



**BEFORE THE
SECRETARY OF THE INTERIOR**

**PETITION FOR A MORATORIUM
ON THE LEASING OF FEDERAL
FOSSIL FUELS ON PUBLIC LANDS**

JULY 2016



Petition for a Moratorium on the Leasing of Federal Public Land Fossil
Fuels Under the Mineral Leasing Act, 30 U.S.C. §§ 226, 241

Before the United States Department of the Interior

July 12, 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. Notice of Petition

To: Secretary of the Interior, U.S. Department of the Interior, Washington, DC 20240

Through this petition, the Center for Biological Diversity, on behalf of the undersigned petitioners listed below, request that the Secretary of the Interior issue an order pursuant to her authorities and obligations under 30 U.S.C. §§ 226 and 241 imposing an immediate moratorium on the new leasing of *all* federal public land fossil fuels. Specifically, in light of Secretarial Order No. 3338 which imposed a moratorium on the leasing of coal, the requested order should address all other onshore fossil fuels and halt the offering or issuance of any new leases of federal oil, gas, tar sands, and oil shale. The moratorium should remain in effect pending completion of a comprehensive review of all federal fossil fuel leasing programs, and development 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 adopted at the 2015 United Nations Framework Convention on Climate Change Conference of the Parties (Paris Agreement).”² Such action is necessary to address the serious threats to climate, health, safety, and biodiversity posed by greenhouse gas emissions from the continued extraction and combustion of fossil fuels from the federal mineral estate.

As detailed in this petition, and reflected in recent actions by the administration related to coal, the Secretary's legal authority to impose such a moratorium is clear. 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 imposing the moratorium is equally clear.

On January 15, 2016, the Secretary 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

¹ The White House, Statement by the President on the Keystone XL Pipeline, Office of the Press Secretary (Nov. 6, 2015), <https://www.whitehouse.gov/the-press-office/2015/11/06/statement-president-keystone-xl-pipeline>

² 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”).

from climate change impacts.”³ To this end, Order 3338 directed BLM to prepare a broad, “programmatic environmental impact statement.”⁴ Order 3338 found that “Continuing to conduct lease sales 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.”⁵

Here, Petitioners request the issuance of an additional Secretarial Order extending this moratorium to the sale and issuance of any future onshore federal fossil fuel leases (coal, oil and gas, oil shale, and tar sands) until and unless it can be demonstrated that resumption of such leasing is consistent with our national and international climate goals and obligations. Petitioners further request that BLM’s analysis of these issues take the form of a programmatic environmental impact statement.

The right of an interested party to petition a federal agency 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.”⁶ Under the Administrative Procedures Act (APA), all citizens have the right to petition for the “issuance, amendment, or repeal” of an agency rule.⁷ A “rule” is the “whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy.”⁸ This petition is filed pursuant to the rulemaking petition regulation of the Department of the Interior (DOI) at 43 C.F.R. § 14.2. DOI is required by its regulations and the APA to respond to this petition in a timely manner: “The petition will be given prompt consideration and the petitioner will be notified promptly of action taken.”⁹

II. Petitioners

The Center for Biological Diversity (“the Center”) submits this Petition on behalf of itself and the Petitioners listed in Attachment 1. The Center is a nonprofit environmental organization dedicated to the protection of imperiled species and their habitats through science, education, policy, and environmental law. The Center has over 991,000 members, supporters and activists dedicated to the conservation of endangered species and wild places, protection of human health and welfare, and combating climate change. The Center submits this Petition on its own behalf,

³ U.S. Department of the Interior, Secretarial Order No. 3338 at 8 (Jan. 15, 2016).

⁴ *Id.* at 6.

⁵ *Id.*

⁶ 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).

⁷ 5 U.S.C. § 553(e); 43 C.F.R. §14.2 (Department of Interior regulation providing that “any person may petition for the issuance, amendment or repeal of a rule”).

⁸ 5 U.S.C. § 551(4).

⁹ 43 C.F.R. §14.3; *see also* 5 U.S.C. § 555(e) (“Prompt notice shall be given of the denial in whole or in part of a written application, petition, or other request of an interested person made in connection with any agency proceeding.”).

on behalf of its members and staff with an interest in protecting our national public lands and the wild habitats they encompass from the damages of further unnecessary fossil fuel extraction and the damages of climate change, and on behalf of the undersigned petitioners listed below in Attachment 1.

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

The Center for Biological Diversity
1536 Wynkoop Street, Suite 421
Denver, CO 80202
Tel: 303-915-8308

III. Introduction and Executive Summary

Petitioners formally request that pursuant to her discretionary authority over mineral leasing under of the Mineral Leasing Act of 1920, as amended, and the Mineral Leasing Act for Acquired Lands of 1947 (collectively MLA),¹⁰ the Secretary of the Interior issue an order imposing an immediate moratorium on the leasing of *all* federal public land fossil fuels. Specifically, in light of Secretarial Order No. 3338 which imposed a moratorium on the leasing of coal, the requested order should address all other onshore fossil fuels and halt the offering or issuance of any new leases of federal oil, gas, tar sands, and oil shale. The moratorium should remain in effect pending completion of a comprehensive programmatic environmental review of the entire federal public lands leasing program, and until, following such review, any future leasing can be shown to be consistent with a pathway to meeting the United States' goal of limiting global warming to well below 2°C and pursuing efforts to limit warming to 1.5°C above pre-industrial levels.

The requested moratorium is necessary to address the serious threats to climate, health, safety, and biodiversity posed by greenhouse gas emissions from the continued extraction and combustion of fossil fuels from the federal mineral estate, and to preserve a reasonable likelihood of limiting global warming to 1.5°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).¹¹ The President has acknowledged that "this agreement sends a powerful signal that the world is firmly committed to a low-carbon future."¹²

¹⁰ See 30 U.S.C. § 181-287.; *see also* Mineral Leasing Act for Acquired Lands of 1947, 30 U.S.C. § 351-360.

¹¹ 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.

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

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.¹³ As CO₂ levels continue to rise past 400 parts per million (ppm),¹⁴ 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.¹⁵ 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 Environmental Protection Agency (EPA) concluded in April 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."¹⁶

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,¹⁷ if extracted and burned, would release enough CO₂ to exceed this limit

¹³ 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).

¹⁴ 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).

¹⁵ 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").

¹⁶ 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").

¹⁷ 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 U.S. Bureau of Ocean Energy Management, Regulation and Enforcement (formerly the Minerals Management Service) 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

several times over.¹⁸ 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 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.

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 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.¹⁹ The Paris Agreement aim of limiting the temperature increase to 1.5°C requires a more stringent carbon budget of only 400 GtCO₂ from 2011 onward (of which more than 100 GtCO₂ has already been emitted)²⁰ for a 66% probability of limiting warming to 1.5°C above pre-industrial levels.²¹ Increasing the odds of meeting these targets requires meeting even stricter carbon budgets.²² Given that global CO₂ emissions in 2014 alone totaled 36 GtCO₂,²³ humanity is rapidly consuming the remaining burnable carbon budget needed to have even a 66% chance of meeting the 1.5°C temperature limit.

In order 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

and different regions.” Whitney, Gene et al., U.S. Fossil Fuel Resources: Terminology, Reporting and Summary. Cong. Research Serv., R40872 (2010)

¹⁸ 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”); Cmons, Marlene and Jeff Nesbit, Keep It In the Ground, Sierra Club et al. (Jan. 25, 2016) at 6

¹⁹ IPCC, The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; Summary for Policymakers (2013) 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? (2011) (“Carbon Tracker Initiative 2013”) available at <http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf>.

²⁰ 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).

²¹ IPCC AR5 Synthesis Report at 64 & Table 2.2.

²² See Meinshausen et al. 2009 at 1159; Carbon Tracker Initiative 2013.

²³ See Global Carbon Emissions at <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>.

for a 2°C target, and exceed the remaining budget for a 1.5°C limit.²⁴ 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.

Recent analysis shows that the potential emissions from federal fossil fuel resources are between 349 and 492 GtCO₂e, with unleased fossil fuels comprising 91% of these potential emissions.²⁵ 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.²⁶ 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.

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, the legal, political and economic hurdles of keeping federal fossil fuels in the ground are far simpler to overcome than for fossil fuels from non-federal lands; the Secretary of the Interior can simply refrain from issuing any new leases for their extraction.

The MLA, 30 U.S.C. §§ 181-287, together with the Mineral Leasing Act for Acquired Lands, 30 U.S.C. §§ 351-360, the National Environmental Policy Act, 42 U.S.C. §§ 4321-4370, and the Federal Land Policy and Management Act, 43 U.S.C. §§ 1701-1787, provides the Secretary the explicit legal authority to halt public lands fossil fuel leasing in order to respond to the threats posed by climate change. The Secretary has broad discretion under the MLA as to when, how, and if federal fossil coal,²⁷ oil and gas,²⁸ and oil shale and tar sands²⁹ may be offered

²⁴ See Mulvaney, Dustin *et al.*, The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels, EcoShift Consulting (2015) (“Mulvaney *et al.* 2015”) at 4.

²⁵ *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 GtCO₂e. The potential GHG emissions of unleased federal fossil fuel resources range from 319 to 450 492 GtCO₂e. *et al.*

²⁶ *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.

²⁷ 30 U.S.C. § 201(a)(1) (Secretary “shall, in his or her discretion,” offer coal lands for leasing); see *Arnold v. Morton*, 529 F.2d 1101 (9th Cir. 1976); *WildEarth Guardians v. Salazar*, 783 F. Supp. 2d 61, 63 (D.D.C. 2011)

for lease. This discretion has been consistently upheld by the courts.³⁰

On January 15, 2016, the Secretary issued Secretarial Order No. 3338, exercising her discretion under the MLA 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.”³¹ Order 3338 found that “Continuing to conduct lease sales 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.”³² This logic applies equally forcefully to federal oil and gas resources.

Through this petition, Petitioners seek issuance of an additional Secretarial Order extending this moratorium on coal leasing to the pause from issuance of *any* onshore federal fossil fuel leases (coal, oil and gas, oil shale, and tar sands) until and unless (a) the Department completes a Programmatic Environmental Impact Statement for the cumulative climate impacts of all federal fossil fuel leasing programs; and (b) it can be demonstrated that resumption of such leasing is consistent with our national and international climate goals and obligations.

(quoting *Indep. Petroleum Ass'n of Am. v. DeWitt*, 279 F.3d 1036, 1040 (D.C. Cir. 2002)) (Secretary is “permitted” but not require to lease particular tracts for coal mining); *see also* U.S. Department of the Interior, Secretarial Order No. 3338 at 6 (Jan. 15, 2016).

²⁸ 30 U.S.C. § 226(a) (“[a]ll lands subject to disposition under this Act which are known or believed to contain oil or gas deposits *may* be leased by the Secretary”) (emphasis added); *see also* *Udall v. Tallman*, 380 U.S. 1, 4 (1965); *United States ex rel. McLennan v. Wilbur*, 283 U.S. 414, 417 (1931); *McDonald v. Clark*, 771 F.2d 460, 463 (10th Cir. 1985); *McTiernan v. Franklin*, 508 F.2d 885, 887 (10th Cir. 1975); *Duesing v. Udall*, 350 F.2d 748, 750 (D.C. Cir. 1965); *Cont'l Land Res.*, 162 I.B.L.A. 1, 7 (2004).

²⁹ 30 U.S.C. § 241(a)(1).

³⁰ *See, e.g.* *Krueger v. Morton*, 539 F.2d 235, 238-40 (D.C. Cir. 1976); *see also* *NRDC v. Hughes*, 437 F. Supp. 981, 983-85 (D.D.C. 1977).

³¹ Secretarial Order No. 3338 at 8 .

³² Secretarial Order No. 3338 at 8 .

IV. Statutory Background

Management of federal lands is governed by the Property Clause, Article IV, § 3, cl. 2, and executive authority is exercised within the statutory framework established by an interconnected system of laws including the Federal Land Policy and Management Act, National Forest Management Act, National Wildlife Refuge Administration Act, Mineral Leasing Act, Mineral Leasing Act for Acquired Lands, Federal Onshore Oil and Gas Leasing Reform Act, Surface Mining Control and Reclamation Act, and others.

A. The Mineral Leasing Act

The modern legal status of federal onshore oil, gas, coal, and shale oil begins with the Mineral Leasing Act of 1920.³³ Prior to the MLA, fossil fuels on federal lands were generally managed as “locatable” minerals under the General Mining Law of 1872. The MLA, by contrast, provides for the private extraction of fossil fuels through a leasing system, which does not confer a unilateral private right to acquisition by discovery, prospecting, or the like. The MLA governs federal leasing of onshore oil, gas, shale, tar sands, and coal, although the system governing coal leases is distinct from that governing other fossil fuels, and is subject to additional requirements under both the Federal Coal Leasing Amendments of 1976³⁴ and the Surface Mining Control and Reclamation Act of 1977. The Mineral Leasing Act for Acquired Lands makes lands acquired by the United States also subject to the leasing provisions of the MLA.³⁵

From the enactment of the MLA until the mid-1980s, most federal oil, gas, and coal leasing was conducted on a noncompetitive basis, save within certain areas designated as “known geological structures.”³⁶ The Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA) left the fundamental statutory provisions and leasing structure of the MLA in place, but imposed an initial competitive bidding requirement on all offered leases—although leases can later be sold noncompetitively if they receive no bid at auction—as well as giving the Forest Service authority to issue or withhold consent to leasing on National Forest System lands.³⁷ The Energy Policy Act of 2005 similarly left the basic leasing structure in place, with minor amendments.³⁸

Federal coal leasing is principally governed by the MLA, 30 U.S.C. § 201, which authorizes the Secretary of the Interior to “in his discretion, upon the request of any qualified applicant or on his own motion, from time to time, offer such lands for leasing.”³⁹ All Coal

³³ 30 U.S.C. §§ 181-287.

³⁴ See 30 U.S.C. § 201.

³⁵ 30 U.S.C. § 352 (acquired lands “may be leased by the Secretary under the same conditions as contained in the leasing provisions of the mineral leasing laws”).

³⁶ See Beneke, Patricia J., *The Federal Onshore Oil and Gas Leasing Reform Act of 1987: A Legislative History and Analysis*, 4 J. Min. L. & Pol’y (1988).

³⁷ See 30 U.S.C. §§ 188, 195, 226.

³⁸ See 43 U.S.C. §§ 15927, 15942.

³⁹ 30 U.S.C. § 201(a)(1). See also Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. §§ 1201-1328.

leasing today occurs not in formally designated coal-producing regions⁴⁰, but through a nomination process known as leasing-by-application.⁴¹ The lease-by-application program, however, clearly preserves the Secretary's full statutory discretion to reject any lease, and indeed requires rejection if the issuance of the lease would be contrary to the public interest.⁴² On January 15, 2016, the Secretary exercised this authority to pause most federal coal leasing in order to allow "the BLM to conduct a broad, programmatic review of the Federal coal program it administers."⁴³

The equivalent statutory provisions governing discretion over federal oil, gas, tar sands, and oil shale leasing are 30 U.S.C. §§ 226(a) and 241, which provides simply that "[a]ll lands subject to disposition under [the MLA] which are known or believed to contain oil or gas deposits may be leased by the Secretary,"⁴⁴ and that "[t]he Secretary of the Interior is hereby authorized to lease to any person or corporation qualified under this chapter any deposits of oil shale, and gilsonite (including all vein-type solid hydrocarbons) belonging to the United States and the surface of so much of the public lands containing such deposits, or land adjacent thereto, as may be required for the extraction and reduction of the leased minerals, under such rules and regulations, not inconsistent with this chapter, as he may prescribe."⁴⁵

The Bureau of Land Management (BLM) is the agency responsible for leasing all lands subject to disposition under the MLA, including Forest Service lands. FOOGLRA and its implementing regulations additionally require Forest Service consent prior to BLM leasing of National Forest System Lands.⁴⁶ Although the MLA states that, for oil and gas, "[l]ease sales shall be held for each State where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary,"⁴⁷ quarterly leasing is not required if no lands are "eligible" and "available" due to factors including withdrawal from the operation of the MLA under FLPMA, allocation decisions under an applicable land management plan, need for additional environmental review, or exercise of

⁴⁰ See U.S. Bureau of Land Management, Coal Operations, http://www.blm.gov/wo/st/en/prog/energy/coal_and_non-energy.html (accessed Apr 29, 2016) ("[B]ecause demand for new coal leasing in recent years has been associated with the extension of existing mining operation on authorized federal coal leases, all current leasing is done by application.")

⁴¹ See 43 C.F.R. Subpart 3425.

⁴² See 43 C.F.R. § 3425.1-8 ("An application for a lease shall be rejected in total or in part if the authorized officer determines that . . . leasing of the lands covered by the application, for environmental or other sufficient reasons, would be contrary to the public interest."); see also *Arnold v. Morton*, 529 F.2d 1101, 1105 (9th Cir. 1976) ("It is quite evident that the Secretary has no obligation to issue any lease on public lands."); *WildEarth Guardians v. Salazar*, 783 F. Supp. 2d 61, 63 (D.D.C. 2011) (quoting *Indep. Petroleum Ass'n of Am. v. DeWitt*, 279 F.3d 1036, 1040 (D.C. Cir. 2002)) (Secretary is "permitted" but not required to lease particular tracts for coal mining).

⁴³ U.S. D.O.I. Secretarial Order No. 3338 at 7.

⁴⁴ 30 U.S.C. § 226(a); see also 30 U.S.C. § 352 (acquired lands "may be leased by the Secretary under the same conditions as contained in the leasing provisions of the mineral leasing laws").

⁴⁵ 30 U.S.C. § 241(a)(1).

⁴⁶ See 30 U.S.C. § 226(h); 43 C.F.R. § 3101.7(c).

⁴⁷ 30 U.S.C. § 226(b)(1)(A).

Secretarial discretion.⁴⁸

There is a long line of judicial decisions interpreting 30 U.S.C. § 226 as conferring on the Secretary discretion whether or not to offer any particular lands for lease.⁴⁹ FOGLRA did not repeal or alter this authority. The one court to consider a claim that FOGLRA reduced Secretarial discretion over the decision whether or not to lease rejected this argument, finding that the 1987 switch to a competitive bidding system did not alter the Secretary's fundamental discretion as to which leases she will offer up for bid.⁵⁰

The sole appellate court to address the question squarely has held that a decision to reject or defer action on federal oil and gas leasing is within the bounds of valid Secretarial discretion.⁵¹ In *Bob Marshall Alliance v. Hodel*, the Court of Appeals held:

the Mineral Leasing Act gives the Interior Secretary discretion to determine which lands are to be leased under the statute. 30 U.S.C. § 226(a) (1982); see *Mountain States*, 499 F. Supp. at 391-92. We have held that the Mineral Leasing Act "allows the Secretary to lease such lands, but does not require him to do so The Secretary has discretion to refuse to issue any lease at all on a given tract." *Burglin v. Morton*, 527 F.2d 486, 488 (9th Cir. 1975) (citing *Udall v. Tallman*, 380 U.S. 1, 4, (1965)), cert. denied, 425 U.S. 973, (1976). Thus refusing to issue the Deep Creek leases, far from removing Deep Creek from the operation of the mineral leasing law, would constitute a legitimate exercise of the discretion granted to the Interior Secretary under that statute.⁵²

The Department of the Interior has similarly previously, and repeatedly, utilized its

⁴⁸ See 43 C.F.R. § 3120.1-1; U.S. Bureau of Land Management, Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews, Instruction Memorandum No. 2010-117, § III.A & n.viii (2010) ("Eligible lands include those identified in 43 CFR 3120.1-1 as being available for leasing (BLM Manual 3120, Competitive Leases). They are considered available for leasing when all statutory requirements have been met, including compliance with the NEPA, appropriate reviews have been conducted, and lands have been allocated for leasing in the RMP (BLM Handbook H-3101-1, Issuance of Leases).")

⁴⁹ See, e.g., *Udall v. Tallman*, 380 U.S. 1, 4 (1965); *United States ex rel. McLennan v. Wilbur*, 283 U.S. 414, 417 (1931); *McDonald v. Clark*, 771 F.2d 460, 463 (10th Cir. 1985); *McTiernan v. Franklin*, 508 F.2d 885, 887 (10th Cir. 1975); *Duesing v. Udall*, 350 F.2d 748, 750 (D.C. Cir. 1965); *Cont'l Land Res.*, 162 I.B.L.A. 1, 7 (2004).

⁵⁰ *Western Energy Alliance v. Salazar*, 709 F.3d 1040, 1044 (10th Cir. 2013) ("Before the MLA was amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987 . . . it was well established that the Secretary had extremely broad discretion and was not obligated to issue any lease on public lands "[t]he MLA, as amended by the Reform Act of 1987, continues to vest the Secretary with considerable discretion to determine which lands are 'to be leased' under § 226(b)(1)(A)."); compare *Impact Energy Resources, LLC v. Salazar*, No. 2:09-CV-435, 2010 U.S. Dist. LEXIS 91095, at *16 (D. Utah Aug. 31, 2010), *aff'd on other ground*, 693 F.3d 1239 (10th Cir. 2012) (stating that it is "undisputed that . . . prior to a lease sale the Secretary has discretion to decide which lands will be offered for lease.")

⁵¹ See *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1229-30 (9th Cir. 1988) (rejecting holdings in *Mountain States Legal Found. v. Hodel*, 668 F. Supp. 1466, 1474 (D. Wyo. 1987) (finding that delay in processing leasing proposals can constitute an impermissible withdrawal of public lands) and *Mountain States Legal Found. v. Andrus*, 499 F. Supp. 383, 391 (D. Wyo. 1980) (same)).

⁵² *Bob Marshall Alliance*, 852 F.2d at 1230.

discretionary authority over mineral leasing to impose a nationwide coal leasing moratorium.⁵³ Significantly, the District of Columbia Circuit upheld the validity of a 1970-76 moratorium on new coal leases, part of a series of various moratoria from 1970 to 1981.⁵⁴ Under the pre-1976 “preference right” coal leasing scheme, speculation on coal leases was widespread. Even prior to the enactment of the 1976 Coal Leasing Amendments and the Surface Mining Control and Reclamation Act, the Department of the Interior recognized widespread problems, and in 1973, the then Secretary issued Order No. 2952, which provided:

In the exercise of my discretionary authority under Section 2(b) of the Mineral Leasing Act, as amended (30 U.S.C. § 201(b)), I have decided not to issue prospecting permits for coal under that section until further notice and to reject pending applications for such permits in order to allow the preparation of a program for the more "orderly" development of coal resources upon the public lands of the United States under the Mineral Leasing Act, with proper regard for the protection of the environment.

Accordingly, no prospecting permits for coal under Section 2(b) of the Mineral Leasing Act, *supra*, shall be issued until further notice. All pending applications for such permits shall be rejected. . . .⁵⁵

During this moratorium, the Interior Department undertook preparing a series of national and local Environmental Impact Statements (EISs) for coal leasing. Lease applicants, however, challenged the moratorium on two principal grounds: first, that the moratorium failed to implement the policy of the Mining and Minerals Policy Act of 1970⁵⁶ to “foster and encourage the development of coal resources,” and second, that the Secretary arbitrarily and capriciously determined that the moratorium did not require preparation of an EIS under the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4332. The court in *Krueger v. Morton*⁵⁷ rejected both of these claims, finding that “the Secretary had the right, before receiving or approving applications, to order a pause for refreshment of his judgment by further investigation, public input, comprehensive consideration, and rulemaking directed toward the hopefully better implementation of the Mineral Leasing Act in light of NEPA and other significant factors.”⁵⁸

Although the moratorium eventually ended and coal leasing resumed, the courts did require the Secretary through the EIS process to at least consider the alternative of *not* resuming the national coal leasing program.⁵⁹ Secretarial Orders 2952 and 3338 provide a clear model for

⁵³ See *NRDC v. Hughes*, 437 F. Supp. 981, 983-85 (D.D.C. 1977) (discussing history and reform of coal leasing).

⁵⁴ See *Krueger*, 539 F.2d 235, 238-40 (D.C. Cir. 1976); see also *NRDC v. Hughes*, 437 F. Supp., 983-85.

⁵⁵ United States Department of the Interior, Secretarial Order 2952 (Feb. 1973); see also *Krueger*, 539 F.2d at 237.

⁵⁶ 30 U.S.C. § 21a.

⁵⁷ *Krueger*, 539 F.2d 235 (D.C. Cir. 1976).

⁵⁸ *Id.* at 239.

⁵⁹ See *NRDC v. Hughes*, 437 F.Supp. at 990-91 (requiring DOI to address “the threshold question as to *whether* the proposed [coal leasing] policy is even *necessary*”)

an approach to the national deferral of oil and gas leasing pending comprehensive review of the climate consequences of the federal fossil fuel leasing program and implementation of a national strategy to limit such impacts. As the court held in *Krueger*, the Secretary has the right pursuant to 30 U.S.C. §§ 201 and 226, to order a “pause for refreshment of her judgment” of the leasing program in order to ensure any renewed leasing program is consistent with our nation's climate goals.

On January 15, 2016, the Secretary issued Order No. 3338, again pausing the coal leasing program for review and reconsideration, explicitly including the impacts of climate change resulting from coal combustion:

The United States has pledged to the United Nations Framework Convention on Climate Change (UNFCCC) to reduce its greenhouse gas (GHG) emissions by 26-28 percent below 2005 levels by 2025. The Obama Administration has made, and is continuing to make, unprecedented efforts to reduce GHG emissions in line with this target through numerous measures. Numerous scientific studies indicate that reducing GHG emissions from coal use worldwide is critical to addressing climate change.

At the same time, as noted above, the Federal coal program is a significant component of overall United States' coal production. Federal coal represents approximately 41 percent of the coal produced in the United States, and when combusted, it contributes roughly 10 percent of the total U.S. GHG emissions.

Many stakeholders highlighted the tension between producing very large quantities of Federal coal while pursuing policies to reduce U.S. GHG emissions substantially, including from coal combustion. Critics also noted that the current leasing system does not provide a way to systematically consider the climate impacts and costs to taxpayers of Federal coal development.

With respect to the climate impacts of the Federal coal program, the PEIS should examine 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.⁶⁰

Congress has plainly conferred on the Secretary, and the courts have recognized, equivalent discretionary authority under 30 U.S.C. §§ 226 and 241 as to whether or not to issue leases for, oil, gas, tar sands, or oil shale under those sections. In order to permit a

⁶⁰ U.S. D.O.I. Secretarial Order No. 3338 at 4, 8.

comprehensive nationwide evaluation of and response to the threat of climate change, the Secretary can and should, via Secretarial Order, defer action all new and pending applications and nominations for such leases, in order to conduct a comprehensive review of the entire federal fossil fuel leasing program, and to promulgate rules and policies ensuring that any new federal coal, oil, gas, tar sand, and oil shale leasing, and the emissions resulting from the extraction and combustion of federal fossil fuels, are consistent with a pathway to limit warming to 1.5°C above pre-industrial levels.

B. The National Environmental Policy Act

The National Environmental Policy Act (NEPA), 43 U.S.C. §§ 4331-4347, requires federal agencies to inform themselves and the public of the direct, indirect, and cumulative effects of all major federal actions, and to consider alternatives, including no action, to proposed actions.⁶¹ The indirect and cumulative effects of federal public land leasing policy plainly include, as set forth below, a significant national and global contribution to greenhouse gas emissions. The Department of Interior can best satisfy its obligation to consider the cumulative impacts of fossil fuel gas leasing by preparing a Programmatic Environmental Impact Statement considering all onshore fluid mineral leasing. Indeed, the Council on Environmental Quality's recent "Guidance on Effective Use of Programmatic NEPA Reviews" explains that programmatic NEPA review is appropriate when agencies must evaluate "multiple actions," including "similar actions or projects in a region *or nationwide*."⁶² The Department has already determined that a Programmatic Environmental Impact Statement is the appropriate method for evaluating the climate impacts of federal coal leasing.⁶³

V. Reasons for Action on Petition

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"⁶⁴ 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*

⁶¹ See, e.g., 40 C.F.R. §§ 1500.1(b), 1502.4, 1502.5, 1506.10, 1508.7 and 1508.25; *Center for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1221-23 (9th Cir. 2008)

⁶² Council on Environmental Quality, Memorandum Re: Effective use of Programmatic NEPA Reviews 14 (Dec. 18, 2014), *available at* https://www.whitehouse.gov/sites/default/files/docs/effective_use_of_programmatic_nepa_reviews_final_dec2014_searchable.pdf.

⁶³ Secretarial Order 3338.

⁶⁴ Paris Agreement, Art. 2(1).

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).⁶⁵

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.”⁶⁶

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 agencies similarly stated that “[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”⁶⁷ 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.”⁶⁸ 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.”⁶⁹

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.⁷⁰

⁶⁵ Paris Agreement, Decision, Recitals.

⁶⁶ IPCC AR5 Synthesis Report at 2.

⁶⁷ Melillo, Jerry M., *Climate Change Impacts in the United States: The Third National Climate Assessment*, Terese (T.C.) Richmond, and Gary W. Yohe, Eds., U.S. Global Change Research Program, doi:10.7930/J0Z31WJ2 (2014) (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.).

⁶⁸ Third National Climate Assessment at 10.

⁶⁹ National Research Council, *Advancing the Science of Climate Change* (2010), available at www.nap.edu. (“Advancing the Science of Climate Change”) at 2.

⁷⁰ Third National Climate Assessment at 2.

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*).⁷¹

These impacts emanating from the extraction and combustion 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 from fossil fuel combustion 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.”⁷² In finding that climate change endangers public health and welfare, EPA has acknowledged the overwhelming evidence of the documented and projected effects of climate change upon the nation:

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.”⁷³

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.”⁷⁴

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.”⁷⁵

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

⁷¹ IPCC AR5 Synthesis Report at 46.

⁷² Final Endangerment Finding, 74 Fed. Reg. at 66,497.

⁷³ Final Endangerment Finding, 74 Fed. Reg. at 66,497

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

⁷⁵ Final Endangerment Finding at 66,497-98.

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.”⁷⁶

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 impacts also endangers public welfare, with an increasing risk of greater adverse impacts in the future.”⁷⁷

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.”⁷⁸

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.”⁷⁹

In addition to these acknowledged impacts on public health and welfare generally, climate change is causing and will continue to cause serious impacts on natural resources that the

⁷⁶ Final Endangerment Finding at 66,498.

⁷⁷ Final Endangerment Finding at 66,498

⁷⁸ Final Endangerment Finding at 66,498

⁷⁹ Final Endangerment Finding at 66,498 *see also* Third National Climate Assessment at 195-219.

Department of Interior is specifically charged with safeguarding.⁸⁰

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.⁸¹ 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.⁸² 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 permafrost.⁸³ In Florida, the Everglades face severe ecosystem disruption from already-occurring saltwater incursion.⁸⁴ 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.⁸⁵ 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.⁸⁶ 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

⁸⁰ 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.

⁸¹ 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).

⁸² U.S. Environmental Protection Agency, Climate Change and Public Lands: National Parks at Risk (1999).

⁸³ 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.

⁸⁴ 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.

⁸⁵ National Climate Assessment at 13.

⁸⁶ See Parmesan, C. and G. Yohe, A globally coherent fingerprint of climate change impacts across natural systems, 421 Nature 37 (2003); Root, T. *et al.*, Fingerprints of global warming on wild animals and plants, 421 Nature 57 (2003); Chen, I. *et al.*, Rapid range shifts of species associated with high levels of climate warming, 333 Science 1024 (2011).

exceeds 3.5°C relative to 1980-1999.⁸⁷

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 the Secretary of the Interior is charged with safeguarding. 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

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 so as to avoid dangerous climate change.⁸⁸ As the United States has signed the treaty on April 22, 2016⁸⁹ as a legally binding instrument through executive agreement,⁹⁰ 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.⁹¹

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.”⁹² 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

⁸⁷ IPCC, 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.)] (2007). 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 (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 Proc. Natl. Acad. Sci. 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 (2011).

⁸⁸ Paris Agreement, Art. 2.

⁸⁹ 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).

⁹⁰ *See* United Nations Treaty Collection, Chapter XXVII, 7.d Paris Agreement, List of Signatories; 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>.

⁹¹ 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.

⁹² *Id.*, Recitals.

accordance with best available science,”⁹³ imperatively commanding that developed countries specifically “should continue taking the lead by undertaking economy-wide absolute emission reduction targets”⁹⁴ and that such actions reflect the “highest possible ambition.”⁹⁵

The Paris Agreement codifies the international consensus that climate change is an “urgent threat” of global concern,⁹⁶ 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”⁹⁷ (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.⁹⁸ 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.⁹⁹ 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.¹⁰⁰ As scientists noted, the impacts associated with 2°C temperature rise have been “revised upwards, sufficiently so that 2°C now more appropriately represents the threshold between ‘dangerous’

⁹³ *Id.*, Art. 4(1).

⁹⁴ *Id.*, Art. 4(4).

⁹⁵ *Id.*, Art. 4(3).

⁹⁶ *Id.*, Recitals.

⁹⁷ *Id.*, Art. 2.

⁹⁸ 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>.

⁹⁹ 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.

¹⁰⁰ 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 Proc. Natl. Acad. Sci. 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 (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).

and ‘extremely dangerous’ climate change.”¹⁰¹ 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.

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.¹⁰² 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.¹⁰³ 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 wholly within the authority of the executive branch of the United States government, is a moratorium on new fossil fuel leasing on federal lands.

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 became an impossibility. Globally, fossil fuel reserves, if all were extracted and burned, would release enough CO₂ to exceed this limit several times over.¹⁰⁴

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 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

¹⁰¹ 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).

¹⁰² McGlade, Christophe & Ekins, Paul. The geographic distribution of fossil fuels unused when limiting global warming to 2°C, 517 Nature 187 (Jan. 2015) (“McGlade and Ekins”).

¹⁰³ 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>.

¹⁰⁴ Ciments at 6, 33 n.2.

2°C above pre-industrial levels.¹⁰⁵ Given more than 100 GtCO₂ have been emitted since 2011,¹⁰⁶ 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.¹⁰⁷

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,¹⁰⁸ 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,¹⁰⁹ 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 GtCO₂,¹¹⁰ 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.¹¹¹

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. While there is significant variation in estimates, all recent scientific analyses have concluded that global fossil fuel reserves and resources far exceed the carbon budgets needed to stay below a 1.5° or 2°C temperature target.¹¹²

Two recent studies estimated that oil, gas, and coal resources considered currently economically recoverable contain potential greenhouse gas emissions estimated at 2,900

¹⁰⁵ IPCC AR5 Physical Science Basis at 27; IPCC AR5 Synthesis Report at 63-64 & Table 2.2.

¹⁰⁶ From 2012-2014, 107 GtCO₂ was emitted (*see* Annual Global Carbon Emissions at <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>).

¹⁰⁷ Carbon Tracker Initiative at 6; Meinshausen *et al.* 2009 at 1159

¹⁰⁸ IPCC AR5 Synthesis Report at 64 & Table 2.2.

¹⁰⁹ *Id.*

¹¹⁰ *See* Global Carbon Emissions, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>

¹¹¹ 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.* Rogelj, Joeri 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, USA Rating Assessment webpage, <http://climateactiontracker.org/countries/usa> (accessed Apr 29, 2016). Issuing new legal entitlements to explore for and extract federal fossil fuels for decades to come is wholly incompatible with such a transition.

¹¹² 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 fuel reserves that are considered currently economically recoverable with a high probability of being extracted. *See* Carbon Tracker Initiative at 2, 6.

GtCO₂¹¹³ and 4196 GtCO₂¹¹⁴ respectively. Other sources estimate even greater global fossil fuel reserves at 3,677 to 7,120 GtCO₂.¹¹⁵ 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 GtCO₂¹¹⁶ upwards to 31,353 and 50,092 GtCO₂.¹¹⁷

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.”¹¹⁸ 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.¹¹⁹

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.

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 GtCO_{2e}) to

¹¹³ McGlade and Ekins at 187-192.

¹¹⁴ Raupach, M. et al., Sharing a quota on cumulative carbon emissions. 4 Nature Climate Change 873 (2014) (“Raupach *et al*”) at Figure 2.

¹¹⁵ 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”)

¹¹⁶ McGlade and Ekins at 188.

¹¹⁷ IPCC AR5 Mitigation of Climate Change at Table 7.2.

¹¹⁸ McGlade and Ekins at 188.

¹¹⁹ Ciments at 6.

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).¹²⁰ 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.¹²¹ Federal fossil fuels represent about half (46-50%) of that total at between 349 and 492 GtCO₂e of potential emissions,¹²² and the vast majority (91%) of federal fossil fuels are still unleased.¹²³ Overall the potential greenhouse gas emissions of unleased federal fossil fuel resources are enormous, estimated at 319 to 450 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. 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.¹²⁴ One medium-range estimate of a U.S. carbon quota allocates 158 GtCO₂ to the United States, equivalent to 11% of the global carbon budget needed for a 50% chance of limiting warming to 2°C.¹²⁵ Potential emissions from unleased federal fossil fuels (319 to 450 GtCO₂e) vastly exceed even this highly non-precautionary U.S. carbon budget.

¹²⁰ See Mulvaney *et al.* 2015 at 4. Using a metric of CO₂e (which also includes the radiative forcing potential of non-CO₂ greenhouse gases such as methane), 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 GtCO₂ to GtCO₂e by applying a conversion factor of 1 GtCO₂ = 1.5 GtCO₂e based on Table 1 in Meinshausen *et al.* 2009.

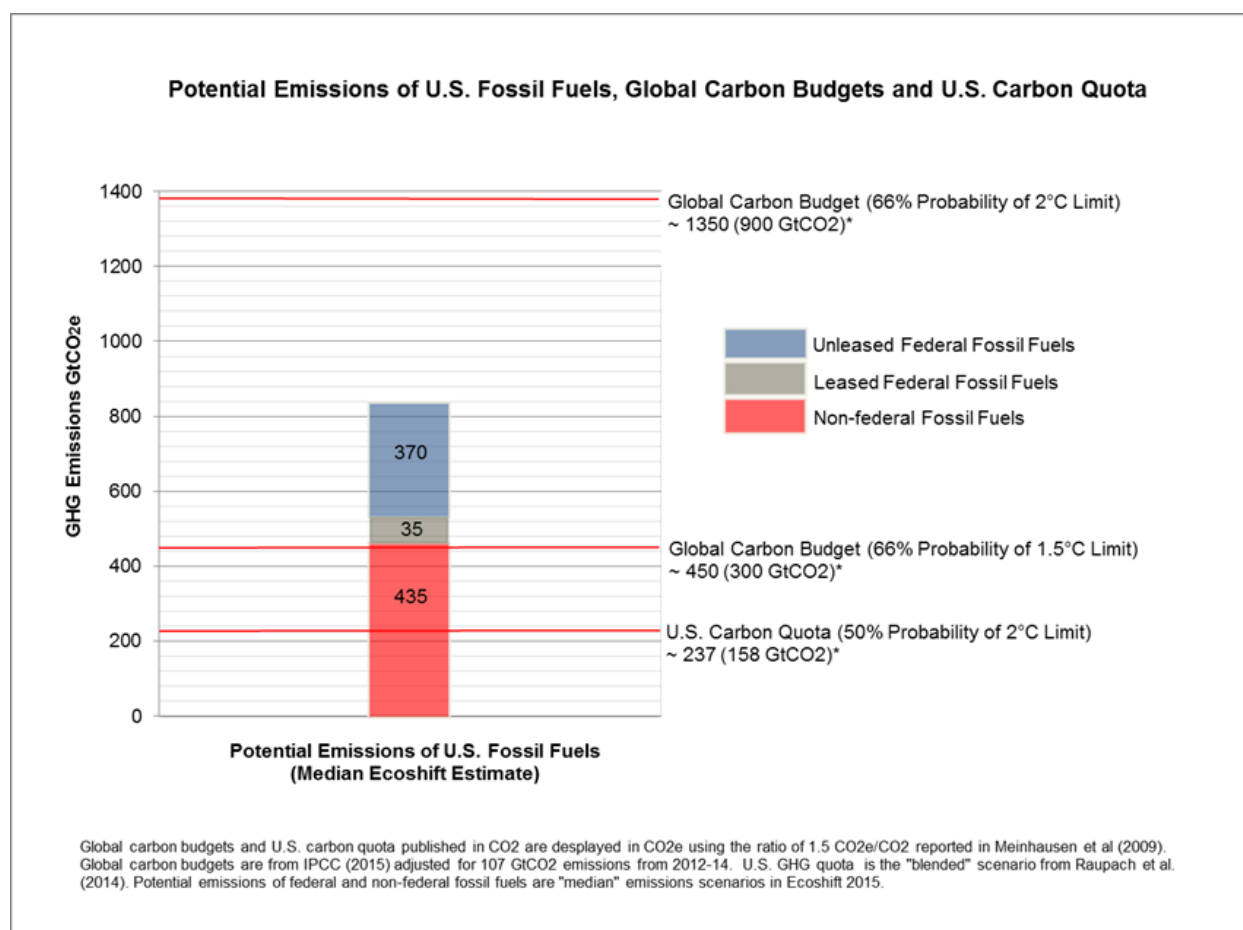
¹²¹ Mulvaney *et al.* 2015 at 19 Table 2.

¹²² *Id.* at 18.

¹²³ *Id.*

¹²⁴ See, e.g. Raupach *et al.*.

¹²⁵ 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 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..



*Figure 1: Relationship of United States Fossil Fuel Resources and Global Carbon Budgets for 1.5 and 2°C Emissions Pathways.*¹²⁶

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

¹²⁶ 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.* 2015, 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.

fuels are developed are in part beyond direct federal management under existing law,¹²⁷ 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.¹²⁸

A recent analysis of the “production horizons” for currently-leased federal fossil fuels, using the U.S. Energy Information Agency’s (“EIA”) 2016 “reference case” for fossil fuel production indicates that federal fuels under lease will remain in production long past the point global carbon budgets necessary for a 66 percent probability of remaining under 1.5°C and 2°C are exceeded.¹²⁹ Assuming global CO₂ emissions continue at 2014 rates, analysis of the EIA data indicates that federal oil under lease will remain in production through 2055, federal coal through 2041, and federal gas through 2044, greatly exceeding thresholds for a reasonable likelihood of keeping warming under 1.5°C (2021) or 2°C (2036).¹³⁰

Finally, 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, the legal, political and economic hurdles of keeping most federal fossil fuels in the ground are far simpler to overcome than for non-federal lands; the Secretary of the Interior can simply refrain from issuing any new fossil fuel leases.

2. The United States’ Path to 1.5°C Necessarily Includes Federal Fossil Fuels

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. The federal government also owns the submerged lands on the Outer Continental Shelf. 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.¹³¹ These lands and oceans, including their coal, oil, gas, oil shale, and tar sands 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.

¹²⁷ 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.

¹²⁸ 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; Cimon 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.

¹²⁹ Dustin Mulvaney *et al.*, *Over-Leased: How Production Horizons of Already Leased Federal Fossil Fuels Outlast Global Carbon Budgets*, EcoShift Consulting 2016 (“Mulvaney *et al.* 2016”).

¹³⁰ Mulvaney *et al.* 2016 at 1, 5 & Figure 1.

¹³¹ Mulvaney *et al.* 2015 at 4. For a detailed discussion of the sources, definitions, assumptions, and methodology employed in this analysis, *see* Mulvaney *et al.* 2015 at 12-17.

The fate of these federal fossil fuels, and their potential development and resulting emissions, are subject to significant executive discretion. At the direction of the executive, the Department of the Interior can affirmatively enact programs to develop these fossil fuels, further contributing to the climate crisis as they do now, or they can exercise their existing discretion and halt new federal fossil fuel leasing, 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.¹³² 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 program.¹³³ Since 2008 the Obama administration has leased more than 35 million acres of federal public lands and oceans to the fossil fuel industry, with nearly 13 million acres of that total onshore.¹³⁴ Under current resource management plans, about 90% of lands administered by the Bureau in the 11 western states are available for new oil and gas leasing,¹³⁵ with additional acres available for new federal coal, oil shale, and tar sands leases.¹³⁶ 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.¹³⁷ And these staggering numbers are just the tip of the iceberg; more that 90% of the emissions potential of the federal mineral estate is contained in fossil fuel deposits that have yet to be leased, with onshore oil, gas, tar sands, and oil shale comprising over half that total.¹³⁸ These resources contain up to 450 GtCO₂e — nearly half of the total remaining potential greenhouse emissions from all United States fossil fuel

¹³² See The White House, Obama Administration Record on an All-of-the-Above Energy Strategy, Executive Office of the President, https://www.whitehouse.gov/sites/default/files/docs/clean_energy_record.pdf (last visited Dec. 20, 2015) (last visited Dec. 20, 2015).

¹³³ 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 from Richard Heede to 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>.

¹³⁴ U.S. Energy Information Administration, Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2013 (June 2014); U.S. Bureau of Land Management, Oil and Gas Statistics (2016), available at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html.

¹³⁵ See The Wilderness Society, Open For Business: How Public Lands Management Favors the Oil and Gas Industry (2014), available at http://wilderness.org/sites/default/files/TWS%20--%20BLM%20report_0.pdf.

¹³⁶ See U.S. Department of the Interior, Approved Land use Plan Amendments/Record of Decision for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming (March 2013).

¹³⁷ Mulvaney *et al.* 2015 at 3.

¹³⁸ Mulvaney *et al.* 2015 at 18.

resources— and more than enough to propel the world far past a 1.5°C target.¹³⁹ Clearly, the current federal leasing program, if continued, is simply incompatible with any rational climate policy.

Staying within a carbon budget compatible with a 1.5°C target will necessitate leaving substantial portions of global and United States fossil fuels undeveloped. Unleased federal fossil fuel resources are among the easiest of such resources to leave in the ground, given the clear authority of the Secretary of the Interior to exercise discretion over leasing. Importantly, the issuance of additional federal fossil leases are not necessary in order 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.¹⁴⁰

Beginning the phase-out of fossil fuel production by ceasing new onshore leases for public fossil fuels would be a significant step toward the U.S. meeting the greenhouse gas emissions reduction targets announced under the Paris Agreement. The first systematic quantitative assessment of the emissions consequences of a cessation of federal leasing (both onshore and offshore) found that:

[U]nder such a policy, U.S. coal production would steadily decline, moving closer to a pathway consistent with a global 2°C temperature limit. Oil and gas extraction would drop as well, but more gradually, as federal lands and waters represent a smaller fraction of national production, and these resources take longer to develop. Phasing out federal leases for fossil fuel extraction could reduce global CO₂ emissions by 100 million tonnes per year by 2030, and by

¹³⁹Mulvaney *et al.* 2015 at 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-six times as much heat as carbon dioxide over a twenty-year period. IPCC AR5 Physical Science Basis Chapter 8 & Table 8.7. 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).

¹⁴⁰Mulvaney *et al.* 2015 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.

greater amounts thereafter.¹⁴¹

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 confers considerable discretion on the Secretary of the Interior over the potential leasing of fossil fuels. 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.

By immediately deferring all new federal fossil fuel leasing, and eventually withdrawing federal lands from availability for leasing,¹⁴² the Secretary can immediately remove somewhere between 319 and 450 GtCO₂e of unleased fossil fuels from becoming part of the pool of potential global greenhouse gas emissions.¹⁴³ She can do this now, under existing statutory authority, without Congressional action.¹⁴⁴ Fundamentally, Congress chose, in the Mineral Leasing Act and all its subsequent amendments, to vest authority in the Executive to elect when, where, and how to make oil, gas, and coal available for leasing to private developers. The courts have long and consistently recognized that discretion. 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 Secretary can and must exercise her discretion to ensure that no new leases for oil, gas, coal, oil shale, or tar sands be issued for federal public lands until a comprehensive strategy is in place to keep the United States' contributions to global greenhouse gas emissions within a range likely to limit warming to 1.5°C.

VI. Text of Proposed Order

Pursuant to 43 C.F.R. §14.2, and the reasons set forth above, Petitioners hereby request that the Secretary of the Interior issue a Secretarial Order consistent with or identical to the following proposed language:

Pursuant to my discretionary authority under the Mineral Leasing Act (e.g., 30 U.S.C §§ 201, 226, 241, 352) and other statutes, and based on the reasons discussed herein, I conclude that further evaluation, additional receipt of public input, and comprehensive consideration of the Federal public lands fossil fuel

¹⁴¹ Peter Erickson and Michael Lazarus, *How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO₂ Emissions and 2°C Goals?* 1, 31-32, Stockholm Environment Institute Working Paper 2016-02 (May 2016).

¹⁴² See 43 U.S.C. § 1714(a).

¹⁴³ Mulvaney *et al.* 2015 at 18.

¹⁴⁴ See 30 U.S.C. §§ 226(c), 241 & *supra* Part IV.

program is warranted, and accordingly, I hereby direct BLM to take the following measures:

(i) Pause on the Issuance of New Federal Fossil Fuel Leases.

a. Pending Completion of Programmatic Review. No new nominations for fossil fuel leases shall be processed, nor lease sales conducted, prior to completion of the review described in part (ii). For pending nominations, no lease sales will be held, leases issued, or modifications approved, prior to completion of the review described in part (ii).

b. After Completion of Programmatic Review. Pursuant to my discretionary authority under the Mineral Leasing Act, I hereby determine that no federal public lands shall be considered eligible or available for fossil fuel mineral leasing until the satisfactory completion of the comprehensive environmental and climate review described in part (ii) and certification, based on the information provided in that review, that leasing is consistent with the United States' goal of limiting climate change to 1.5° Celsius above pre-industrial levels.

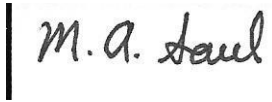
(ii) Comprehensive Programmatic Environmental Impact Statement. BLM shall prepare a Programmatic Environmental Impact Statement addressing the cumulative climate impacts of all Federal oil and gas, oil shale, tar sands, and coal leasing.

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.”¹⁴⁵ 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 a Secretarial Order placing a moratorium on the issuance of *all* onshore federal fossil fuel leases (coal, oil and gas, oil shale, and tar sands) until and unless it can be demonstrated that resumption of such leasing is consistent with our national and international climate goals and obligations.

¹⁴⁵ Statement by the President on the Keystone XL Pipeline.

Respectfully submitted this 12th day of July, 2016,

A handwritten signature in black ink that reads "M. A. Saul". The signature is written in a cursive style. To the left of the signature is a vertical line, and to the right is a horizontal line, forming a rectangular frame around the text.

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

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Jason Kowalski
Policy Director
350.org

Molly Ornati
Coordinator
350 Brooklyn

Melissa Brice
Founder
350 Chicago

Micah Parkin
Executive Director
350 Colorado

Patricia Hine
Co-founder and Director
350 Eugene

Natalie Pien
Chair
**350 Loudoun & Unitarian Universalist
Church of Loudoun Green Team**

Renate Heurich
Co-founder
350 Louisiana - New Orleans

Sarah Lachance
Organizer
350 Maine

Laurie Litman
President
350 Sacramento

Pauline Seales
Organizer
350 Santa Cruz

Brian Haberly
Board Member
350 Silicon Valley

Stephen Malagodi
President
350 South Florida

Robert Shaw
Convenor
350 Waldo County

Rosemary Carey
President
350 NJ

Deirdre Aherne
Steering Committee Member
350NYC

Natalie Shuttleworth
CEO
A Glimpse of the Wild

Lynn Ellen Marsh
President
Advocates for Cherry Valley

Tara Sumner
Vice President
Advocates for Springfield, NY

David Delk
Co-Chair
Alliance for Democracy

Ken Dolsky
Director
**Already Devalued and Devastated
Homeowners of Parsippany**

Leila Salazar-López
Executive Director
Amazon Watch

David Braun
Executive Director
Americans Against Fracking

Sarah Stewart
President
Animals Are Sentient Beings, Inc.

Laurel Brier
Apollo Kauai Energy Alliance

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Michaelann Bewsee
Executive Director
Arise for Social Justice

Dean Wilson
Executive Director
Atchafalaya Basinkeeper

Heather Cantino
Steering Committee Chair
Athens County Fracking Action Network

Chairman Larke
Director
Atlantic Energy

Clifford Krolick
Operations Leader
Back Country Excursions

Jim Lamm
President Emeritus
Ballona Creek Renaissance

Alex P. Brown
Executive Director
Bark

Marily Woodhouse
Director
Battle Creek Alliance

David Gassman
Facilitator
Bay Area System Change not Climate Change

Rebecca Casstevens
Sole Proprietor
BeanCounters Unlimited

Pat Lupo, OSB
Environmental Education and Advocacy
Director
Benedictine Sisters Erie, PA

Karen Feridun
Steering Committee Member
Berks Gas Truth

Jane Winn
Executive Director
Berkshire Environmental Action Team

Jimmy Betts
Organizer
Beyond Extreme Energy

Ed Fallon
Direcor
Bold Iowa

Sahru Keiser
Program Manager
Breast Cancer Action

Jennifer Scarlott
Coordinator
Bronx Climate Justice North

Debbie Reyes
Director
California Prison Moratorium Project

Brian Eden
Vice-Chair
Campaign for Renewable Energy

Tevyn East
Carnival de Resistance

Tom Swan
Executive Director
CCAG

David Kyler
Executive Director
Center for a Sustainable Coast

Michael Saul
Senior Attorney
Center for Biological Diversity

Aura Vasquez
Climate Justice Director
Center for Popular Democracy

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Madeline Stano
Staff Attorney
**Center on Race, Poverty & the
Environment**

Sid Robert Madison
**Central Jersey Coalition Against Endless
War**

Martha Girolami
Member
Chatham Research Group

Mary Smith
Communications Coordinator
**Church Women United in New York
State**

Ellen Rendulich
Director
**Citizens Against Ruining the
Environment**

Paul Ferrazzi
Executive Director
Citizens Coalition for a Safe Community

Georgina Shanley
Co-founder
**Citizens United for Renewable Energy
(CURE)**

Russell Zerbo
Advocacy Coordinator
Clean Air Council

Anne Butterfield
President
Clean Energy Action

Harriet Shugarman
Executive Director
ClimateMama

Victoria Furio
Convener
Climate Justice

Judith Canepa
Coordinator
Coalition Against the Rockaway Pipeline

Dave Ewoldt
Senior Analyst
Coalitions of Mutual Endeavor

Kathleen Maher
President
Coastal Monmouth Democratic Club

Karen Dike
Spokesperson
Coloradans Against Fracking

Denny Larson
**Community Science Institute for Health
and Justice**

Donald Hebbard
President and Founder
Compressor Free Franklin

Eric Banford
Co-founder
Concerned Citizens of Danby

D. Robinson
CEO
Concerned Friends of Ferry County

Eddie Kurtz
President and Executive Director
Courage Campaign

Elijah Zarin
Director of Climate Campaigns
CREDO

Carissa Miller
Campaign Associate
Daily Kos

Mavis Belisle
Board Member
Dallas Peace and Justice Center

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Mike Bucci
Member
Deep Green Resistance New York

Michael Hennen
President
Denton Drilling Awareness Group

Donna Charpied
Desert Protection Society

Anne D. Burt
Coordinator
**Down to Earth Climate Justice
Storytelling Project**

Kathleen Rogers
President
Earth Day Network

Mary Gutierrez
Executive Director
Earth Ethics, Inc.

Jennifer Krill
Executive Director
Earthworks

Spencer Veale
Project Coordinator
East Bay Community Solar Project

Peter Sawtell
Executive Director
Eco-Justice Ministries

Wanda Guthrie
Convener
**EcoJustice Working Group Thomas
Merton Center**

Tom Athanasiou
Executive Director
EcoEquity

Cara Campbell
Chair
Ecology Party of Florida

Brien Brennan
Co-founder
Elder Creek Ecological Preserve

Jill Merritt
Co-founder
Elders Rising

Colleen Boland
Co-founder
Elmirans & Friends Against Fracking

Dan Silver
Executive Director
Endangered Habitats League

Lydia Avila
Executive Director
Energy Action Coalition

Margie Alt
Environment America

Drew Hudson
Executive Director
Environmental Action

Joy Bergey
Director
**Environmental Justice Center at
Chestnut Hill United Church**

Natalynne DeLapp
Executive Director
**Environmental Protection Information
Center**

M. Neville Wall
Owner
Exodus Acres

Judi Poulson
Chair
Fairmont, MN Peace Group

Wenonah Hauter
Executive Director
Food and Water Watch

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Randy Hayes
Executive Director
Foundation Earth

Marc McCord
Executive Director
FracDallas

Patricia Popple
Organizer
**Frac Sand Sentinel/Concerned Chippewa
Citizens**

Shane Davis
Executive Director
Fractivist.org

Carol Blankenship
Director
Friends of Butternuts

Ed Friedman
Chair
Friends of Merrymeeting Bay

Erich Pica
President
Friends of the Earth

AhminaMaxey
US & Canada Campaigns & Membership
Coordinator
**GAIA: Global Alliance for Incinerator
Alternatives**

Yvonne Taylor
Vice President
Gas Free Seneca

Eric Balken
Executive Director
Glen Canyon Institute

Jaron Browne
National Organizer
Grassroots Global Justice Alliance

Randy Block
Chair
Gray Panthers, National Office

Jack Kupferman
President
Gray Panthers NYC Network

John Hadder
Director
Great Basin Resource Watch

Gloria Rivera, IHM
Coordinator
Great Lakes Bioneers Detroit

Shelley Silbert
Executive Director
Great Old Broads for Wilderness

Bradley Angel
Executive Director
**Greenaction for Health and
Environmental Justice**

Lauren Wood
Director
Green River Action Project

Verne McArthur
Liaison
**Green Team, Unitarian Universalist
Society of Greater Springfield**

Lore Rosenthal
Program Coordinator
Greenbelt Climate Action Network

Dorothy Pomponio
Groton Resource Awareness Coalition

Matt Pacenza
Executive Director
HEAL Utah

Myke Luurtsema
Co-chair
Heartwood

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Mary Turgi
Committee Chair
Holy Cross International Justice Office

F. Taylor
Coordinator
Hilton Head for Peace

Marilyn Elie
Member of the Leadership Council
Indian Point Safe Energy Coalition

Tom Goldtooth
Executive Director
Indigenous Environmental Network

Annette Marshall
Executive Director
Inner City Neighborhood Art House

Marty Landa
Organizer
Inspiration of Sedona

David Wimberly
Coordinator
It's Not Garbage Coalition

Kimberly Baker
Public Land Advocate
Klamath Forest Alliance

Joseph Vaile
Executive Director
KS Wild

Joe Uehlein
Executive Director
Labor Network for Sustainability

Al Weinrub
Coordinator
Local Clean Energy Alliance

Paul Gallimore
Director
Long Branch Environmental Education Center

Gregory Mello
Executive Director
Los Alamos Study Group

Jeff Kuyper
Executive Director
Los Padres Forest Watch

Kathy Callaway
Board Chair
Mainstreet Moms

Rachel Clark
Manhattan Project for a Nuclear-Free World

Mary Raven
Social Media Liaison
Merrimack Citizens for Pipeline Information

Kimberlee Wright
Executive Director
Midwest Advocates

Otto Butz
Founder
Milford Doers/Residents of Crumhorn Mountain

Cheryl Nenn
Riverkeeper
Milwaukee Riverkeeper

Beverly Edwards
Chair
Monadnock Energy Resources Initiative

Ty Markham
Co-Chair Director
Mormon Environmental Stewardship Alliance

April Keating
Chair
Mountain Lakes Preservation Alliance

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Beverly Braverman
Executive Director
Mountain Watershed Association, Inc.

Greg Yost
Organizer
NC PowerForward

Jim Warren
Executive Director
NC WARN

Mariel Nanasi
Executive Director
New Energy Economy

Matt Shapiro
President
New Jersey Tenants Organization

Joan Brown, OSF
Executive Director
New Mexico Interfaith Power and Light

Judith Canepa
Co-founder
New York Climate Action Group

Russ Haven
Legislative Council
**New York Public Interest Research
Group, Inc. (NYPIRG)**

Ginger Storey-Welch
Local Leader
North Country 350 Alliance

Dale Pondysh
Treasurer
North Country Veterans for Peace

Executive Director
**Nuclear Information and Resource
Service**

John LaForge
Co-director
**Nukewatch a Project of the Progressive
Foundation**

Robert Kolodny
Coordinator
NY Buddhist Climate Action Network

Edie Kantrowitz
President
NYC Friends of Clearwater

Michael Stocker
Director
Ocean Conservation Research

Diane McAvoy
Occupy The Pipeline

Heather Taylor-Miesle
Political Director
Ohio Environmental Council

Dianne Bady
Project Coordinator
Ohio Valley Environmental Coalition

David Turnbull
Campaigns Director
Oil Change International

Alexis Baden-Mayer
Political Director
Organic Consumers Association

Angela Spotts
Spokesperson
**Oklahoma Citizens for Responsible Oil &
Gas Production**

Page Atcheson
Co-Director
Oregon Climate

Kelly O'Hanley
**Oregon Physicians for Social
Responsibility**

Doug Heiken
Conservation and Restoration Director
Oregon Wild

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Kaye Fissinger
President
Our Health, Our Future, Our Longmont

Cynthia Crowner
Organizer
PA Interfaith Moral-torium Coalition

Marcia Berry
PA-IPL

Alex Levinson
Executive Director
Pacific Environment

Mary Booth
Director
Partnership for Policy Integrity

Nancy O'Byrne
Executive Director
Pax Christi Florida

Norma J.F. Harrison
Central Committee Member
Peace and Freedom Party

Jenny Lisak
Co-director
Pennsylvania Alliance for Clean Water and Air

Karen Feridun
Steering Committee Member
Pennsylvanians Against Fracking

Andrea Miller
Executive Director
People Demanding Action

Diana Wright
Facilitator
People of Albany United for Safe Energy-PAUSE

Leslie Cagan
Coordinator
People's Climate Movement-NY

Barbara Gottlieb
Director of Environment and Health
Physicians for Social Responsibility

Barbara Warren
Director
Physicians for Social Responsibility, Arizona Chapter

Shannon Gearhart, MD, MPH
Secretary/Treasurer
Physicians for Social Responsibility, New York

Margaret Flowers
Co-Director
Popular Resistance

Eve Shapiro
Progressive Democrats of America

Ellen Moore
Mining Justice Organizer
Progressive Leadership Alliance of Nevada

John H. Bradin
Steering Committee Member
QEW

Bob Musil
President and CEO
Rachel Carson Council

Lindsey Allen
Executive Director
Rainforest Action Network

Tim Keating
Executive Director
Rainforest Relief

William Kibler
Director of Policy
Raritan Headwaters

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Priscilla Mustin
Renac

Gerri Wiley
Co-founder
Residents Allied for the Future of Tioga

Kathy Redman
Organizer
Resilient Nacogdoches

Courtney Williams
Spokesperson
ResistAIM

Michael Kellett
Executive Director
RESTORE: The North Woods

Cori Redstone
Lead Organizer
Rising Tide Southern California

George Matthis
President
River Guardian Foundation

David Swanson
Campaign Coordinator
RootsAction

Jessica Wohlander
Director of Operations
Rootskeeper

Dan Becker
Director
Safe Climate Campaign

Russell Lowes
Research Director
SafeEnergyAnalyst.org

Nancy Vann
President
Safe Energy Rights Group (SEnRG)

Christian Gerlach
Volunteer Executive Director
Save Nevada's Water: Ban Fracking In Nevada

Lori Andresen
President
Save Our Sky Blue Waters

Kaitlin Butler
Program Director
Science and Environmental Health Network

Lena Moffit
Director Beyond Dirty Fuels
Sierra Club

Jen Miller
Ohio Chapter Director
Sierra Club Ohio Chapter

Anny Martinez
Environmental Education Chair
Sierra Club, New Jersey

Sara Schultz
Vice-chair
Sierra Club, Niagara Group

Sara Schultz
Co-Conservation Chair
Sierra Club, NY Chapter

Cassidy White
Alaska Climate and Renewable Energy
Organizer
Sitka Conservation Society

David Kunhardt
CEO
SolEd Benefit Corp

Joe Galliani
Founding Organizer
South Bay Los Angeles 350 Climate Action Group

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Matthew Schwartz
Executive Director
South Florida Wildlands Association

Russell Donnelly
Chairperson
**SouthEast Communities Against
Pollution (SECAP)**

Tabitha Tripp
Board of Directors
**Southern Illinoisans Against Fracturing
Our Environment**

Alan Journet
Co-facilitator
Southern Oregon Climate Action Now

Matt Krogh
Extreme Oil Campaign Director
Stand

Angela Spotts
Spokesperson and Co-founder
Stop Fracking Payne County (Oklahoma)

Robby Diesu
National Coordinator
Stop the Frack Attack Advisory Council

Collin Rees
Organizer
Students for a Just and Stable Future

Aisha Delilah
Organizer
Sugar Shack Alliance

Michael Chojnicki
President
**Sullivan Alliance for Sustainable
Development**

Shoshana Wechsler
Co-coordinator
Sunflower Alliance

Daphne Wysham
Director
Sustainable Energy & Economy Network

Kiki La Porta
President
Sustainable Marin

Gay Nicholson
President
Sustainable Tompkins

Adam Hasz
Executive Coordinator
SustainUS

Alyssa Burgin
Executive Director
Texas Drought Project

Avram Friedman
Executive Director
The Canary Coalition

Mike Petersen
Executive Director
The Lands Council

Don Ogden
Producer and Co-host
The Enviro Show

Jeremy Lent
President
The Liology Institute

Rabbi Arthur Waskow
Executive Director
The Shalom Center

Michaelann Bewsee
The Springfield Climate Justice Coalition

Dan York
Vice President
The Wildlands Conservancy

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Rabbi Michael Lerner
Founding Editor
Tikkun Magazine

James Kimball
Director
Time Laboratory

Priscilla Rich
Executive Director
Transition Express Inc.

Miriam Thompson
Labor Chair
**Triangle Branch, Women's International
League for Peace & Freedom**

Todd Steiner
Executive Director
Turtle Island Restoration Network

Taquienna Boston
Director of Multicultural Growth and
Witness
Unitarian Universalist Association

Anita Mentzer
Director
**Unitarian Universalist Pennsylvania
Legislative Advocacy Network
(UPLAN)**

Susan Soleil
Executive Director
Utah Interfaith Power & Light

Brian Moench
President
**Utah Physicians for a Healthy
Environment**

Joseph Nickolick
Elder Board Member
Valleywatch

Paddy McClelland
Director
Wall of Women Colorado

Daniel Estrin
General Counsel and Legal Director
Waterkeeper Alliance, Inc.

Elan Shapiro
Coordinating Team Member
We Are Seneca Lake

Janice Schroeder
Core Member
**West Berkeley Alliance for Clean Air and
Safe Jobs**

Janine Blaeloch
Director
Western Lands Project

Cynthia Ellis
President
West Virginia Highlands Conservancy

Erik Schlenker-Goodrich
Executive Director
Western Environmental Law Center

Travis Bruner
Executive Director
Western Watersheds Project

Kirk Robinson
Executive Director
Western Wildlife Conservancy

Regina Asmutis-Silvia
Executive Director
Whale and Dolphin Conservation

Zachary Plopper
Conservation Director
WILDCOAST

John Horning
Executive Director
WildEarth Guardians

George Nickas
Executive Director
Wilderness Watch

Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels – List of Petitioners

Jeri Bodemar
WILPF Earth Democracy, SC CAN

Christine Llewellyn
Director
Williamsburg Climate Action Network

Christine Ellis
Deputy Director
Winyah Rivers Foundation

Dace Zeps
Administrator
Wisconsin Network for Peace and Justice

Ginger Hintz
Program Manager
Women Donors Network

Osprey Orielle Lake
Executive Director
**Women's Earth and Climate Action
Network**

John Harder
President
Zero Waste Kauai

Attachment B - List of References

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 (2011).

Beneke, Patricia J., The Federal Onshore Oil and Gas Leasing Reform Act of 1987: A Legislative History and Analysis, 4 J. Min. L. & Pol'y (1988)

Carbon Tracker Initiative, Unburnable Carbon – Are the world's financial markets carrying a carbon bubble? (2011)

Chen, I. et al., Rapid range shifts of species associated with high levels of climate warming, 333 Science 1024 (2011).

Cimons, Marlene and Jeff Nesbit, Keep It In the Ground, Sierra Club et al. (Jan. 25, 2016)

Climate Accountability Institute. Memorandum from Richard Heede to Friends of The Earth and Center for Biological Diversity (2015)

Climate Action Tracker, USA Rating Assessment webpage, <http://climateactiontracker.org/countries/usa> (accessed Apr 29, 2016)

CO2.earth, Annual Global Carbon Emissions, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html> (accessed Apr 29, 2016)

DARA and the Climate Vulnerability Forum, Climate Vulnerability Monitor, 2nd Edition: A Guide to the Cold Calculus of a Hot Planet (2012).

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 (2011)

Foti, R., Met al., Signs of critical transition in the Everglades wetlands in response to climate and anthropogenic changes, 110 Proc. Natl. Acad. Sci. 6296-6300, (2013), doi:10.1073/pnas.1302558110

Frieler, K. M. et al., Limiting Global Warming to 2°C is Unlikely to Save Most Coral Reefs, Nature Climate Change, Published Online (Sep 16, 2012), doi: 10.1038/NCLIMATE1674

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)

Hare, W. W. et al., Climate Hotspots: Key Vulnerable Regions, Climate Change and Limits to Warming, 11 Regional Environmental Change 1 (2011)

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, 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 (2014)

IPCC, 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.)] (2007)

IPCC, The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; Summary for Policymakers (2013)

Jones, C. et al, Committed Terrestrial Ecosystem Changes due to Climate Change, 2 Nature Geoscience 484 (2009)

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

Maclean, I. M. D. and R. J. Wilson, Recent ecological responses to climate change support predictions of high extinction risk, 108 Proc. Natl. Acad. Sci. 12337 (2011)

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

Meinshausen, M. et al., Greenhouse gas emission targets for limiting global warming to 2 degrees Celsius, 458 Nature 1158–1162 (2009)

Melillo, Jerry M., Climate Change Impacts in the United States: The Third National Climate Assessment, Terese (T.C.) Richmond, and Gary W. Yohe, Eds., U.S. Global Change Research Program, doi:10.7930/J0Z31WJ2 (2014)

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).

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

Dustin Mulvaney *et al.*, Over-Leased: How Production Horizons of Already Leased Federal Fossil Fuels Outlast Global Carbon Budgets, EcoShift Consulting (2016).

National Oceanic and Atmospheric Administration, Recent Monthly Mean CO₂ at Mauna Loa, <http://www.esrl.noaa.gov/gmd/ccgg/trends/> (Dec. 2015).

National Research Council, Advancing the Science of Climate Change (2010)

Parmesan, C. and G. Yohe, A globally coherent fingerprint of climate change impacts across natural systems, 421 Nature 37 (2003)

Raupach, M. et al., Sharing a quota on cumulative carbon emissions. 4 Nature Climate Change 873 (2014)

Rogelj, Joeri et al., Energy system transformations for limiting end-of-century warming to below 1.5°C, 5 Nature Climate Change 519 (2015)

Root, T. et al., Fingerprints of global warming on wild animals and plants, 421 Nature 57 (2003)

Schaeffer, M. et al., Adequacy and Feasibility of the 1.5°C Long-Term Global Limit, Climate Analytics (2013)

Smith, J. B. et al., Assessing Dangerous Climate Change Through an Update of the Intergovernmental Panel on Climate Change (IPCC) ‘Reasons for Concern’, 106 Proc. Natl. Acad. Sci. 4133 (2009)

Stratus Consulting, Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters: An Update, 13 (2014)

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

The White House, Statement by the President on the Keystone XL Pipeline, Office of the Press Secretary (Nov. 6, 2015), <https://www.whitehouse.gov/the-press-office/2015/11/06/statement-president-keystone-xl-pipeline>

The White House, Statement by the President on the Paris Climate Agreement, Office of the Press Secretary (Dec. 12, 2015), <https://www.whitehouse.gov/the-press-office/2015/12/12/statement-president-paris-climate-agreement>.

The Wilderness Society, Open For Business: How Public Lands Management Favors the Oil and Gas Industry (2014)

Thomas, Chris D., et al., Extinction risk from climate change, 427 Nature 145 (2004)

U.N. Framework Convention on Climate Change Subsidiary Body for Scientific and Technological Advice, Report on the structured expert dialogue on the 2013-2015 review (2015)

U.N. Framework Convention on Climate Change, Cancun Agreement. Available at <http://cancun.unfccc.int/> (last visited Jan 7, 2015)

U.N. Framework Convention on Climate Change, Copenhagen Accord. Available at <http://cancun.unfccc.int/> (last visited Jan 7, 2015)

U.S. Bureau of Land Management, Coal Operations, http://www.blm.gov/wo/st/en/prog/energy/coal_and_non-energy.html (accessed Apr 29, 2016)

U.S. Bureau of Land Management, Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews, Instruction Memorandum No. 2010-117 (2010)

U.S. Bureau of Land Management, Oil and Gas Statistics (2015), http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html.

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>.

U.S. Department of the Interior, Approved Land use Plan Amendments/Record of Decision for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming (March 2013)

U.S. Department of the Interior, Secretarial Order No. 3338: Discretionary Programmatic Environmental Impact Statement to Modernize the Federal Coal Program (Jan. 15, 2016)

U.S. Energy Information Administration, Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2013 (June 2014)

U.S. Environmental Protection Agency, Climate Change and Public Lands: National Parks at Risk (1999)

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 (Dec. 15, 2009)

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)

United States Department of the Interior, Secretarial Order 2952 (Feb. 1973);

Veron, J. E. N. et al., The Coral Reef Crisis: The Critical Importance of <350 ppm CO₂, 58 Marine Pollution Bulletin 1428 (2009)

Warren, R. J. et al., Increasing Impacts of Climate Change Upon Ecosystems with Increasing Global Mean Temperature Rise, 106 Climatic Change 144 (2011)

Whitney, Gene et al., U.S. Fossil Fuel Resources: Terminology, Reporting and Summary. Cong. Research Serv., R40872 (2010)