

BEFORE THE PRESIDENT OF THE UNITED STATES

ADDENDUM TO PETITION

**LEGAL, FACTUAL, AND SCIENTIFIC BASIS AND JUSTIFICATION
FOR THE PRESIDENTIAL DECLARATION
OF A NATIONAL EMERGENCY ADDRESSING CLIMATE CHANGE AND
THE CONSEQUENT PROHIBITION OF U.S. CRUDE OIL EXPORTS**

APRIL 20, 2016

SUBMITTED BY THE CENTER FOR BIOLOGICAL DIVERSITY



I. INTRODUCTION

Through the legal petition (“Petition”) filed concurrently with this supporting addendum (“Addendum”) on April 20, 2016, the 350 signatories to the Petition (“Petitioners”) formally request that the President of the United States, pursuant to Sections 101(c) and 101(d)(1)(A) of Division O, Title I of the Consolidated Appropriations Act, 2016 (“2016 Appropriations Act”)¹ and the National Emergencies Act,² declare a national emergency due to the damages and threats to the United States from climate change, and pursuant to such a declaration, prohibit the export of crude oil from the United States. The requested declaration and export prohibition are necessary to address the serious threats to our climate and nation posed by the greatly expanded domestic oil development projected to result from the repeal of the crude oil export ban under the 2016 Appropriations Act.

The Center for Biological Diversity (“Petitioner”) submits this Addendum to the Petition to provide additional legal, factual and scientific basis and justification for the requested action.

II. EXECUTIVE SUMMARY

Less than a week after President Obama committed the United States to “the tireless task of combating climate change”³ by agreeing to the historic 2015 Paris Agreement,⁴ he signed the 2016 Appropriations Act, which lifted the forty year-old crude oil export ban in the United States. Before the year’s end, the first shipment of U.S. crude oil to an overseas buyer in over four decades had departed from American shores.⁵

Championed by the oil industry and officially opposed by the White House when previously presented as a stand-alone bill,⁶ the crude export ban’s repeal is projected to result in a vast increase of domestic crude oil production by as much as 3.3 million barrels per day.⁷ When combusted, that amount of oil is estimated to release more than 500 million tons of carbon pollution per year—the equivalent to the annual carbon emissions of 135 dirty coal-fired power

¹ Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, <https://www.congress.gov/114/bills/hr2029/BILLS-114hr2029enr.pdf>.

² 50 U.S.C. 1601 *et seq.*

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

⁴ United Nations Framework Convention on Climate Change, Conference of the Parties Nov. 30-Dec. 11, 2015, Adoption of the Paris Agreement, U.N. Doc. FCCC/CP/2015/L.9 (Dec. 12, 2015) [hereinafter *Paris Agreement*].

⁵ Joe Carroll & Sheela Tobben, “First U.S. Oil Export Leaves port; Marks End to 40-Year Ban” (Dec. 31, 2015), BLOOMBERG NEWS, <http://www.bloomberg.com/news/articles/2015-12-31/first-u-s-oil-export-leaves-port-marking-end-of-40-year-ban>.

⁶ Devin Henry, “White House threatens veto on crude oil exports” (Oct. 17, 2015), THE HILL, <http://thehill.com/policy/energy-environment/256261-white-house-threatens-to-veto-crude-oil-exports-bill>.

⁷ Matt Lee-Ashley & Alison Cassady, *The Environmental Impacts of Exporting More American Crude Oil* (Aug. 21, 2015), CENTER FOR AMERICAN PROGRESS, <https://www.americanprogress.org/issues/green/news/2015/08/21/119756/the-environmental-impacts-of-exporting-more-american-crude-oil/> [hereinafter *CAP Report*].

plants or over 100 million passenger cars.⁸

The impacts of greatly bolstered oil exports will be felt not only by our global climate, but also by our own land, air, and communities. The ban's repeal unleashes devastating effects on U.S. land, with the footprint of new wellpads and related infrastructure consuming upwards of 2,000 square miles over the next 15 years.⁹ Moreover, as the majority of new wells will be developed through unconventional, ultra-hazardous hydraulic fracturing ("fracking"), American communities will experience increased toxic air pollution, drinking water contamination, decimation of wildlife habitat, risk of explosions from "bomb trains" carrying crude oil cross-country, and surges in earthquakes like those caused by the oil industry in Oklahoma.¹⁰

Fortunately, the 2016 Appropriations Act provides the President the explicit legal authority to prohibit crude oil exports after declaring a national emergency. Specifically, Sections 101(c) and 101(d)(1)(A) of Division O, Title I of the 2016 Appropriations Act authorize the President to declare a national emergency, formally notice the declaration of such a national emergency in the Federal Register, and, accordingly, prohibit the export of crude oil from the United States.

Climate change is unquestionably a national emergency. As CO₂ levels continue to rise past 400 parts per million (ppm),¹¹ the ravages of global warming are becoming ever more palpable on both a national and global scale. According to Dr. James Hansen and other leading climate scientists in a recently published paper, "We conclude that the message our climate science delivers to society, policymakers, and the public alike is this: we have a *global emergency*. Fossil fuel CO₂ emissions should be reduced as rapidly as practical"¹² (emphasis added). Indeed, 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.¹³ 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 resulting from climate-

⁸ *Id.*

⁹ *Id.*

¹⁰ See CONCERNED HEALTH PROFESSIONALS OF NEW YORK & PHYSICIANS FOR SOCIAL RESPONSIBILITY, *Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking* (Oct. 14, 2015), 3 Ed., <http://concernedhealthny.org/wp-content/uploads/2012/11/PSR-CHPNY-Compendium-3.0.pdf> [hereinafter *Fracking Health Compendium*].

¹¹ NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, *Recent Monthly Average Mauna Loa CO₂*, (Dec. 2015), <http://www.esrl.noaa.gov/gmd/ccgg/trends/>.

¹² James Hansen et al., *Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2°C global warming could be dangerous*, ATMOSPHERIC CHEMISTRY AND PHYSICS, 16, 3761-3812 (2016), <http://www.atmos-chem-phys.net/16/3761/2016/>.

¹³ DARA AND THE CLIMATE VULNERABILITY FORUM, *Climate Vulnerability Monitor, 2nd Edition: A Guide to the Cold Calculus of a Hot Planet* (2012), DARA INTERNACIONAL, 62, <http://www.daraint.org/wp-content/uploads/2012/10/CVM2-Low.pdf>.

related events. As exemplified by the Environmental Protection Agency (“EPA”) in April 2009, “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”¹⁴ (emphasis added). In the seven years since the EPA’s endangerment finding, climate impacts have only gotten worse, justifying the urgent call for a national climate emergency.

In order to prevent the future catastrophic impacts of climate change on America and the world, we must leave significant fossil fuels in the ground to preempt their combustion. There is only a finite amount of greenhouse gases that can be further released into the atmosphere without rendering the Paris Agreement’s temperature target—of limiting warming to no more than 1.5°C above pre-industrial levels¹⁵ so as to avoid truly catastrophic impacts to our nation and planet¹⁶—virtually impossible. A scientific and political consensus has emerged among the climate-informed population that the vast majority of United States fossil fuels must be kept in the ground. President Obama in recent months has also clearly acknowledged this conclusion,¹⁷ taking critical steps down this path including the rejection of the Keystone XL Pipeline, the recent moratorium on coal leasing on federal lands, and the cancelation or delay of multiple federal fossil fuel lease sales.¹⁸

However, in stark contrast to these wise actions taken by the President, the repeal of the forty year-old crude oil export ban was specifically intended, and can be reasonably projected, to result in a *significant increase* in the extraction of U.S. fossil fuel resources at a time when we desperately need to *greatly reduce* such extraction.¹⁹ In light of the significant greenhouse gas emissions that would ultimately flow from the resumption of crude exports, prohibiting such exports is an essential component of efforts to limit global warming to meet the Paris Agreement targets.

The same Appropriations Act that repealed the crude export ban also contains the very authority President Obama needs to reinstate the ban, via a declaration of a national emergency. We urge

¹⁴ 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) [hereinafter *EPA Final Endangerment Finding*].

¹⁵ 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.”

¹⁶ A target of 1.5°C, while obviously more protective of the climate than a 2°C target, may itself be too high to avoid catastrophic consequences. 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 James Hanson 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).

¹⁷ THE WHITE HOUSE, Statement by the President on the Keystone XL Pipeline (Nov. 6, 2015), <https://www.whitehouse.gov/the-press-office/2015/11/06/statement-president-keystone-xl-pipeline>.

¹⁸ U.S. DEPARTMENT OF THE INTERIOR, Secretarial Order No. 3338, 8 (Jan. 15, 2016).

¹⁹ CAP Report, *supra* note 7.

President Obama to act upon this authority immediately.

This Addendum demonstrates and explains that the criteria under the 2016 Appropriations Act are clearly met for the President to declare a national emergency with respect to climate change and ban the export of U.S. crude oil.

III. LEGAL AUTHORITY & BACKGROUND OF PETITIONER

Petitioners submit this Petition, and Petitioner submits this Addendum, under the rights granted in the Constitution. The Constitution guarantees the right of an interested party to petition the President of the United States. The First Amendment states: “Congress shall make no law . . . abridging the . . . right of the people . . . to petition the Government for a redress of grievances.”²⁰

Petitioner Center for Biological Diversity is a nonprofit environmental organization dedicated to the protection of imperiled species and their habitats through science, education, policy, and environmental law. Petitioner has over 900,000 members, supporters and activists dedicated to the conservation of endangered species and wild places, and combating climate change. Petitioner submits this Addendum on its own behalf and 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 natural gas extraction and the damages of climate change.

IV. LEGAL BACKGROUND

A. THE CONSOLIDATED APPROPRIATIONS ACT OF 2016 GRANTS THE PRESIDENT LEGAL AUTHORITY TO PROHIBIT CRUDE OIL EXPORTS PURSUANT TO A NATIONAL EMERGENCY DECLARATION

On December 18, 2015, Congress passed and the President signed into law the 2016 Appropriations Act. Section 101(a) of Title I, Division O of the 2016 Appropriations Act (hereunder, “Section 101[_]”) repeals Section 103 of the Energy Policy and Conservation Act of 1975 (“EPCA”),²¹ which mandated that the President prohibit the export of crude oil from the United States save exemptions found to be in the “national interest.”²² While Section 101(b) of

²⁰ 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).

²¹ 42 U.S.C. 6201 *et seq.*

²² In response to the 1973 Arab oil embargo crisis, Congress passed EPCA to prohibit the export of crude oil and natural gas from the United States with the purpose of conserving national energy supplies and reducing the impact of energy supply disruptions. 42 U.S.C. §6201. Specifically, Section 103 of EPCA required the President to promulgate a rule “prohibiting the export of crude oil and natural gas produced in the United States” and exempt from such prohibitions exports that the President found to be in the “national interest” and the purposes of EPCA. 42 U.S.C. § 6212. The crude oil export ban was in place for forty years prior to its repeal by the 2016 Appropriations Act.

the 2016 Appropriations Act articulates a national policy that now prohibits an “official of the Federal Government [to] . . . impose or enforce any restriction on the export of crude oil,” the section explicitly grants three exceptions to this policy as provided in Sections 101(c) (*Savings Clause*) and 101(d) (*Exceptions and Presidential Authority*) of the 2016 Appropriations Act.

First, Section 101(d)(1)(A) (*Exceptions and Presidential Authority*) affirmatively grants the President authority to impose export licensing requirements or other restrictions on the export of crude oil from the United States for one-year durations if “the President declares a national emergency and formally notices the declaration of a national emergency in the Federal Register.” The one-year duration of a national emergency may be renewed for additional periods pursuant to Section 101(d)(2) of the 2016 Appropriations Act and the regulatory procedures established under the National Emergencies Act (“NEA”),²³ the statute generally governing the exercise of emergency authorities.

Second, Section 101(c) (*Savings Clause*) states that “nothing in this section [101] limits the authority of the President . . . to prohibit exports under,” among other laws,²⁴ the NEA. The NEA is legally consistent with and provides statutory support for Congress’s grant of presidential authority to declare a national emergency restricting crude oil exports enumerated in Section 101(d)(A) of the 2016 Appropriations Act. Specifically, the NEA both authorizes the President to declare a national emergency when congressional acts permit such declarations, as is the case in Section 101(d)(A) of the 2016 Appropriations Act, and establishes regulatory procedures for declaring and terminating national emergencies.²⁵ Notably, the NEA does not explicitly define the term “national emergency.”

In sum, the 2016 Appropriations Act, in both Sections 101(c) and 101(d)(A), unequivocally grants the President the emergency power to restrict crude oil exports upon a declaration of a national emergency—a declaration clearly warranted in light of the climate crisis facing the United States and the world.

B. A NATIONAL EMERGENCY DECLARATION IS SUBJECT TO THE PRESIDENT’S DISCRETION

As the 2016 Appropriations Act affirmatively grants emergency powers to the President to

²³ 50 U.S.C. 1601 *et seq.*

²⁴ Section 101(c) of the 2016 Appropriations Act also does not limit the authority of the President to prohibit crude oil exports pursuant to his inherent authorities under the Constitution. Additionally, the Savings Clause of the Appropriations Act conserves the right of the President to prohibit exports by declaring a national emergency under the International Economic Powers Act, 50 U.S.C. 1701 *et seq.* (“IEEPA”), or “regulations issued under” the statute. Specifically, the IEEPA confers authority on the President to declare a national emergency addressing international economic transactions with respect to “any unusual and extraordinary threat, which has its source in whole or substantial part outside of the United States, to the national security, foreign policy, or economy of the United States.” 50 U.S.C. § 1701.

²⁵ 50 U.S.C. § 1621.

prohibit crude oil exports, well-established principles of statutory interpretation and historical practice of presidential emergency declarations demonstrate that the President possesses wide discretion in defining a national emergency, subject only to limited congressional oversight.

1. Historical Context and Concept of National Emergencies

The explicit congressional authorization of presidential emergency powers in Section 101(d)(1) of the 2016 Appropriations Act is part of a robust lineage of statutory delegations acknowledging the President’s authority to effectively govern in times of national crisis, including war, natural disasters and even imminent financial collapse.²⁶ Congress has authorized presidential emergency powers under contexts both broader and more specific than with regard to oil exports, resulting in several dozens of national emergencies in effect today, with such emergencies activating or suspending the powers and obligations of over 160 provisions of statutory law, myriad presidential orders, and numerous federal regulations.²⁷

This long history and range of national emergencies previously invoked by presidents illustrate the breadth of the President’s discretion to define a national emergency. In terms of definition, neither the 2016 Appropriations Act nor the NEA or related statutes provide an explicit definition of the term “national emergency,” signifying the President’s discretionary authority to interpret the term. Without an enumerated statutory definition, well-established rules of statutory interpretation refer to a term’s plain language meaning to define it. Dictionary definitions of “national emergency” include “the term that is used to describe a crisis that involves the *security and safety* of the country”²⁸ and “a state of emergency resulting from a *danger or threat of danger* to a nation from foreign or domestic sources and usually declared to be in existence by governmental authority”²⁹ (emphasis added). Eminent constitutional scholar Edward S. Corwin also explained the term as connoting “the existence of conditions suddenly intensifying to the degree of *existing danger to life or well-being beyond that which is accepted as normal*”³⁰ (emphasis added).

As a way to regulate the President’s discretion on emergency declarations, Congress enacted the NEA to establish regulatory mechanisms to ensure regular congressional review of presidential

²⁶ See Harold Relyea, *National Emergency Powers*, CONGRESSIONAL RESEARCH SERVICE REPORT FOR CONGRESS (2007), 3.

²⁷ See Patrick A. Thronson, *Toward Comprehensive Reform of America’s Emergency Law Regime*, 46 U. MICH. J.L. REFORM 737, 738 (2013), 753. See also Christopher Ingraham, “The United States is in a state of emergency—30 of them, in fact”, THE WASHINGTON POST, Nov. 19, 2014, <https://www.washingtonpost.com/news/wonk/wp/2014/11/19/the-united-states-is-in-a-state-of-emergency-30-of-them-in-fact/>.

²⁸ *Definition of national emergency*, BLACK’S ONLINE LEGAL DICTIONARY, 2ND ED., <http://thelawdictionary.org/national-emergency> [hereinafter *Black’s Dictionary Definition*].

²⁹ *Definition of national emergency*, MERRIAM-WEBSTER DICTIONARY, <http://www.merriamwebster.com/dictionary/national%20emergency> [hereinafter *Webster Dictionary Definition*].

³⁰ Edward S. Corwin, *THE PRESIDENT: OFFICE AND POWERS, 1787-1957* (5th Ed. 1984), 3.

declarations of national emergencies.³¹

2. The National Emergency Exception is not Constrained by the Other Enumerated Exceptions under Section 101(d)(1) of the 2016 Appropriations Act

Section 101(d)(1) of the 2016 Appropriations Act enumerates three exceptions permitting the President to impose restrictions on crude oil exports for renewable one-year periods. Under statutory interpretation principles against surplusage and *expressio unius est exclusio alterius* (“to express one thing implies the exclusion of the other”), the list of three exceptions should be interpreted to be each distinct and exclusive of one another; otherwise, the listed exceptions are redundant and rendered surplusage.

As noted, *supra*, Section 101(d)(1)(A) permits restrictions should the President declare a national emergency in accordance with proper regulatory procedures. Section 101(d)(1)(B) provides a second exception, whereby restrictions on crude exports are permitted when applied to “1 or more countries, persons, or organizations in the context of sanctions or trade restrictions . . . imposed by the United States for reasons of national security.” Finally, Section 101(d)(1)(C) provides a third exception, whereby crude export restrictions are allowed where the Secretary of Commerce finds that the export of crude oil under the 2016 Appropriations Act has caused “material oil supply shortages or sustained oil prices significantly above world market levels” and such supply shortages or price increases have or are likely “to cause sustained material adverse employment effects.”

Statutory interpretation principles dictate that the concept of national emergency under the first enumerated exception is distinct from the narrow national security interests with respect to particular countries, persons or organizations already subject to sanctions or trade restrictions in Section 101(d)(1)(B) and global crude market dynamics interests in Section 101(d)(1)(C). The discussion, *supra*, regarding the President’s discretion in defining national emergency further illustrates that the scope of the national emergency exception is *de facto* broader than the narrowly defined contexts enumerated in the latter two exceptions. Overall, this supports a broad definition of national emergency which the President may utilize in exercising his emergency powers.

C. THE PRESIDENT POSSESSES THE LEGAL AUTHORITY UNDER THE 2016 APPROPRIATIONS ACT TO DECLARE A NATIONAL EMERGENCY TO ADDRESS CLIMATE CHANGE

As explained, *supra*, Congress unequivocally authorizes the President to exercise emergency powers to restrict U.S. crude oil exports. Section 101(d) of the 2016 Appropriations Act

³¹ See Relyea, *supra* note 25, at 3.
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provides (emphasis added):

The President may impose export licensing requirements or other restrictions on the export of crude oil from the United States for a period of not more than 1 year if . . . the President *declares a national emergency* and formally notices the declaration of a national emergency in the Federal Register. . . . Any requirement or restriction imposed . . . may be renewed for 1 or more additional periods of more than 1 year each.

There exists no provision in the 2016 Appropriations Act that constrains the President’s authority to determine what may constitute a “national emergency,” or how significant a role oil exports may contribute to that emergency. The authority and discretion to make such a declaration and export prohibition rest solely with the President.

As demonstrated in this Addendum below, the damages and threats stemming from climate change clearly constitute a “national emergency” under any rational interpretation of the phrase. Given the substantial greenhouse gas (“GHG”) emissions resulting from the expanded oil production that is expected to result from crude oil exports over the coming decades, oil exports clearly have a direct impact both on the climate itself as well as on the nation’s policies and obligations to address climate change. Consequently, consistent with the history of presidential emergency powers, the plain meaning of “national emergency,” the broad discretion afforded a president to declare a national emergency, and the urgency of the climate crisis, the President clearly has the authority to declare such an emergency here, and consistent with such a declaration, ban the export of crude oil.

V. THE PRESIDENT CAN AND MUST DECLARE A NATIONAL EMERGENCY AND PROHIBIT THE EXPORT OF CRUDE OIL

A. CLIMATE CHANGE CONSTITUTES A NATIONAL EMERGENCY

Climate change epitomizes the concept of a national—in fact, a global—emergency. The plain meaning definitions of “national emergency” entail “a crisis that involves the security and safety of the country”³² and a “danger or threat of danger to a nation,”³³ describing the existence of conditions that endanger “life or well-being beyond that which is accepted as normal.”³⁴

There is both a scientific and now global political consensus that the climate change crisis unequivocally meets such plain meaning standards. In a recent paper published in March 2016,

³² Black’s Dictionary Definition, *supra* note 27.

³³ Webster’s Dictionary Definition, *supra* note 28.

³⁴ Corwin, *supra* note 29, at 3.

Dr. James Hansen and other leading climate scientists concluded: “[T]he message our climate science delivers to society, policymakers, and the public alike is this: we have a *global emergency*. Fossil fuel CO₂ emissions should be reduced as rapidly as practical”³⁵ (emphasis added). This conclusion echoes prior scientific papers from Dr. Hansen and his colleagues describing the emergency situation: “If humanity wishes to *preserve a planet similar to that on which civilization developed and to which life on Earth is adapted*, paleoclimate evidence and ongoing climate change suggest that CO₂ will need to be reduced from its current 400 ppm to at most 350 ppm, but likely less than that”³⁶ (emphasis added). February 2016 broke global temperature records, prompting climate scientist Stefan Rahmstorf of Germany’s Potsdam Institute of Climate Impact Research, to state plainly, “We are in a kind of *climate emergency* now”³⁷ (emphasis added). Further adding a public health dimension to the climate emergency, Professor Hugh Montgomery, co-author of the 2015 Lancet Commission climate change report, concluded that climate change further poses a global “*medical emergency . . . demand[ing] an emergency response using technologies available right now*”³⁸ (emphasis added).

Fortunately, the urgency of the global scientific community has finally been echoed by the global political community. The scale and urgency of the climate crisis has been recognized by the United States and the majority of nation-states around the world. Most recently and significantly, on December 12, 2015, less than a week before the 2016 Appropriations Act was signed into law, the United States and 194 other nation-state government parties agreed to the commitments enumerated in the Paris Agreement. Critically, nearly 200 governments, signifying global consensus, acknowledged that (emphasis added):

[C]limate change represents an *urgent and potentially irreversible threat to human societies and the planet* and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions.³⁹

In light of the international consensus that climate change embodies a global emergency, climate change irrefutably constitutes a national emergency in the United States as well. Indeed, in its 2009 Final Endangerment Finding under Clean Air Act Section 202(a) (“Final Endangerment

³⁵ Hansen, *supra* note 12.

³⁶ See James Hansen et al., *Target Atmospheric CO₂: Where Should Humanity Aim?*, 2 THE OPEN ATMOSPHERIC SCIENCE JOURNAL 217, 217–31 (2008).

³⁷ Damian Carrington and Michael Slezak, “February breaks global temperatures by shocking amount” (Mar. 14, 2016), THE GUARDIAN, <https://www.theguardian.com/science/2016/mar/14/february-breaks-global-temperature-records-by-shocking-amount>.

³⁸ See Kate Kellund, “Climate change health risk is a ‘medical emergency’” (Jun. 23, 2015), REUTERS, <http://www.reuters.com/article/us-health-climatechange-idUSKBN0P22FG20150623>; see also THE LANCET, HEALTH AND CLIMATE CHANGE POLICY: POLICY RESPONSES TO PROTECT PUBLIC HEALTH (Jun. 2015), <http://www.thelancet.com/commissions/climate-change-2015>.

³⁹ Paris Agreement, Decision, Recitals.

Finding”), the EPA concluded that “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.”⁴⁰ The EPA’s findings, coupled with further scientific research from numerous authoritative sources, including the U.S. Global Climate Research Program and the National Research Council,⁴¹ paint a portrait of the existing and anticipated impacts of the climate crisis on U.S. communities—including, among many things, negative effects on basic public health and food security, biodiversity, property, and the economy. Illustrative of how climate change endangers the security and safety of Americans, these impacts unequivocally meet the plain meaning definition of a national emergency, thereby wholly justifying a presidential declaration of a national emergency addressing climate change.

1. U.S. Temperature Increases

According to the January 2016 report from the National Aeronautics and Space Administration (“NASA”) and National Oceanic and Atmospheric Administration (“NOAA”), 2015 was the hottest year in recorded history by far, breaking a record set only the year before.⁴² Even more, 2016 is forecasted to further surpass the prior year’s temperatures.⁴³ U.S. average temperatures have increased by 1.3°F to 1.9°F over the course of the last 130 years, with the vast majority of temperature rise occurring since 1970.⁴⁴ Temperatures in the U.S. are projected to rise another 24°F to 4°F over the course of the next few decades.⁴⁵

2. Increase in Extreme Weather Events in the United States

In addition to increasing average temperatures, there has been an increase, in both frequency and intensity, of extreme weather events across the country—in the form of excessively high temperatures, increased heavy downpours, and in some regions, more severe drought.⁴⁶ Further, prolonged high night-time temperatures have had negative widespread impacts on people, livestock and wildlife who experience no respite from the heat.⁴⁷ On the other end of the extreme weather spectrum, the incidence of heavy downpours and, in some regions, floods has

⁴⁰ EPA Final Endangerment Finding, 74 Fed. Reg. at 66,497.

⁴¹ See EPA Final Endangerment Finding, 74 Fed. Reg. at 66,497. See also JERRY MELILLO ET AL., U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT, 220-256 (2014), <http://nca2014.globalchange.gov/report> [hereinafter *Third National Climate Assessment*]; INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, 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 11-20, 23 [hereinafter *IPCC AR5 Synthesis Report*]; NATIONAL RESEARCH COUNCIL, ADVANCING THE SCIENCE OF CLIMATE CHANGE 309-318 (2010), www.nap.edu.

⁴² NOAA, STATE OF THE CLIMATE: GLOBAL ANALYSIS FOR DECEMBER 2015 (2016), <http://www.ncdc.noaa.gov/sotc/global/201512>.

⁴³ “Forecast expects 2016 to be among the warmest years” (Dec. 17, 2015), UK MET OFFICE, <http://www.metoffice.gov.uk/news/releases/archive/2015/global-temperature>.

⁴⁴ Third National Climate Assessment, *supra* note 41, at 28.

⁴⁵ *Id.* at 29.

⁴⁶ *Id.* at 15.

⁴⁷ *Id.* at 9.

substantially risen, leading in many U.S. regions to runoff that exceeded capacity of storm drains and levees, and caused flooding events and accelerated erosion.⁴⁸ Bolstering the evidence that these effects constitute a national emergency, the EPA’s Final Endangerment Finding concludes: “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.”⁴⁹

3. Sea-level Rise Impacts on U.S. Communities

The rise of global sea levels resulting from human-induced climate change directly threatens America’s coastal communities, which constitute more than half of U.S. residents.⁵⁰ Global average sea level has risen by about 8 inches during this past century; it is projected to rise by another 1 to 4 feet *this* century, and 6.6 feet is possible.⁵¹ In concrete terms, this sea level rise, combined with coastal storms, has already increased the risk of erosion, storm surge damage and flooding for coastal communities, especially along the Gulf Coast, the Atlantic seaboard and in Alaska.⁵² Further sea level rise is projected to impact nearly five million Americans and hundreds of billions of dollars of property—including coastal infrastructure like roads, rail lines, energy infrastructure, airports, port facilities, and military bases—located in areas that are less than four feet above the local high-tide level.⁵³ Such impacts are even greater if storms increase in intensity as predicted.⁵⁴

4. Climate Impacts on U.S. Public Health, Especially for the Most Vulnerable Populations

Climate change threatens the basic human health and well-being of U.S. communities—particularly, the most vulnerable populations of low-income and minority communities, children, the elderly, and the sick.⁵⁵ With respect to climate change impacts on air quality, climate change is expected to increase the air pollution components that trigger asthma attacks, specifically air particulates and ozone.⁵⁶ Projected climate-related increases in ground-level ozone concentrations in 2020 could lead to an average of 2.8 million more occurrences of acute respiratory symptoms, 944,000 more missed school days, and over 5,000 more hospitalizations

⁴⁸ *Id.* at 9.

⁴⁹ EPA Final Endangerment Finding, 74 Fed. Reg. at 66,497-98.

⁵⁰ NOAA, *U.S. Census report finds increases in coastal population growth by 2020 likely, putting more people at risk of extreme weather*, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (March 25, 2013), http://www.noaanews.noaa.gov/stories2013/20130325_coastalpopulation.html.

⁵¹ Third National Climate Assessment, *supra* note 41, at 9, 45.

⁵² *Id.* at 9.

⁵³ *Id.* at 10.

⁵⁴ *Id.*

⁵⁵ *See, generally*, Third National Climate Assessment, *supra* note 41.

⁵⁶ A.S. Bernstein & S. S. Myers, *Climate Change and Children’s Health*, CURRENT OPINION IN PEDIATRICS 23:221–6 (2011).

for respiratory-related problems.⁵⁷ These results are particularly devastating for vulnerable populations already living in areas of nonattainment. According to the EPA Final Endangerment Finding, climate change impacts of “[i]ncreases in ambient ozone are expected . . . to increase serious adverse health effects in large population areas that are and may continue to be in nonattainment,”⁵⁸ exacerbating their public health conditions.⁵⁹

The rise in extreme weather events has directly led to fatalities and a variety of related public health impacts, including mental health impacts like increased anxiety and post-traumatic stress disorder.⁶⁰ Heat is already the leading cause of weather-related deaths in the United States, and a recent study estimated that more than 150,000 Americans may die by the end of the century due to excessive heat caused by climate change.⁶¹ According to the EPA Final Endangerment Finding, the rise of average temperatures and heat waves alone have led to increased “mortality and morbidity . . . [which] also provide[] support for a public health endangerment finding.”⁶² Extreme precipitation, which has increased in the Midwest, South and other regions by 50% mostly over the last few decades,⁶³ poses significant human health risks including contaminated drinking water leading to disease outbreaks, drowning, and mold-related illnesses.⁶⁴ An increase in the intensity of Atlantic hurricanes would also have severe health risks; more than 2,000 Americans were killed in the 2005 hurricane season, more than double the average number of lives lost to hurricanes in the United States over the previous 65 years.⁶⁵ Moreover, climate change has resulted in the spread of infectious and waterborne diseases, including the re-emergence of health threats that are currently uncommon in this country like dengue fever⁶⁶ and lyme disease.⁶⁷

5. Climate Change Impacts on U.S. Biodiversity, Ecosystems, and Public Lands

U.S. ecosystems and biodiversity are directly under siege from climate change—leading to the loss of iconic species and landscapes and the degradation of entire ecosystems.⁶⁸ Scientific evidence shows that climate change is already causing many animals and plants to move

⁵⁷ UNION OF CONCERNED SCIENTISTS, RISING TEMPERATURES AND YOUR HEALTH: RISING TEMPERATURES, WORSENING OZONE POLLUTION (2011), http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/climate-change-and-ozone-pollution.pdf.

⁵⁸ EPA Final Endangerment Finding, 74 Fed. Reg. at 66,497.

⁵⁹ *Id.*

⁶⁰ Third National Climate Assessment, *supra* note 41, at 16.

⁶¹ Peter Altman et al., *Killer Summer Heat: Projected Death Toll from Rising Temperatures in America Due to Climate Change*, NATURAL RESOURCES DEFENSE COUNCIL ISSUE BRIEF (May 2012), <http://www.nrdc.org/globalwarming/killer-heat/files/killer-summer-heat-report.pdf>.

⁶² *Id.*

⁶³ JERRY MELILLO ET AL., U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES (2009), <http://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/karl%20et%20al%202009.pdf>.

⁶⁴ UNION OF CONCERNED SCIENTISTS, *supra* note 57.

⁶⁵ U.S. GLOBAL CHANGE RESEARCH PROGRAM., *supra* note 63.

⁶⁶ *Id.* at 16.

⁶⁷ Bernstein et al., *supra* note 56.

⁶⁸ *Id.* at 13.

poleward and upward in elevation, shift their timing of breeding and migration, and suffer population declines and extirpations.⁶⁹ According to the Third National Climate Assessment, “landscapes and seascapes are changing rapidly, and species, including many iconic species, may disappear from regions where they have been prevalent or become extinct, altering some regions so much that their mix of plant and animal life will become almost unrecognizable”.⁷⁰ 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 Intergovernmental Panel on Climate Change (“IPCC”) concluded that 20% to 30% of plant and animal species will face an increased risk of extinction if global average temperature rise exceeds 1.5°C to 2.5°C relative to 1980-1999, with an increased risk of extinction for up to 70% of species worldwide if global average temperature exceeds 3.5°C relative to 1980-1999.⁷¹ And, according to the EPA Final Endangerment Finding, “Over the 21st century, changes in climate will cause some species to shift north and to higher elevations and fundamentally rearrange U.S. ecosystems . . . leading to predominantly negative consequences for biodiversity and the provision of ecosystem goods and services.”⁷²

Further, the ocean’s absorption of anthropogenic CO₂ has already resulted in more than a 30% increase in the acidity of ocean surface waters,⁷³ at a rate likely faster than anything experienced in the past 300 million years. Ocean acidity could increase by 150% to 200% by the end of the century if CO₂ emissions continue unabated.⁷⁴ Ocean acidification negatively affects a wide range of marine species by hindering the ability of calcifying marine creatures to build protective

⁶⁹ See C. Parmesan & G. Yohe, *A globally coherent fingerprint of climate change impacts across natural systems*, NATURE 421, 37–42 (2013); T. Root et al., *Fingerprints of global warming on wild animals and plants*, NATURE 421, 57–60 (2003); I.C. Chen, *Rapid range shifts of species associated with high levels of climate warming*, SCIENCE 333, 1024–1026 (2011); I.M.D. Maclean & R. J. Wilson, *Recent ecological responses to climate change support predictions of high extinction risk*, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 108, 12337-42 (2011); R. Warren, et al., *Quantifying the benefit of early climate change mitigation in avoiding biodiversity loss*, NATURE CLIMATE CHANGE 3, 678-82 (2013); A.E. Cahill et al., *How does climate change cause extinction?*, PROCEEDINGS OF THE ROYAL SOCIETY B, doi:10.1098/rspb.2012.1890 (2012).

⁷⁰ Third National Climate Assessment, *supra* note 4, at 196.

⁷¹ See IPCC, CLIMATE CHANGE 2007 : SYNTHESIS REPORT: AN ASSESSMENT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, https://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf. 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 (Thomas et al., *Extinction risk from climate change* (2004), NATURE 427:145–8.); the potential extinction of 10% to 14% of species by 2100 if climate change continues unabated (I.M.D. Maclean et al., *supra*, at 12337-42); 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 (R. Warren et al., *Increasing impacts of climate change upon ecosystems with increasing global mean temperature rise*, CLIMATIC CHANGE 106:141–77 (2013)).

⁷² *Id.*; see also Third National Climate Assessment, *supra* note 41, at 195-219.

⁷³ Third National Climate Assessment, *supra* note 41, at 561 (citing R.A. Feely et al., *Ocean Acidification: Present Conditions and Future Changes in a High-CO₂ World*, 22 OCEANOGRAPHY 36-47 (2009)).

⁷⁴ See J.C. Orr et al., *Anthropogenic Ocean Acidification Over the Twenty-First Century and its Impact on Calcifying Organisms*, 437(7059) NATURE 681–686 (2005); R.A. Feely et al., *Ocean Acidification: Present Conditions and Future Changes in a High CO₂ World*. 22(4) OCEANOGRAPHY 36–47 (2009); B. Honisch et al., *The Geological Record of Ocean Acidification*, 335(6072) SCIENCE 1058–1063 (2012).

shells and skeletons and by disrupting metabolism and critical biological functions.

Moreover, climate change is causing and will continue to cause specific impacts to public lands and other important ecosystems in the U.S. As 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 local aquatic ecosystems.⁷⁵ With effects of warming more pronounced at higher latitudes, tundra ecosystems in Alaska face serious declines, with potentially serious additional climate feedbacks from melting permafrost.⁷⁶ In Florida, the Everglades face severe ecosystem disruption from already-occurring saltwater incursion.⁷⁷ Sea level rise will further damage freshwater ecosystems and the endangered species that rely on them.

6. Climate Change Impacts on U.S. Agriculture and Food Security

Climate change affects food security through a number of complex pathways, both direct and indirect, including the reduced ability of crops to thrive, increased threats to livestock, climate-related contamination of food supplies, and an alteration in land use patterns and availability. Higher levels of warming and extreme weather events such as droughts and flooding are expected to negatively affect the growth and yields of many crops.⁷⁸ Warming is likely to benefit many weeds, diseases, and insect pests, increasing stress on crop plants and requiring more pest and weed control.⁷⁹ Further, temperature increases, changes in rainfall, and extreme weather events are projected to increase the incidence and intensity of food-borne diseases and food contamination, jeopardizing food security.⁸⁰ Moreover, ocean warming and ocean acidification will threaten marine food resources by disrupting marine communities, promoting harmful algal blooms and the spread of some diseases, and increasing contaminants in fish and shellfish.⁸¹

Such mounting and overwhelming evidence of climate change impacts paints an irrefutable picture of a national emergency in the United States, where the basic health and safety of

⁷⁵ NATIONAL SERVICE CENTER FOR ENVIRONMENTAL PUBLICATIONS, EPA, CLIMATE CHANGE AND PUBLIC LANDS (1999).

⁷⁶ See Third National Climate Assessment, *supra* note 41, at 48; A.H. MacDougall et al., *Significant contribution to climate warming from the permafrost carbon feedback*, NATURE GEOSCIENCE 5, 719-21 (2012).

⁷⁷ See Third National Climate Assessment, *supra* note 41, at 592; R. Foti, *Signs of critical transition in the Everglades wetlands in response to climate and anthropogenic changes*, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 110, 6296-6300 (2013).

⁷⁸ U.S. GLOBAL CHANGE RESEARCH PROGRAM., *supra* note 63.

⁷⁹ *Id.*

⁸⁰ M.C. Tirado et al., *Climate change and food safety: A review*, FOOD RESEARCH INTERNATIONAL 43, 1745-65 (2010).

⁸¹ *Id.* For example, future ocean and weather patterns are likely to bring longer seasons of Harmful Algal Bloom outbreaks in Puget Sound, which could translate to longer fishery closures and threaten the state's \$108 million annual shellfish industry. NOAA. *Climate Change and Harmful Algal Blooms*, <http://oceanservice.noaa.gov/news/weeklynews/mar11/off-climate.html> (2011).

American communities and society, and the preservation of ecosystems and lands, are inherently under siege and must be urgently addressed.

B. EXPORTING CRUDE OIL UNDERMINES CLIMATE GOALS

As discussed *supra*, climate change unequivocally constitutes a national emergency. Based on the best available science, addressing the climate crisis necessitates both (i) *immediate* action given the limited timeframe to act to avoid long-term catastrophic consequences, and (ii) *bold policy* action slashing fossil fuel combustion in order to adhere to strict national and global carbon budgets. Given that the vast majority of fossil fuel reserves must be kept in the ground to avoid catastrophic climate change, actions that encourage an *expansion* of fossil fuel production are anathema to the policies necessary to avert the worst impacts of climate change. Because the surge in crude oil exports will result in additional extraction and combustion of fossil fuels, America must take global leadership to prohibit crude oil exports—and the crude oil extraction and combustion that exportation perpetuates.

1. The Window to Act on the Climate Crisis is Very Limited, Necessitating Immediate Action

Aptly capturing the urgency to act, President Obama, in his inaugural address opening the Paris Agreement climate talks, stated that the catastrophic future of a world permanently altered by climate change is “one that we have the power to change. Right here. Right now. But only if we rise to this moment. As one of America’s governors has said, ‘We are the first generation to feel the impact of climate change, and the last generation that can do something about it.’”⁸²

These words parallel the unambiguous scientific consensus that the window to act on climate change is now—and is closing rapidly. According to the IPCC, the next 10 to 15 years are critical to take action to dramatically reduce GHGs if the most dangerous effects of climate change are to be avoided.⁸³ Echoing the international body, the U.S. National Research Council concluded that “emission reduction choices made today matter in determining impacts that will be experienced not just over the next few decades, but also into the coming centuries and millennia.”⁸⁴

The Paris Agreement commits all signatories to an articulated target to achieve the long-term global average temperature “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.”⁸⁵ Moreover, the Paris Agreement enumerates the practical steps to obtain these goals: parties including the United

⁸² THE WHITE HOUSE, Statement by President Obama at the First Session of COP21 (Nov. 30, 2015), <https://www.whitehouse.gov/the-press-office/2015/11/30/remarks-president-obama-first-session-cop21>.

⁸³ IPCC AR5 Synthesis Report, *supra* note 41, at 9.

⁸⁴ NATIONAL RESEARCH COUNCIL, *Warming World: Impacts by Degree* (2011), dels.nas.edu/materials/booklets/warming-world.

⁸⁵ Paris Agreement, Art. 4.

States have committed to “reach global peaking of greenhouse gas emissions *as soon as possible* . . . and to *undertake rapid reductions* thereafter in accordance with best available science,”⁸⁶ imperatively commanding that developed countries specifically “should continue taking the lead by undertaking economy-wide absolute emission reduction targets.”⁸⁷

Studies make clear that to reach a reasonable likelihood of stopping warming at 1.5°C or even 2°C, total global CO₂ emissions must peak by 2020 and must be phased out by mid-century and as early as 2040-2045: “[a] rapid and fundamental decarbonization of the global energy system by mid-century is thus required.”⁸⁸ U.S.-focused studies indicate that the U.S. should phase out CO₂ emissions even earlier--between 2025 and 2040—for a reasonable chance of staying below 2°C.⁸⁹

2. Addressing the Climate Emergency Mandates Keeping U.S. Fossil Fuels in the Ground in order to Adhere to a Strict Carbon Budget

Immediate and aggressive GHG emissions reductions are vital to limit warming below a 1.5°C or 2°C temperature rise above pre-industrial levels, in accordance with the Paris Agreement targets. Put simply, the world faces a strict CO₂ budget, where only a very finite amount of GHGs may be emitted into the atmosphere without rendering the 1.5°C target, much less the 2°C target, virtually impossible. The extraction and combustion of all global fossil fuel reserves would release enough CO₂ to exceed this temperature limit several times over.⁹⁰ Consequently, the vast majority of fossil fuels must remain in the ground, and United States fossil fuel reserves are no exception.

The Fifth Assessment Report of the IPCC and other expert assessments have established global carbon budgets, with probabilities and ranges, to limit warming below a 1.5°C—much less 2°C⁹¹—temperature rise above pre-industrial levels. According to the IPCC, to have even a 50%

⁸⁶ *Id.*, Art. 4(1).

⁸⁷ *Id.*, Art. 4(4).

⁸⁸ Joeri Rogelj et al., Energy system transformations for limiting end-of-century warming to below 1.5°C, 5 Nature Climate Change 519, 522 (2015); UNEP, The Emissions Gap Report 2015, United Nations Environment Programme (UNEP), Nairobi (2015); Climate Action Tracker, “Below 2°C or 1.5°C depends on rapid action from both Annex I and Non-Annex I countries,” (June 2014); UNEP, The Emissions Gap Report 2013, United Nations Environment Programme (UNEP), Nairobi (2013).

⁸⁹ See Climate Action Tracker, <http://climateactiontracker.org/countries/usa>

⁹⁰ MARLENE CIMONS, SIERRA CLUB, GREENPEACE, 350.ORG, KEEP IT IN THE GROUND, 6, 33 n.2 (2016), <https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/Keep%20It%20in%20the%20Ground%20-%20January%202016.pdf>.

⁹¹ According to the IPCC, global cumulative anthropogenic emissions of CO₂ must remain below approximately 1,000 gigatonnes (GtCO₂) from 2011 onward for a 66% probability of limiting warming to 2°C above pre-industrial levels. (See IPCC AR5 Synthesis Report, *supra* note 41.) Given that more than 100 GtCO₂ have been emitted since 2011, the remaining portion of the budget under this scenario is well below 900 GtCO₂ (See, e.g., *Global Carbon Emissions*, CO₂.EARTH, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>). 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 M. Meinshausen et al., *Greenhouse gas emission targets for limiting global warming to 2 degrees* Page 17 of 27

probability of achieving the Paris Agreement target of limiting warming to 1.5°C above pre-industrial levels equates to a global carbon budget of 550-600 GtCO₂ from 2011 onward,⁹² 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,⁹³ of which less than 300 GtCO₂ remained at the start of 2015. Further, 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 GtCO₂,⁹⁴ humanity is rapidly consuming the remaining burnable carbon budget needed to have even a 50% chance of meeting the 1.5°C temperature goal.⁹⁵

Such a strict *global* carbon budget necessitates a strict *U.S. domestic* carbon budget. Several studies apportioning carbon quotas to all nations make clear that the United States has a very small remaining carbon budget—with estimates ranging from negative 30 GtCO₂ to 256 GtCO₂ based on equity sharing principles and assumptions about committed emissions from existing energy infrastructure—that mandates keeping the vast majority of the country’s fossil fuel reserves in the ground in order to achieve the 1.5°C temperature goal.⁹⁶ To put this tight U.S. carbon budget in context, one study shows that a medium-range U.S. carbon quota of 158 GtCO₂ is equivalent to using approximately 29% of the global carbon budget in a scenario of having a 50% probability of limiting warming to 1.5°C above pre-industrial levels.⁹⁷

Celsius, 458 NATURE 1158–62, 1159 (2009); CARBON TRACKER INITIATIVE, UNBURNABLE CARBON: ARE THE WORLD’S FINANCIAL MARKETS CARRYING A CARBON BUBBLE?, 6, <http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf>.

⁹² IPCC AR5 Synthesis Report, *supra* note 41, at 64 & Table 2.2.

⁹³ *Id.*

⁹⁴ See *Global Carbon Emissions*, CO2.EARTH, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>.

⁹⁵ 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°C or even 2°C, global CO₂ emissions must be phased out by mid-century and likely as early as 2040-2045. (See, e.g. Joeri Rogelj et al., *Energy system transformations for limiting end-of-century warming to below 1.5°C*, 5 NATURE CLIMATE CHANGE 519, 522 (2015).) U.S.-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., USA, CLIMATE ACTION TRACKER, <http://climateactiontracker.org/countries/usa>.) Issuing new legal entitlements to explore for and extract federal fossil fuels for decades to come is wholly incompatible with such a transition.

⁹⁶ See, e.g., M. Raupach et al., *Sharing a quota on cumulative carbon emissions*, 4 NATURE CLIMATE CHANGE 873, Supplementary Figure 7 (2014); Christophe McGlade & Paul Ekins. *The geographic distribution of fossil fuels unused when limiting global warming to 2°C*, 517 NATURE 187, 189, Table 1 (2015).

⁹⁷ Raupach et al., *supra* note 96, at 875. For the purposes of discussion, this Addendum uses a mid-range estimate of the U.S. carbon quota (158 GtCO₂) from this study. 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 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., *supra* note 96, at Supplementary Figure 7.) This Petition and Addendum employ the United States emissions quotas in Raupach’s study for illustration purposes only; this Petition and Addendum do not endorse the equity assumptions made therein.

Given the reality of hard carbon budgets, the United States must take aggressive policy action to slash the GHG emissions for which it is responsible. Central to reducing GHG emissions is proactive management of fossil fuel extraction⁹⁸; limiting GHG emissions necessitates halting the extraction of fossil fuels as the source of those global carbon emissions. According to the Carbon Tracker Initiative and Australian Climate Commission, over 80% of proven fossil fuel reserves must be kept in the ground to have a reasonable probability of 75-80% of limiting global temperature rise to below 2°C⁹⁹, while more than 90% must be kept in the ground to hold the temperature rise to below 1.5°C. These numbers crystallize a clear conclusion for oil reserves in the U.S.: there is no room for expanded fossil fuel extraction because the global carbon budget cannot afford the burning of such fossil fuels, regardless of whether such GHG emissions are attributed to the U.S. national carbon budget or that of other countries.

Minimizing new fossil fuel production is critical. Unleashing crude oil extraction from the U.S. is anathema to achieving the temperature targets that science—and international commitments—now require.

3. Crude Oil Exports Must Be Immediately Prohibited Due to their Greenhouse Gas Emissions, which Exacerbates the Climate Emergency

The repeal of the crude export ban is projected to result in significant increases of GHG pollution. According to a study by the Center for American Progress,¹⁰⁰ which analyzed reports

⁹⁸ Climate policy to date, both domestic and international, has focused largely on “demand-side” measures designed to promote energy efficiency, low-carbon technology, carbon pricing, and other measures designed at decreasing the intensity of fossil fuel consumption. But, as stated aptly in a report from the Stockholm Environment Institute:

The combustion of fossil fuels is by far the largest human source of global greenhouse gas emissions, releasing more than 30 billion tonnes of CO₂ Reducing fossil fuel combustion is thus a top priority for climate policy. . . For decades, policy-makers and international agreements have sought to achieve this goal through energy efficiency, low-carbon technology, carbon pricing, and other measures aimed at reducing demand for fossil fuels. Focusing on the point of combustion makes intuitive sense, but efforts so far have yet to put fossil fuel use on a trajectory consistent with keeping global warming below 2°C into the atmosphere each year. . . [P]olitical and economic interests and institutions that underpin fossil fuel production help to perpetuate fossil fuel use, and even to increase it. From this emerging vantage point, continued investment in fossil fuel exploration, extraction, and delivery infrastructure makes global climate protection objectives much harder to achieve, and should therefore be handled with care and, in many cases, reduced or avoided.

See Michael Lazarus et al., *Supply-side climate policy: the road less taken* at 3, STOCKHOLM ENVIRONMENT INSTITUTE WORKING PAPER 2015-13 (Oct. 2015).

⁹⁹ See CARBON TRACKER INITIATIVE, *supra* note 91; WILL STEFFEN, AUSTRALIAN CLIMATE COMMISSION, THE CRITICAL DECADE 2013: CLIMATE CHANGE SCIENCE, RISKS AND RESPONSES (2013), http://apo.org.au/files/Resource/ClimateCommission_The-Critical-Decade-2013.pdf.

¹⁰⁰ CAP Report, *supra* note 7.

and projections from key oil industry players and supporters,¹⁰¹ the ban's repeal is projected to result in an increase of crude oil production in the United States by at least 500,000 barrels per day, and perhaps as much as 3.3 million barrels per day, amounts which, when combusted, will release between 78 and 500 mtCO₂ per year.¹⁰² The higher of these estimates is equivalent to the annual carbon emissions of well 135 coal power plants or over 100 million cars.¹⁰³

In addition to the emissions from the combustion of the oil itself, emissions from related production and transport operations also serve as a major cause of greenhouse gas pollution. Of chief importance is the release of significant methane pollution. The super greenhouse gas, methane traps eighty-seven times as much heat as carbon dioxide over a twenty-year period.¹⁰⁴ While the full extent of methane release from oil operations is not known because monitoring and measurement of leakage have not been historically required by U.S. law or regulations, 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."¹⁰⁵ That proportion 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.¹⁰⁶ For the oil industry, methane emissions result "primarily from field production operations . . . , oil storage tanks, and production-related equipment. . . ." ¹⁰⁷ Emissions are released as planned, during normal operations and unexpectedly due to leaks and system upsets.¹⁰⁸ Significant sources of emissions include well venting and flaring, pneumatic devices, dehydrators and pumps, and compressors.¹⁰⁹ Despite the known dangers of methane, the oil industry has failed to build the necessary infrastructure to capture methane produced from

¹⁰¹ *Id.* The Center for American Progress report reviewed findings from three studies: (1) an analysis by ICF International on behalf of the American Petroleum Institute, published in March 2014; (2) a report funded by a coalition of oil companies and released in May 2014 by IHS CERA; and (3) a study conducted by National Economic Research Associates and published in September 2014, commissioned by the Brookings Institution, a vocal advocate for U.S. crude oil exports.

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ IPCC, FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, Chapter 8: Anthropogenic and Natural Radiative Forcing in Contribution of Working Group I, Table 8.7 (2013); Robert Howarth et al., *Methane and the greenhouse-gas footprint of natural gas from shale formations*, CLIMACTIC CHANGE (2011); D. Shindell, *Improved Attribution of Climate Forcing to Emissions*, 326 SCIENCE 716 (2009).

¹⁰⁵ *Natural Gas STAR Program, Basic Information, Major Methane Emission Sources and Opportunities to Reduce Methane Emissions*, U.S. ENVIRONMENTAL PROTECTION AGENCY (Feb. 25, 2016) <http://www3.epa.gov/gasstar/basic-information/>; see also G. Petron et al., *Hydrocarbon emissions characterization in the Colorado Front Range: A pilot study*, 117 JOURNAL OF GEOPHYSICAL RESEARCH (2012).

¹⁰⁶ S.M. Miller et al., *Anthropogenic Emissions of Methane*, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, EARLY EDITION (2013).

¹⁰⁷ MEGAN WILLIAMS & CINDY COPELAND, EARTHJUSTICE, METHANE CONTROLS FOR THE OIL AND GAS PRODUCTION SECTOR (2010), http://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/mckittrick_landfill/Vol5/Williams%20&%20Copeland%20Earthjustice%202010_Methane%20Controls%20for%20the%20O&G.pdf.

¹⁰⁸ *Id.*

¹⁰⁹ EPA, *supra* note 105.

current oil wells and, as a consequence, such methane is flared or vented contributing to GHG pollution and its dire consequences on Americans.

4. By Prohibiting Crude Exports, the U.S. will Solidify its Claim—as well as its Legal and Moral Duty—to Exercise Real Climate Leadership

In his announcement on the finalization of the Paris Agreement text, President Obama stated, “Today, the American people can be proud—because this historic agreement is a tribute to American leadership.”¹¹⁰ Such a claim of climate leadership was significantly undermined less than a week later when President Obama signed the repeal of the crude oil export ban.

The United States should halt crude oil exports—and thereby the increased GHG emissions resulting from extraction and consumption of the exported oil—as a means of realizing the commitments agreed to in the Paris Agreement. As discussed, *supra*, the Paris Agreement commits the U.S. and all other signatories to limit the temperature increase to 1.5°C above pre-industrial levels¹¹¹ and to “reach global peaking of greenhouse gas emissions *as soon as possible* . . . and to *undertake rapid reductions* thereafter in accordance *with best available science*.”¹¹² The science unequivocally shows that keeping fossil fuels in the ground is essential to meeting this goal. By stimulating additional fossil fuel extraction, crude oil exports are antithetical to meeting our climate goals.

As the United States is the world’s largest cumulative GHG emitter¹¹³ and most capable economy, U.S. policy leadership is desperately required to both meet a moral obligation based on values of global equity and to inspire an international reputation of climate leadership essential to brokering significant reductions from other national governments.

C. SEPARATELY, DANGERS TO PUBLIC HEALTH AND SAFETY AND ECOSYSTEMS RESULTING FROM CRUDE OIL EXPORTS CONSTITUTE A NATIONAL EMERGENCY

The impacts of oil exports will not just be limited to our climate, but will also have devastating direct impacts on our land, air, water and communities. The footprint of new wellpads and related infrastructure would consume over 2,000 square miles of land over the next 15 years.¹¹⁴ While conventional oil development comes with a suite of negative impacts, many of these new wells would be fracked, creating additional harms and risks.¹¹⁵ Fracking is an ultra-hazardous,

¹¹⁰ THE WHITE HOUSE, *supra* note 3.

¹¹¹ Paris Agreement, Art. 4.

¹¹² *Id.*, Art. 4(1).

¹¹³ *See id.*

¹¹⁴ CAP Report, *supra* note 7.

¹¹⁵ According to the oil industry itself, lifting the crude oil export ban will result in the proliferation of fracking and horizontal drilling of light sweet crude in tight oil formations across the country. *See* NATIONAL ECONOMIC RESEARCH ASSOCIATES, ECONOMIC BENEFITS OF LIFTING THE CRUDE OIL EXPORT BAN (2014), Page 21 of 27

extreme production technique that has polluted our air and water and devastated our health and communities as it has spread across the country.¹¹⁶ The increased fracking and related activity spurred on by exports will bring increased toxic air pollution, drinking water contamination, decimation of wildlife habitat, risk of explosions from “bomb trains” carrying crude oil cross-country, and surges in earthquakes like those caused by the oil industry in Oklahoma.¹¹⁷

As the plain meaning definition of “national emergency” entails “a crisis that involves the security and safety of the country”¹¹⁸ and a “danger or threat of danger to a nation,”¹¹⁹ the rise of crude oil exports and accompanying surge in fracking and other intensive oil industry operations clearly result in a national emergency—a conclusion recognized by the numerous countries, states, and municipalities around the world which have already instituted bans and moratoria against fracking to protect public health and safety.¹²⁰

1. Water Contamination

Drilling and fracking activities, as well as associated waste disposal, frequently cause contamination of drinking water sources.¹²¹ The EPA’s 2015 assessment of fracking’s impacts on drinking water resources confirmed specific instances of water contamination caused by drilling and fracking-related activities and acknowledged that it cannot ascertain how widespread the problem was due to insufficient data.¹²² According to the EPA, drinking water contamination stems from a number of pathways including spills of fracking fluid and fracking wastewater; discharge of fracking waste into rivers and streams; and underground migration of

http://www.nera.com/content/dam/nera/publications/2014/NERA_Crude_Oil_Export_Study_Sept_2014_FINAL.pdf.

¹¹⁶ For a thorough discussion on the range of effects of fracking, including socioeconomic and economic issues, see Fracking Health Compendium, *supra* note 10.

¹¹⁷ *Id.*

¹¹⁸ Black’s Dictionary Definition, *supra* note 27.

¹¹⁹ Webster Dictionary Definition, *supra* note 28.

¹²⁰ As a response to the proliferating evidence for the problems and harms of fracking—augmented by increasing concern about the many uncertainties remaining—various countries, states, and municipalities have instituted bans and moratoria, with many prohibitions announced in 2015. These include: (i) New York’s ban on high volume hydraulic fracturing in December 2014; (ii) Scotland’s formal moratorium on fracking; (iii) Wales’ moratorium on fracking “until it is proven safe”; (iv) the Canadian province of New Brunswick’s moratorium; (v) the state of Maryland’s two-and-a-half-year moratorium; (vi) the county of Lancashire in northwest England’s halted plans for what would have been a major British fracking operation; (vii) the Dutch government’s ban on all shale gas fracking for five years on the grounds that “research shows that there is uncertainty” about impacts; and Northern Ireland and the Spanish region of Castile La Mancha’s halted fracking via planning policies. See Fracking Health Compendium, *supra* note 10, at 3.

¹²¹ The story of Pavillion, Wyoming, the site of approximately 200 unconventional gas wells, is one of the most concrete, recorded examples of the inherent dangers of fracking on water quality. In 2010, the EPA warned Pavillion residents not to drink the water and use a fan when bathing or washing clothes to avoid the risk of explosion, after it found the water contaminated with dangerous chemicals and methane caused by fracking for gas. In 2013, the EPA ended their multi-million dollar investigation. See *Pavillion*, U.S. ENVIRONMENTAL PROTECTION AGENCY, <http://www.epa.gov/region8/pavillion>.

¹²² *Assessment of the potential impacts of hydraulic fracturing for oil and gas on drinking water resources* (External review draft), EPA (2015), <http://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=244651>.

fracking chemicals, including gas, into drinking water wells.¹²³ Harmful chemicals present in these fluids can include volatile organic compounds (“VOCs”), such as benzene, toluene, xylenes, and acetone.¹²⁴ As much as 25 percent of fracking chemicals are carcinogens,¹²⁵ and flowback can even be radioactive.¹²⁶

Further, a range of independent studies across the U.S. irrefutably evidence that surface water and groundwater contamination occurs and is more likely to occur close to fracking or other types of unconventional oil and gas recovery drilling sites—including those in Colorado,¹²⁷ Wyoming,¹²⁸ Texas,¹²⁹ Pennsylvania,¹³⁰ Ohio,¹³¹ and West Virginia.¹³² The nation’s nearly 200,000 injection wells for disposal of fracking waste also pose demonstrable threats to drinking water aquifers.¹³³ For example, 19 different fracking-related contaminants were found in aquifers above the heavily drilled Barnett Shale in Texas,¹³⁴ while California state regulators revealed that they have permitted oil companies to drill hundreds of illegal disposal wells and inject toxic waste fluid directly into aquifers containing clean, potable water.¹³⁵

¹²³ *Id.*

¹²⁴ *Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, EPA (2011) [hereinafter *EPA Plan to Study Fracking Impacts*].

¹²⁵ T. Colborn et al., *Natural Gas Operations from a Public Health Perspective*, HUMAN AND ECOLOGICAL RISK ASSESSMENT 13, 23 (2011).

¹²⁶ EPA Plan to Study Fracking Impacts, *supra* note 124; Ivan White, *Consideration of radiation in hazardous waste produced from horizontal hydrofracturing*, NATIONAL COUNCIL ON RADIATION PROTECTION (2012).

¹²⁷ A. Trowbridge, *Colorado Floods Spur Fracking Concerns*, CBS NEWS (Sept. 17, 2013) http://www.cbsnews.com/8301-201_162-57603336/colorado-floods-spur-fracking-concerns/.

¹²⁸ EPA, *Draft Investigation of Ground Water Contamination near Pavillion, Wyoming* (2011), https://www.epa.gov/sites/production/files/documents/EPA_ReportOnPavillion_Dec-8-2011.pdf

¹²⁹ B. Fontenot et al., *An Evaluation of Water Quality in Private Drinking Water Wells Near Natural Gas Extraction Sites in the Barnett Shale Formation*, ENVIRON. SCI. TECHNOL. 47 (17), 10032–10040, <http://pubs.acs.org/doi/abs/10.1021/es4011724>.

¹³⁰ R. Jackson et al., *Increased Stray Gas Abundance in a Subset of Drinking Water Wells near Marcellus Shale Gas Extraction*, PROCEEDINGS OF NATIONAL ACADEMY OF SCIENCES EARLY EDITION (2013).

¹³¹ OHIO DEPARTMENT OF NATURAL RESOURCES, REPORT ON THE INVESTIGATION OF THE NATURAL GAS INVASION OF AQUIFERS IN BAINBRIDGE TOWNSHIP OF GEAUGA COUNTY, OHIO (2008).

¹³² K. Begos, *Four States Confirm Water Pollution*, ASSOCIATED PRESS (Jan. 5, 2014), <http://www.usatoday.com/story/money/business/2014/01/05/some-states-confirm-water-pollution-from-drilling/4328859/>; *see also* EPA, *Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources, External Review Draft* (June 2015), http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=523539.

¹³³ Fracking Health Compendium, *supra* note 10, at 27.

¹³⁴ *See* Z.L. Hildenbrand et al., *A comprehensive analysis of groundwater quality in the Barnett Shale region*. ENVIRON. SCI. TECHNOL. 49(13), 8254-62 (2015); C. McPhate, *New study reveals potential contamination*, DENTON RECORD-CHRONICLE, Jun. 18, 2015, <http://www.dentonrc.com/local-news/local-news-headlines/20150618-new-study-reveals-potential-contamination.ece>.

¹³⁵ *See, e.g.*, D.R. Baker, *U.S. likely to bar oil-waste dumping into 10 California aquifers*, SAN FRANCISCO CHRONICLE, Jul.16, 2015, <http://www.sfchronicle.com/business/article/U-S-likely-to-bar-oil-waste-dumping-into-10-6389677.ph> ; S.B.C. Shonkoff et al., *Potential impacts of well stimulation on human health in California in AN INDEPENDENT SCIENTIFIC ASSESSMENT OF WELL STIMULATION IN CALIFORNIA, VOL. II* (California Council on Science and Technology, 2015), <http://ccst.us/publications/2015/vol-II-chapter-6.pdf>. *See also* lawsuit filed by environmental groups seeking to halt illegal oil industry operations that are dumping millions of gallons of toxic oil

2. Toxic Air Pollution

The hazardous impacts of fracking and drilling operations on air quality and related health problems are well-documented. While oil and gas operations already emit numerous air pollutants (including VOCs,¹³⁶ NO_x, particulate matter, hydrogen sulfide, and methane), fracking operations heighten such harms, emitting especially large amounts not only of these compounds but also toxic air pollutants which are known or suspected to cause cancer, reproductive effects, birth defects, or other environmental harms.¹³⁷ For example, air near gas wells in rural Ohio had levels of polycyclic aromatic hydrocarbons that were ten times higher than the levels found in rural areas without fracking operations, raising the lifetime risk of cancer by 45% for Americans living near the well pads.¹³⁸

In addition, the EPA has identified six “criteria” air pollutants that must be regulated under the National Ambient Air Quality Standards due to their potential to cause primary and secondary health effects. Concentrations of these pollutants—ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead—will likely increase in regions where unconventional oil and gas recovery techniques are permitted¹³⁹ and may exceed federal safety standards by several orders of magnitude.¹⁴⁰ In July 2015, California determined that fracking can have “significant and unavoidable” impacts on air quality, including by driving pollutants above levels that violate air quality standards.¹⁴¹ On a palpable level, this increased air pollution and smog formation have posed a serious risk to all those already suffering from respiratory issues, including the very vulnerable population of children suffering from asthma. Exemplary of this phenomenon, the intensely fracked Kern County, California, is the fifth-most ozone-polluted county in the nation with an average of 203 high-ozone days a year, according to the American

waste a day into California’s dwindling underground water supplies. *Center for Biological Diversity and Sierra Club v. California Division of Oil, Gas and Geothermal Resources et al.*, RG 15769302 (Sup. Ct CA, May 7, 2015), https://www.biologicaldiversity.org/programs/public_lands/energy/dirty_energy_development/oil_and_gas/pdfs/2015-0507_Complaint.pdf.

¹³⁶ H. Brown, *Memorandum to Bruce Moore, U.S.EPA/OAQPS/SPPD re Composition of Natural Gas for use in the Oil and Natural Gas Sector Rulemaking 3* (Jul. 28, 2011).

¹³⁷ *About Air Toxics*, EPA, <http://www3.epa.gov/airtoxics/allabout.html#what>.

¹³⁸ L. Paulik et al., *Impact of natural gas extraction on PAH levels in ambient air*, ENVIRONMENTAL SCIENCE & TECHNOLOGY, 49, 5203-10 (2015).

¹³⁹ For example, the New York State Department of Environmental Conservation determined that fracking could increase ozone levels in downwind areas of the state, potentially impacting the ability to maintain air quality that meets ozone standards. See New York State Department of Environmental Conservation, *Final supplemental generic environmental impact statement on the oil, gas and solution mining regulatory program* (June 30, 2015), http://www.dec.ny.gov/docs/materials_minerals_pdf/findingstatehvhf62015.pdf.

¹⁴⁰ Fracking Health Compendium, *supra* note 10, at 10.

¹⁴¹ California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, *Analysis of Oil and Gas Well Stimulation Treatments in California, Volume II*. (2015), http://www.conservation.ca.gov/dog/SB4DEIR/Pages/SB4_DEIR_TOC.aspx. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, *Analysis of Oil and Gas Well Stimulation Treatments in California, Volume II* (2015), http://www.conservation.ca.gov/dog/SB4DEIR/Pages/SB4_DEIR_TOC.aspx.

Lung Association.¹⁴²

3. Earthquakes and Seismic Activity

Major studies have confirmed that the disposal of oil and gas wastewater into injection wells has induced damaging earthquakes with magnitudes as high as 5.7,¹⁴³ and has caused the proliferation of earthquake swarms in the central and eastern United States in recent years.¹⁴⁴ The underground injection of wastewater generated as a byproduct of fracking has been linked to dramatic increases in earthquake activity in many states where fracking has proliferated, including some of the largest quakes ever recorded in those regions.¹⁴⁵

The seismic activity occurring in Oklahoma has epitomized these dangers in America. There, the number of earthquakes of magnitude 3.0 or higher skyrocketed since the advent of the fracking boom, with fewer than two per year before 2009 and more than 1,100 predicted to have occurred in 2015.¹⁴⁶ The causation evidence is so strong that the Oklahoma Supreme Court ruled unanimously in June that homeowners can sue the oil and gas industry for injuries or property damage resulting from these earthquakes.¹⁴⁷ Scientific evidence now also shows that the process of fracking itself can trigger earthquakes of magnitudes 3 and 4, as confirmed in cases from Ohio,¹⁴⁸ Oklahoma,¹⁴⁹ Texas,¹⁵⁰ the United Kingdom,¹⁵¹ and Canada.¹⁵²

¹⁴² Fracking Health Compendium, *supra* note 10, at 10.

¹⁴³ See K.M. Keranen et al., *Sharp increase in central Oklahoma seismicity since 2008 induced by massive wastewater injection*, 345 SCIENCE 6195, 448-51 (2014), <http://science.sciencemag.org/content/345/6195/448>.

¹⁴⁴ See W. L. Ellsworth, *Injection-Induced Earthquakes*, 341 SCIENCE 6142 (2013) <http://www.sciencemag.org/content/341/6142/1225942>; M. D. Petersen, et al., *Incorporating Induced Seismicity in the 2014 United States National Seismic Hazard Model — Results of 2014 Workshop and Sensitivity Studies*, U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT 2015–1070 (2015), <http://pubs.usgs.gov/of/2015/1070/pdf/ofr2015-1070.pdf>.

¹⁴⁵ See *id.*

¹⁴⁶ U.S. Geological Survey, *MR.5 – 6 km NNE of Crescent, Oklahoma* (2015), http://earthquake.usgs.gov/earthquakes/eventpage/us200030gd#impact_pager; J.L. Rubenstein, *Myths and facts on wastewater injection, hydraulic fracturing, enhanced oil recovery, and induced seismicity*, SEISMOLOGICAL RESEARCH LETTERS 86(4), 1060-1067 (2015).

¹⁴⁷ R.A. Oppel Jr., *Oklahoma court rules homeowners can sue oil companies over quakes*, June 30, 2015, THE NEW YORK TIMES, http://www.nytimes.com/2015/07/01/us/oklahoma-court-rules-homeowners-can-sue-oil-companies-over-quakes.html?emc=edit_tnt_20150630&nliid=66402583&tntemail0=y&r=0.

¹⁴⁸ See R. Skoumal, et al., *Earthquakes Induced by Hydraulic Fracturing in Poland Township, Ohio*, 105 BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA (2015), <http://bssa.geoscienceworld.org/content/early/2015/01/01/0120140168.abstract>.

¹⁴⁹ See A. Holland, *Earthquakes Triggered by Hydraulic Fracturing in South Central Oklahoma* 103 BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 1784 (2013) <http://www.bssaonline.org/content/103/3/1784.abstract?mtoc>.

¹⁵⁰ M.J. Hornbach et al., *Causal factors for seismicity near Azle, Texas*, NATURE COMMUNICATIONS, 6(6728) (2015). M. Richter, *Small north Texas quakes likely linked to oil, gas operations – study*, REUTERS, April 21, 2015, <http://www.reuters.com/article/2015/04/21/us-usa-texas-earthquake-idUSKBN0NC2DY20150421>.

4. “Bomb Trains” via Crude-By-Rail

The production of over 3.3 million barrels per day from 2015 to 2035 will lead to enough oil to fill more than 4,500 additional railcars per day—the equivalent of an additional 947 Exxon Valdez-sized oil tankers each year.¹⁵³ The railway transportation of such a massive amount of light tight crude oil necessarily brings about the fatal, well-documented risk of “bomb trains” and catastrophic oil spills across the country. Even more, light sweet crude, such as that from the Bakken shale formation in North Dakota, has proven to be among the most volatile and dangerous types of oil that is shipped. Nationwide, derailments and explosions of oil trains have increased dramatically following a 40-fold increase in oil-by-rail between 2008 and 2013, including numerous fiery derailments in the U.S. and Canada in 2015 and a record number of oil-by-rail spills in 2014. Considered one of the worst train accidents in North American history, the 2013 crash of a 72-tanker train in Lac-Mégantic, Quebec, illustrates the risk of crude-by-rail: 47 people died, 2,000 people were evacuated from the affected area, and a large portion of the town’s business district was incinerated.¹⁵⁴

The potential harm across the U.S. is real: oil trains pass directly through many heavily populated areas, with an estimated 25 million Americans living within the one-mile of evacuation zone in the event of a fiery oil train-derailment, and some of the country’s most pristine wildlife habitats and important waterways—putting people, wildlife and special places at immediate risk.¹⁵⁵

¹⁵¹ See UK Department of Energy & Climate Change, *Fracking UK Shale: Understanding Earthquake Risk 2* (2014); H. Clarke, et al., *Felt seismicity associated with shale gas hydraulic fracturing: The first documented example in Europe*, 41 GEOPHYSICAL RESEARCH LETTERS 8308 (2014), <http://onlinelibrary.wiley.com/doi/10.1002/2014GL062047/full>.

¹⁵² See Howell, D., *Researchers Study Aftershocks of Fox Creek Earthquake Possibly Linked to Fracking*, EDMONTON JOURNAL, (2015), <http://www.edmontonjournal.com/Researchers+study+aftershocks+Creek+earthquake+possibly+linked+fracking/10781866/story.html>; See BC Oil and Gas Commission, *Investigation of Observed Seismicity in the Horn River Basin* (2012), <http://www.bcogc.ca/node/8046/download?documentID=1270>; A. M. Farahbod, et al. *Investigation of Regional Seismicity Before and After Hydraulic Fracturing in the Horn River Basin, Northeast British Columbia*, 52 CANADIAN JOURNAL OF EARTH SCIENCES 112 (2014) <http://www.nrcresearchpress.com/doi/abs/10.1139/cjes-2014-0162?src=recsys>.

¹⁵³ CAP Report, *supra* note 7.

¹⁵⁴ Jacquie McNish & Grant Robertson, *The Deadly Secret Behind the Lac-Mégantic Inferno*, THE GLOBE AND MAIL, Dec. 3, 2013, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/the-hazardous-history-of-the-oil-that-levelled-lac-megantic/article15733700/?page=all>; M. Beaudin, *Lac-Mégantic Oil Spill Even Worse Than First Feared, Investigation Shows*, MONTREAL GAZETTE, Oct. 22, 2013.

¹⁵⁵ ForestEthics calculates that an estimated 25 million Americans live within the one-mile evacuation zone that DOT recommends in the event of a fiery oil train derailment (*see* www.Blast-Zone.org). Within just a quarter-mile of existing and planned oil train routes there are 3,600 stream miles and 73,468 square miles of lake, reservoir and wetlands where a spill would devastate sensitive wildlife habitat, including species protected under the Endangered Species Act. Further, existing and planned oiltrain routes cross more than 30 national wildlife refuges and the critical habitats of at least 57 endangered species, and numerous studies have shown that spilled oil can have devastating impacts on both terrestrial and aquatic species from exposure to toxic chemicals. *See* JARED MARGOLIS, Page 26 of 27

5. Loss of Public Lands and Destruction of Ecosystem Health

Finally, the country is estimated to lose approximately 137 square miles of land a year—an area the size of Philadelphia or larger than the Arches National Park in Utah—to drilling and oil infrastructure resulting from lifting the crude export ban.¹⁵⁶ Specifically, the oil industry has estimated that the crude oil ban lift will generate approximately 7,600 more wells on average per year between 2016 and 2030. Further, the expansion of oil development activities will harm wildlife through habitat destruction and fragmentation, stress and displacement caused by development-related activities (e.g., construction and operation activities, truck traffic, noise and light pollution), surface water depletion leading to low stream flows, water and air contamination, introduction of invasive species, and climate change. These harms can result in negative health effects and population declines.¹⁵⁷

VI. CONCLUSION

Climate change, globally recognized as an existential crisis, undoubtedly warrants the President's declaration of a national emergency. 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.”¹⁵⁸ The additional fossil fuels that will be extracted for purposes of crude oil exports are an important component in this global effort to keep fossil fuels in the ground. The President can and must use the legal authority granted under the 2016 Appropriations Act and immediately declare a national emergency based on the damages and threats stemming from climate change, as well as from the public health and safety threats of expanded oil production, and ban the export of U.S. crude oil immediately.

Respectfully submitted on behalf of Petitioner this 20th day of April, 2016,



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CENTER FOR BIOLOGICAL DIVERSITY RUNAWAY RISKS (2015), http://www.biologicaldiversity.org/campaigns/oil_trains/pdfs/runaway_risks_web.pdf.

¹⁵⁶ CAP Report, *supra* note 7.

¹⁵⁷ See CENTER FOR BIOLOGICAL DIVERSITY, REVIEW OF IMPACTS OF OIL AND GAS EXPLORATION AND DEVELOPMENT ON WILDLIFE (2015). This review presents the findings of numerous studies and reports on the impacts of fracking on wildlife.

¹⁵⁸ THE WHITE HOUSE, *supra* note 17.