.doi.gov/sites/doi.gov/files/migrated/news/pressreleases/upload/Final-Report.pdf>.

¹²² *Id.* at 7-8.

¹²³ *Id.* at 13-15.

with federal public lands and waters.¹²⁴ OCSLA reserves to the President the authority to withdraw those lands from availability for leasing. The federal government manages the submerged lands of the Outer Continental Shelf seaward of state jurisdiction.¹²⁵ The federal government manages approximately 650 million acres, or 29% of the 27 billion acres of land in the United States, and about 700 million acres of subsurface resources. Within these federal lands and waters are enormous fossil fuel deposits, which if extracted and burned, would release hundreds of billions of tons of greenhouse gasses.¹²⁶ These lands and oceans, including offshore oil and gas resources, are owned by the American public and are to be managed for public welfare by federal agencies, primarily within the Department of the Interior, according to federal law.

The fate of federal fossil fuels, particularly offshore oil and gas, and their potential development and resulting emissions, are subject to significant executive discretion. For offshore oil and gas, the Department of the Interior can establish five-year leasing programs to develop these oil and gas resources, further contributing to the climate crisis as they do now. Under OCSLA, however the President has extensive discretion to withdraw submerged lands from lease availability and any time, thus helping to reduce greenhouse gas emissions and start the United States down the path to a decarbonized economy.

Unfortunately, current federal policy consists largely of auctioning off publicly owned fossil fuels to private companies for extraction and sale in domestic and international markets.¹²⁷ Such federal fossil fuel leasing contributes significantly to domestic and global greenhouse gas pollution while industrializing and degrading America's public lands and oceans.

From 2003 to 2014 approximately 25% of all United States and 3-4% of global fossil fuel greenhouse gas emissions are attributable to the Department of the Interior's leasing programs (onshore and offshore).¹²⁸ Since 2008 the Obama administration has leased more than 35 million acres of federal public lands and oceans to the fossil fuel industry, with over 32 million acres of

¹²⁴ While the climate consequences of a gigatonne of CO₂ emitted from the combustion of a barrel of oil are the same regardless of whether it was extracted from federal or non-federal lands or waters, the legal, political and economic hurdles of keeping federal offshore oil and gas in the ground are far simpler to overcome than for fossil fuels from non-federal lands

¹²⁵ See OCSLA, 43 U.S.C. §§ 1301-1356.

¹²⁶ Mulvaney *et al.* at 4. For a detailed discussion of the sources, definitions, assumptions, and methodology employed in this analysis, see Mulvaney *et al.* at 12-17.

¹²⁷ See Executive Office of the President, "Obama Administration Record on an All-of-the-Above Energy Strategy," https://www.whitehouse.gov/sites/default/files/docs/clean_energy_record.pdf (last visited Dec. 20, 2015).

¹²⁸ See Energy Information Administration, Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2013 (June 2014) <http://www.eia.gov/analysis/requests/federallands/pdf/eia-federallandsales.pdf>; Climate Accountability Institute. Memorandum to Dunkiel Saunders, Friends of The Earth and Center for Biological Diversity. 2015. Available at: http://webiva-downton.s3.amazonaws.com/877/3a/7/5721/Exhibit_1-1_ONRR_ProdEmissions_Heede_7May15.pdf; Stratus Consulting, Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters: An Update, 13 (2014) available at <http://wilderness.org/sites/default/files/Stratus-Report.pdf>.

that total offshore.¹²⁹ More than 67 million acres of public land and oceans — an area 55 times larger than Grand Canyon National Park — are already leased to the fossil fuel industry. These leases contain up to 43 GtCO₂e.¹³⁰ And these staggering numbers are just the tip of the iceberg; more than 90% of the emissions potential of the federal mineral estate is contained in fossil fuel deposits that have yet to be leased, with offshore oil and gas comprising 64% of unleased federal natural gas and 72% of unleased federal oil.¹³¹ These total resources contain up to 450 GtCO₂e — nearly half of the total remaining potential greenhouse emissions from all United States fossil fuel resources — and more than enough to propel the world far past a 1.5°C target.¹³² Clearly, the current federal leasing program, if continued, is simply incompatible with any rational climate policy.

The Department of the Interior’s recently released five-year proposed leasing program sets the course not only for leasing from 2017 to 2022 but for offshore oil development over the next four to seven decades.¹³³ Offshore oil and gas leases are issued for an initial term of five to ten years, but remain in production as long as oil or gas is produced in paying quantities.¹³⁴ BOEM’s 2017-2022 five-year plan proposes a massive program of new leasing – up to 69 billion barrels of oil and 234 trillion cubic feet of gas – in the Arctic and Gulf of Mexico.¹³⁵ The decisions the United States makes now about allocating lands and oceans for oil and gas leasing, exploration, development, infrastructure, and extraction will profoundly influence the nation’s

¹²⁹ Energy Information Administration, Sales of Fossil Fuels Produced from Federal and Indian Lands (2014); U.S. Bureau of Land Management, Oil and Gas Statistics (2015), *available at* http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html.

¹³⁰ Mulvaney *et al.* 3.

¹³¹ Mulvaney *et al.* 18.

¹³² Mulvaney *et al.* 18. Although coal accounts for the largest share of the United States’ public lands CO₂ emissions, the contribution of oil and gas is highly significant. In addition to the emissions from the combustion of the oil and gas itself, emissions from drilling, stimulation, gathering, processing, and transmission operations also contribute greenhouse gas pollution, particularly via release of methane. This extremely potent greenhouse gas traps eighty-seven times as much heat as carbon dioxide over a twenty-year period. IPCC AR5 Physical Science Basis Chapter 8 at 714, Table 8.7 & note b. Although efforts continue to determine the precise amount of methane release from oil and gas operations, EPA has estimated that “oil and gas systems are the largest human-made source of methane emissions and account for 37 percent of methane emissions in the United States and is expected to be one of the most rapidly growing sources of anthropogenic methane emissions in the coming decades.” U.S. Environmental Protection Agency, Natural Gas STAR Program, Basic Information, Major Methane Emission Sources and Opportunities to Reduce Methane Emissions. EPA’s estimate is based on an estimated calculation of methane emissions, rather than measured actual emissions, which indicate that methane emissions may be much greater in volume than calculated. Miller, S. M. *et al.* Anthropogenic Emissions of Methane in the United States, *Proc. Natl. Acad. Sci.* Early Edition, DOI: 10.1073/pnas.1314392110 (2013).

¹³³ See Bureau of Ocean Energy Management, 2017–2022 Outer Continental Shelf Oil and Gas Leasing Proposed Program 1-3 (“OCS Proposed Program”) (“The OCS leasing program is designed for long-term planning so the decision maker can consider national energy needs over the long-term, 40–70 years into the future.”); 6-2; *see also* 43 U.S.C. § 1344.

¹³⁴ See 43 U.S.C. § 1337(b)(2)(A)-(B); 30 C.F.R. § 556.37(a)(2); 43 U.S.C. § 1337(b)(2)(B); *see* 30 C.F.R. § 250.180(a).

¹³⁵ BOEM, Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation’s Outer Continental Shelf, 2016, *available at* <http://www.boem.gov/National-Assessment-2016/>.

energy investment and infrastructure for decades to come, just at a period where science overwhelmingly tells us that a rapid shift away from fossil fuels is our only hope of a reasonable probability at avoiding catastrophic warming. Exercise of OCSLA Section 12 withdrawal authority offers an opportunity to move away from Interior's proposed planning for continued investment in oil and gas leases that lock in investment and infrastructure in untenable fossil fuel combustion for decades to come.

The five-year leasing program proceeds from the outdated assumption that oil and gas prices and production will continue at levels comparable with the range of past prices and production.¹³⁶ This assumption fails to take into account significant changes in national and international climate policy, most notably the 2015 agreement to limit global warming to below 2°C and to pursue efforts to limit warming to 1.5°C.

Staying within a carbon budget compatible with a 1.5°C target will necessitate leaving most fossil fuels undeveloped. Unleased offshore oil and gas resources are the easiest of such resources to withdraw from availability, given the clear authority of the President to withdraw submerged lands from availability at any time.¹³⁷ Importantly, new federal fossil leases are unnecessary to manage a prompt, just, and orderly transition to a 100% renewable energy economy in the United States. There is already more than sufficient non-federal coal, oil, and gas to exceed even the largest conceivable domestic carbon budget.¹³⁸ The ultimate success or failure of the United States' and global community's climate mitigation efforts depends in large part on whether countries are willing and able to leave the majority of their fossil fuel deposits in the ground. As discussed above, existing statutory authority reserves considerable discretion to the President over the potential leasing of all offshore oil and gas. Because extraction of non-federal fossil fuels is governed in part by economic and legal factors outside the direct control of the federal executive branch, any immediate federal effort to curb United States fossil fuel production should begin with federally-controlled fossil fuels. And because executive authority to limit federal fossil fuel production is strongest with regard to unleased fossil fuels, the easiest and most straightforward starting point is a cessation of new fossil fuel leasing.

On January 15, 2016, the Secretary of the Interior issued Secretarial Order No. 3338, exercising her discretion under the Mineral Leasing Act and other applicable statutes in order to consider, *inter alia*, "how best to assess the climate impacts of continued Federal coal production and combustion and how to address those impacts in the management of the program to meet both the Nation's energy needs and its climate goals, as well as how best to protect the public lands from climate change impacts."¹³⁹ Order 3338 found that "Continuing to conduct lease sales

¹³⁶ See OCS Proposed Program at 6-1 to 6-2.

¹³⁷ See 43 U.S.C. §§ 1332, 1341(a).

¹³⁸ Mulvaney *et al.* at 6 & Figure 2; *see also* Raupach *et al.*, Supplementary Figure 7; McGlade and Ekins, 189 Table 1. This Petition cites Raupach and McGlade and Ekins's studies on U.S. emissions quotas for illustration purposes only; this Petition does not endorse equity assumptions made therein.

¹³⁹ U.S. Department of the Interior, Secretarial Order No. 3338 at 8 (Jan. 15, 2016).

or approve lease modifications during this programmatic review risks locking in for decades the future development of large quantities of coal under current rates and terms that the PEIS may ultimately determine to be less than optimal.”¹⁴⁰ The grave and imminent threat of climate change makes an analogous halt to offshore oil and gas leasing, and review of the climate consequences of the entire system of federal fossil leasing programs, equally urgent.

Exercise of OCSLA Section 12(a) withdrawal authority is a legal, effective, and immediately available means to begin addressing the imminent threat of climate change by halting the creation of new legal entitlements to explore for and produce greenhouse gas emitting fossil fuels. It is the federal government’s duty under not only OCSLA, but also the National Environmental Policy Act, 42 U.S.C. §§ 4321-4370, to consider impacts both to and from climate change in the exercise of its duty balancing resource extraction with its environmental consequences.¹⁴¹ Addressing unleased OCS oil and gas subject to OCSLA Section 12 provides an immediately available alternative, without new legislation, for the President to render legally unburnable between 52 and 62 Gt CO₂e, up to 13.8% of the entire federal unleased greenhouse gas potential. Furthermore, because this is a resource subject entirely to federal discretionary disposal, it provides a means of withdrawing a significant store of potential emissions without affecting any current leases.

By immediately withdrawing unleased submerged lands of the Outer Continental Shelf from availability for leasing, the Executive can immediately remove somewhere between 52 and 62 GtCO₂e of unleased oil and gas from becoming part of the pool of potential global greenhouse gas emissions.¹⁴² He can do this now, under existing statutory authority, without Congressional action.¹⁴³ Fundamentally, Congress chose, in the Outer Continental Shelf Lands Act, to vest authority in the Executive to elect if, when, where, how, and why to make oil and gas available for leasing to private developers. Given the scope of the climate crisis, the vast amounts of federal fossil fuels already under lease, and the pressing need to keep carbon in the ground to avert catastrophic climate change, the Executive can and must exercise his discretion to ensure that no new leases for oil and gas be issued for submerged lands of the Outer Continental Shelf. Such a withdrawal should remain in effect at least until the development and implementation of policies to ensure any future leasing is consistent with a pathway to meeting the United States’ goal of holding global warming “well below 2°C above pre-industrial levels” and pursuing efforts to “limit the temperature increase to 1.5°C above pre-industrial levels,” as articulated in the Paris Agreement.

¹⁴⁰ *Id.*

¹⁴¹ *See Center for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1221-23 (9th Cir. 2008)

¹⁴² *Mulvaney et al.* 18.

¹⁴³ *See* 43 U.S.C. § 1341(a) & *supra* Part IV.

VI. Text of Proposed Order

Pursuant to 43 U.S.C. §1341(a), and the reasons set forth above, Petitioners request that the President issue a Presidential Memorandum consistent with or identical to the following proposed language:

Consistent with the principles of responsible public stewardship entrusted to this office, I hereby declare:

(1) It is the policy of the United States that federal Outer Continental Shelf lands should be managed for the benefit of the people of the United States to avoid the most dangerous impacts of climate change; and to promote a rapid transition to a clean energy economy by keeping fossil fuels in the ground; and

(2) I order the withdrawal from oil and gas leasing all areas of the Outer Continental Shelf not already subject to a valid oil and gas lease pursuant to the Outer Continental Shelf Lands Act, 43 U.S.C. § 1341(a). The Secretary of the Interior shall not issue a new lease for the exploration, development, or production of oil, natural gas, or any other fossil fuel in—

- (A) the Arctic Ocean;
- (B) the Atlantic Ocean, including the Straits of Florida;
- (C) the Pacific Ocean;
- (D) the Gulf of Mexico; or
- (E) any other area of the outer Continental Shelf.

VII. Conclusion

As President Obama has recognized, “[u]ltimately, if we’re going to prevent large parts of this Earth from becoming not only inhospitable but uninhabitable in our lifetimes, we’re going to have to keep some fossil fuels in the ground rather than burn them and release more dangerous pollution into the sky.”¹⁴⁴ The federal fossil fuel estate is the obvious and essential place where this global effort to keep fossil fuels in the ground must begin. Consequently, through this petition, Petitioners seek issuance of an Executive Order withdrawing from availability for oil and gas leasing all unleased submerged lands of the Outer Continental Shelf.

¹⁴⁴ Statement by the President on the Keystone XL Pipeline.

Respectfully submitted this 29th day of March, 2016.

| *M. A. Saul*

Michael Saul, Senior Attorney
Center for Biological Diversity
1536 Wynkoop Street, Suite 421
Denver, CO 80202
msaul@biologicaldiversity.org

On behalf of:

Center for Biological Diversity
Food and Water Watch
Friends of the Earth
Greenpeace
Oil Change International
Rainforest Action Network
Waterkeeper Alliance
Alaska Inter-Tribal Council
Alaska Rising Tide
Altamaha Riverkeeper
Apalachicola Riverkeeper
Assateague Coastal Trust
Atchafalaya Basinkeeper
Cahaba Riverkeeper
California Coastal Protection Network
Chesapeake Climate Action Network
Clean Ocean Action
Cook Inletkeeper
Courage Campaign
Crystal Coast Waterkeeper
Emerald Coastkeeper
Environmental Defense Center
Environmental Youth Council
Eyak Preservation Council
Friends of Matanzas

Gulf Restoration Network
Institute for Fisheries Resources
Kootenai Environmental Alliance
Living Rivers
Louisiana Bucket Brigade
Matanzas Waterkeeper
Miami Waterkeeper
Native Conservancy (Land Trust)
Ocean Conservation Research
Pacific Coast Federation of Fishermen's
Associations
Preserve Our Wildlife
Prince William Soundkeeper
Resisting Environmental Destruction on
Indigenous Lands (REDOIL)
Riverkeeper
Sea Turtle Oversight Protection
Seneca Lake Guardian
Suncoast Waterkeeper
Turtle Island Restoration Network
Wabash Riverkeeper Network
Whale and Dolphin Conservation
WILDCOAST
WildEarth Guardians