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**THE EPA’S ENDANGERMENT FINDING
ON AIRCRAFT GREENHOUSE GAS EMISSIONS:
A PRELIMINARY ANALYSIS**

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I. INTRODUCTION

THE COMMERCIAL AVIATION industry touches human life in many ways. In 2015, United States-based air carriers transported nearly 800 million domestic and international passengers within the United States (up 4.7% from 2014).¹ That same year, a total of about 100 million passengers traveled to and from the United States on foreign carriers (up 7.4% from 2014).² In addition, the aviation industry generates a large amount of revenue. If the aviation industry itself were a country, “it would rank 21st in the world in terms of . . . GDP, generating \$664 billion of GDP per year,” and aviation will likely add \$1 trillion to global GDP by 2026.³ However, such financial success does affect the global environment. Internationally, the aviation industry produces about 2% of all “human-induced carbon diox-

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¹ U.S. Dep’t of Transp., *2015 U.S.-Based Airline Traffic Data*, BUREAU OF TRANSP. STATISTICS (Mar. 24, 2016), https://www.rita.dot.gov/bts/press_releases/bts018_16 [perma.cc/U7UR-H2KH].

² *Id.*

³ *Facts & Figures*, AIR TRANSP. ACTION GRP. (May 2016), <http://www.atag.org/facts-and-figures.html> [perma.cc/CK9M-5X27]. Also, “[n]early 63 million jobs are supported worldwide in aviation and related tourism. Of this, 9.9 million people work directly in the aviation industry.” *Id.*

ide (CO₂) emissions” and is responsible for “12% of CO₂ emissions from all transports sources.”⁴

On July 25, 2016, in response to growing concerns about the aviation industry’s contribution to greenhouse gas emissions, the U.S. Environmental Protection Agency (EPA) issued an endangerment finding regarding aircraft engine greenhouse gas emissions.⁵ This finding allows the EPA to promulgate regulations controlling emissions standards for new aircraft.⁶ This article provides a preliminary analysis of these endangerment findings. Section II traces the history of the EPA and the history of the Clean Air Act (the law that gives the EPA the authority to issue endangerment findings). Section III discusses both previous endangerment findings and findings on aircraft greenhouse gas (GHG) emissions, and Section IV offers a comparative analysis of those findings. Section V details how these endangerment findings fit into the international scheme of efforts to combat climate change and to reduce GHG emissions. Finally, the article concludes with Section VI, which provides a look at the future and how the Trump Administration may affect the EPA and the United States’ international environmental obligations.

II. THE ENVIRONMENTAL PROTECTION AGENCY AND THE CLEAN AIR ACT

A. EARLY EPA HISTORY

Before the Environmental Protection Agency, environmentalism in the United States focused more on conservation than on protection.⁷ President Theodore Roosevelt, for example, focused part of his administration on the use and conservation of natural resources.⁸ Also, President Franklin Roosevelt used the New Deal to execute national resource conservation measures. Founded in 1935, the Soil Conservation Service “applied scientific practices to reduce the erosion of agricultural land.”⁹

⁴ *Id.*

⁵ Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution that May Reasonably be Anticipated to Endanger Public Health and Welfare, 81 Fed. Reg. 54,421, 54,475 (Aug. 15, 2016) (to be codified at 40 C.F.R. pts. 87 and 1068) [hereinafter Aircraft Endangerment Finding].

⁶ *Id.* at 54,423.

⁷ U.S. ENVTL. PROT. AGENCY, THE GUARDIAN: ORIGINS OF THE EPA, EPA HISTORICAL PUBL. (Spring 1992), <https://archive.epa.gov/epa/aboutepa/guardian-origins-epa.html> [perma.cc/TH64-X3JY] [hereinafter EPA ORIGINS].

⁸ *Id.*

⁹ *Id.*

Passed in 1937, the Pittman-Robertson Act focused on conserving animal life and “establish[ed] a fund for state fish and wild-life programs”¹⁰ Also, the Tennessee Valley Authority built dams and power-generating stations.¹¹

World War II changed how many viewed nature and the environment.¹² For example, the growth of cities and industry displayed the pervasiveness and seriousness of pollution, and the media began to take an interest in reporting radiation and its effect on food supply, air, and water.¹³ This led to a shift away from conservation and toward environmentalism: “a political movement which demanded the state not only preserve the Earth, but act to regulate and punish those who polluted it.”¹⁴

Just months after his inauguration in January 1969, President Richard Nixon created the Environmental Quality Council as part of his cabinet and instituted the Citizens' Advisory Committee on Environmental Quality.¹⁵ That same year, recognizing the importance of “national environmental consciousness,” Congress passed the National Environmental Policy Act (NEPA).¹⁶ The NEPA was intended to “‘create and maintain conditions under which man and nature can exist in productive harmony’ and to ‘assure for all Americans safe, healthful, productive, esthetically and culturally pleasing surroundings.’”¹⁷ The NEPA also made the U.S. government the “protector of earth, air, land, and water.”¹⁸ This law also enabled President Nixon to assemble the Council on Environmental Quality within his cabinet.¹⁹

In 1970, President Nixon continued working toward his commitment to environmental consciousness.²⁰ He “decided to establish an autonomous regulatory body to oversee the enforcement of environmental policy.”²¹ That body would be called the U.S. Environmental Protection Agency, or the EPA

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ EPA ORIGINS, *supra* note 7.

¹⁴ *Id.*

¹⁵ Jack Lewis, THE BIRTH OF EPA, EPA J. (Nov. 1985), <https://archive.epa.gov/epa/aboutepa/birth-epa.html> [perma.cc/BK5D-DVHU].

¹⁶ EPA ORIGINS, *supra* note 7.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Lewis, *supra* note 15.

²⁰ *Id.*

²¹ EPA ORIGINS, *supra* note 7.

for short, and its duties would include: (1) establishing and enforcing “environmental protection standards consistent with national environmental goals”; (2) conducting “research on the adverse effects of pollution and on methods and equipment for controlling it,” gathering information on pollution, and using that information to strengthen “environmental protection programs and recommending policy changes”; (3) “[a]ssisting others, through grants, technical assistance and other means in arresting pollution of the environment”; and (4) “[a]ssisting the Council on Environmental Quality in developing and recommending to the President new policies for the protection of the environment.”²²

B. MODERN FRAMEWORK OF THE EPA

Today, the EPA is more active than ever in carrying out its mission to “protect human health and the environment.”²³ The EPA explains that its purpose is to ensure that:

- (1) all Americans are protected from significant risks to human health and the environment where they live, learn, and work;
- (2) national efforts to reduce environmental risk are based on the best available scientific information;
- (3) federal laws protecting human health and the environment are enforced fairly and effectively;
- (4) environmental protection is an integral consideration in U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade, and these factors are similarly considered in establishing environmental policy;
- (5) all parts of society—communities, individuals, businesses, and state, local, and tribal governments—have access to accurate information sufficient to effectively participate in managing human health and environmental risks;

²² *Reorganization Plan No. 3 of 1970*, 3 C.F.R. 199 (1970), <https://archive.epa.gov/epa/aboutepa/reorganization-plan-no-3-1970.html> [perma.cc/DJY3-6ZX5] (excerpt of a Special Message from the President that addresses the establishment of the EPA).

²³ *About EPA: Our Mission and What We Do*, EPA, <https://www.epa.gov/aboutepa/our-mission-and-what-we-do> [perma.cc/54DR-W3E9] (last visited Aug. 30, 2017).

- (6) environmental protection contributes to making our communities and ecosystems diverse, sustainable, and economically productive; and
- (7) the United States plays a leadership role in working with other nations to protect the global environment.²⁴

The EPA takes many actions to accomplish its mission and to fulfill its purposes. For example, the EPA gives grants to various groups, such as state environmental programs, educational institutions, and non-profit organizations, for both large and small projects that contribute to the EPA's mission to protect human health and the environment.²⁵ The EPA itself also studies environmental issues in laboratories across the nation to "identify and . . . solve environmental problems."²⁶ Such information is often shared with other countries, companies in the private sector, academic institutions, and other agencies.²⁷

The EPA will also sponsor partnerships between groups in the public and private sectors to facilitate projects designed to find other ways to protect the environment.²⁸ It strives to educate the public about its findings and its work through the publication of educational materials.²⁹ Most relevant to this article, the EPA develops and enforces written regulations implementing congressional environmental laws.³⁰

Not only does the EPA pass its own regulations, it also takes responsibility for enforcing them.³¹ When necessary, the EPA will act against violators through civil administrative actions, civil judicial actions, and criminal actions.³² Such enforcement helps the EPA achieve its ultimate goal of protecting human health and the environment.³³ Civil and criminal enforcement allows the EPA to maintain compliance and protect communities and the environment from violations that threaten them.³⁴ Such en-

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Our Mission and What We Do*, *supra* note 23.

³⁰ *Id.*

³¹ *Id.*; *Enforcement: Enforcement Basic Information*, EPA, <https://www.epa.gov/enforcement/enforcement-basic-information> [perma.cc/G4SG-M47F] (last visited Aug. 30, 2017).

³² *Enforcement Basic Information*, *supra* note 31.

³³ *See id.*

³⁴ *Enforcement: Enforcement Goals*, EPA, <https://www.epa.gov/enforcement/enforcement-goals> [perma.cc/4A4V-8ACD] (last visited Aug. 30, 2017).

forcement allows the EPA to maintain clean air, clean water, clean energy, and clean communities.³⁵ The EPA's enforcement of environmental laws also helps "achieve greater compliance and reduce pollution using advanced monitoring and information technologies" to ensure "next generation compliance."³⁶

C. THE CLEAN AIR ACT AND THE ORIGINAL ENDANGERMENT FINDINGS

One of the many environmental laws that the EPA regulates and enforces is the Clean Air Act (CAA).³⁷ Originally passed in 1970, the CAA "regulates air emissions from stationary and mobile sources" and "authorizes [the] EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants."³⁸ One of the CAA's goals was to create NAAQS in each state in the U.S. by 1975 to address the risks that air pollutants pose.³⁹ The CAA was amended in 1977 and 1990 to set new NAAQS goals and deadlines because many states did not meet the CAA's original deadlines.⁴⁰

Most relevant to this article, Section 112 of the CAA addresses air pollutant emissions.⁴¹ Before the 1990 amendments, the CAA had few standards developed with respect to these emissions.⁴² The 1990 amendments revised Section 112 to include requirements of "issuance of technology-based standards for major sources and certain area sources."⁴³ A "major source" is a "stationary source or group of stationary sources that emit or have the potential to emit 10 tons per year or more of a hazardous air pollutant," while an "area source" is any stationary source that does not qualify as a "major source."⁴⁴ Section 112 also pro-

³⁵ *Id.*

³⁶ *Id.*

³⁷ See 42 U.S.C. § 7401 *et seq.* (2012).

³⁸ *Laws & Regulations: Summary of the Clean Air Act*, EPA, <https://www.epa.gov/laws-regulations/summary-clean-air-act> (last visited Aug. 30, 2017) (discussing 42 U.S.C. § 7401) [perma.cc/88BP-JTDP].

³⁹ *Id.*

⁴⁰ See *Clean Air Act Overview: Clean Air Act Requirements and History*, EPA, <https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history> (last visited Aug. 30, 2017) [perma.cc/L42X-LY43]; *Summary of the Clean Air Act*, *supra* note 38.

⁴¹ *Summary of the Clean Air Act*, *supra* note 38.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

vides that for “major sources,” the “EPA must establish emission standards that require the maximum degree of reduction in emissions of hazardous air pollutants.”⁴⁵

To achieve continued compliance with the CAA, the EPA has issued various endangerment findings for GHG emissions. In 2007, the U.S. Supreme Court held that the CAA covers GHG emissions.⁴⁶ According to the Supreme Court, the EPA’s duties under the CAA included determining if greenhouse gas emissions “cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether science is too uncertain to make a reasoned decision.”⁴⁷

In compliance with the Court’s mandate, EPA Administrator Lisa P. Jackson signed two findings on December 7, 2009, regarding greenhouse gas emissions under Section 202(a) of the CAA (2009 GHG Endangerment Findings).⁴⁸ According to the 2009 findings, six “current and projected” GHGs threaten human health: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.⁴⁹ The 2009 GHG Endangerment Findings provided that the combined emissions of these GHGs from new motor vehicles and their engines contribute to the GHG pollution threatening human health and welfare.⁵⁰

The 2009 GHG Endangerment Findings did not impose any requirements on the motor vehicle industry.⁵¹ Instead, they allowed the EPA to finalize emission standards for 2012 to 2016 models of light-duty vehicles and engines in May 2010 and emission standards for 2012 to 2016 models of heavy-duty vehicles and engines in August 2011.⁵² The findings further allowed the EPA to promulgate a second group of emissions standards for

⁴⁵ *Id.*

⁴⁶ *Massachusetts v. EPA*, 549 U.S. 497, 528 (2007).

⁴⁷ *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*, EPA, <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean> [perma.cc/5WJB-HGVG] (last visited Aug. 30, 2017); *see also id.* at 501, 534–35.

⁴⁸ *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66,496, 66,496–97 (Dec. 15, 2009) (to be codified at 40 C.F.R. Ch. 1).

⁴⁹ *Id.* at 66,497.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

2017 to 2025 model light-duty vehicles and engines to further reduce GHG emissions from those vehicles.⁵³

In 2013, President Obama announced a Climate Action Plan, which included a group of executive actions designed to further reduce GHGs, prepare the nation for the impact of climate change, and spearhead international efforts to combat global climate change.⁵⁴ The President called upon the EPA to complete carbon pollution standards for the “power sector.”⁵⁵ In August 2015, the EPA responded by making two findings: one for “new, modified, and reconstructed utility generating units,” and one for existing power plants.⁵⁶ These past endangerment findings for motor vehicles and power plants prepared the way for the EPA’s most recent endangerment findings for aircraft GHG emissions.

III. THE ENDANGERMENT FINDING FOR AIRCRAFT ENGINE EMISSIONS

A. IMPETUS FOR THE FINDING

The EPA’s Endangerment Finding for Aircraft Engine Emissions falls in line with the overall objects and purposes of President Obama’s Climate Action Plan.⁵⁷ As part of his formal announcement of the Climate Action Plan, President Obama explained that the United States would work internationally to address global climate change.⁵⁸ The Climate Action Plan also

⁵³ *Id.*

⁵⁴ President Barack H. Obama, *Presidential Memorandum – Power Sector Carbon Pollution Standards* (June 25, 2013), <https://obamawhitehouse.archives.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards> [perma.cc/U7FY-5H2M].

⁵⁵ *Id.*

⁵⁶ Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510 (Oct. 23, 2015) (to be codified at 40 C.F.R. pts. 60, 70, 71, et al.); Carbon Pollution Emission Guidelines for Existing Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).

⁵⁷ See Exec. Office of the President, *The President’s Climate Action Plan* (June 2013), <https://obamawhitehouse.archives.gov/sites/default/files/image/president27sclimateactionplan.pdf> [perma.cc/HLR3-3CE9].

⁵⁸ “Just as no country is immune from the impacts of climate change, no country can meet this challenge alone. That is why it is imperative for the United States to couple action at home with leadership internationally. America must help forge a truly global solution to this global challenge by galvanizing international action to significantly reduce emissions, prepare for climate impacts, and drive progress through international negotiations.” White House Office of the Press Sec’y, *Fact Sheet: President Obama’s Climate Action Plan* (Jun. 25, 2013), <https://>

included ambitious reductions in carbon emissions across several types of emissions.⁵⁹ Thus, because of its focus on domestic greenhouse gas emissions and international cooperation, the Climate Action Plan serves as an appropriate foundation and catalyst for both the Endangerment Finding for Aircraft Engine Emissions, as well as the potential adoption of the International Civil Aviation Organization's aircraft emissions standards as discussed *infra* Sections IV(A), V(A).

In addition to the Obama Administration's push to reduce emissions, Section 231(a)(2)(A) of the Clean Air Act mandates that the Administrator of EPA propose aircraft engine "emission standards applicable to the emission of any air pollutant from any class or classes of aircraft engines which . . . causes, or contributes to, air pollution which may reasonably be anticipated to endanger public health or welfare."⁶⁰ Although Section 231(a)(2) has existed in a substantially similar form to today's version since the major amendments to the Clean Air Act in 1977, the EPA has never made any aircraft emissions findings until the recent Endangerment Finding for Aircraft Engine Emissions.⁶¹

That inaction changed for several reasons. First, in 2007, the Friends of the Earth, Oceana, Center for Biological Diversity, Earthjustice, and other similar advocacy groups petitioned the EPA to consider rulemaking for greenhouse gas emissions from aircraft engines.⁶² In response, and in light of *Massachusetts v. EPA*,⁶³ the EPA solicited public comments on the potential ramifications of regulating aircraft greenhouse gas emissions via a 2008 advance notice of proposed rulemaking.⁶⁴

/obamawhitehouse.archives.gov/the-press-office/2013/06/25/fact-sheet-president-obama-s-climate-action-plan [perma.cc/B9ZR-K5YL].

⁵⁹ *Id.*

⁶⁰ Clean Air Act, Pub. L. 95-95 § 231 (codified as amended at 42 U.S.C. § 7571 (2012)); *see also* Aircraft Endangerment Finding, 81 Fed. Reg. at 54,427 (citing same as source of statutory authority for issuing aircraft engine emissions standards).

⁶¹ Clean Air Act of 1963, Pub. L. 95-95 §§ 225, 401(f) (codified as amended at 42 U.S.C. § 7571 (2012)).

⁶² *See* Letter from Gina McCarthy, Assistant Administrator, EPA, to J. Martin Wagner, Earthjustice (Jun. 14, 2012) [hereinafter Letter to Earthjustice], https://www.epa.gov/sites/production/files/2016-09/documents/oar-12-001-0157-aircraft-petition-response-memorandum_0.pdf [perma.cc/LF22-BW86].

⁶³ *See Massachusetts v. EPA*, 549 U.S. 497 (2007).

⁶⁴ *See* Regulating Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,354, 44,468-73 (proposed July 30, 2008) (to be codified at 40 C.F.R. Ch. I).

This did not satisfy the advocacy groups, who filed suit in federal court in the District of Columbia, to compel the EPA to issue an endangerment finding because of an unreasonable delay to do so previously.⁶⁵ Although that litigation ended with summary judgment in favor of the EPA, it was not altogether fruitless: the EPA did agree to respond to the advocacy groups' 2007 petition.⁶⁶

On June 14, 2012, the EPA issued that response explaining that it intended to move forward with an endangerment finding but that it would be some time before a finding would be published.⁶⁷ The EPA gave two reasons for the anticipated delay.⁶⁸ First, any aircraft emissions finding would necessarily be closely related to the 2009 GHG Endangerment Finding, which at that time was embroiled in litigation in the D.C. Circuit. Therefore, the EPA wanted to wait for the outcome of that litigation to issue another finding.⁶⁹ Second, based on the EPA's experience issuing endangerment findings, it would be at least twenty-two months before one could be published.⁷⁰

Thereafter, the EPA issued its Proposed Finding that Greenhouse Gas Emissions From Aircraft Cause or Contribute to Air Pollution that may Reasonably be Anticipated to Endanger Public Health and Welfare and Advance Notice of Proposed Rulemaking; Proposed Rule on July 1, 2015 (Aircraft Endanger-

⁶⁵ *Ctr. for Biological Diversity v. EPA*, 794 F. Supp. 2d 151, 153 (D.D.C. 2011).

⁶⁶ *Ctr. for Biological Diversity v. EPA*, 2012 WL 967662, No. 1:10-CV-985 (D.D.C. Mar. 20, 2012).

⁶⁷ See Letter to Earthjustice, *supra* note 62.

⁶⁸ *Id.*

⁶⁹ *Id.* (discussing the cases, like *Coal. for Responsible Regulation v. EPA*, 684 F.3d 102 (D.C. Cir. 2012)); see also *supra* Section II(C) for a more detailed discussion of the 2009 GHG Endangerment Finding generally.

⁷⁰ Letter to Earthjustice, *supra* note 62 (giving a short synopsis of the lengthy steps required before a final endangerment finding can be issued):

- (1) evaluating the scientific and other information relevant to whether emissions from aircraft engines in particular cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare;
- (2) preparing a proposed determination;
- (3) conducting intra- and inter-agency review of the draft proposed determination;
- (4) publishing and providing the public with notice and an opportunity to comment on the proposed determination;
- (5) reviewing, analyzing and responding to those comments and preparing the appropriate draft determination; and
- (6) conducting a final intra and interagency review and issuing a final determination.

ment Finding).⁷¹ Following the notice and comment period required by the Administrative Procedure Act, the EPA published the final version of the finding on July 25, 2016.⁷²

B. WHAT THE FINDING STATES

The Aircraft Endangerment Finding says that aircraft engine emissions endanger the public health and welfare under the Clean Air Act.⁷³ More specifically, the EPA made two separate but closely related findings. First, the EPA found, as it had earlier in the 2009 GHG Endangerment Finding, that concentrations of six greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere endanger public health and welfare.⁷⁴ Second, the EPA found that these gases are emitted from some aircraft, thereby contributing to that endangerment.⁷⁵

The Aircraft Endangerment Finding states that aircraft are “the single largest GHG-emitting transportation source not yet subject to any GHG standards,”⁷⁶ explaining that twelve percent of all transportation emissions come from aircraft.⁷⁷ That accounts for a full three percent of all greenhouse gas emissions in the United States.⁷⁸ Furthermore, the impact of U.S. aircraft emissions on the international community is not insignificant: U.S. aircraft emissions amount to nearly one-third of all aircraft emissions worldwide.⁷⁹

Next, the Aircraft Endangerment Finding goes on to describe the EPA’s authority for issuing it. However, this is not a simple matter of pointing to a single federal statute and instead re-

⁷¹ Proposed Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution that May Reasonably be Anticipated to Endanger Public Health and Welfare and Advance Notice of Proposed Rulemaking, 80 Fed. Reg. 37,758 (July 1, 2015) (to be codified at 40 C.F.R. pts. 87 and 1068).

⁷² See Aircraft Endangerment Finding, *supra* note 5, at 54,426. The Aircraft Endangerment Finding traces the history of previous endangerment findings since the United State Supreme Court’s ruling in *Massachusetts v. EPA*. *Id.*

⁷³ *Id.*

⁷⁴ *Id.* This is substantially the same finding as the 2009 GHG Endangerment Finding, which is important since the EPA uses that prior finding to justify its authority to issue the Finding at issue here, as discussed *infra*.

⁷⁵ *Id.*

⁷⁶ *Id.* at 54,424.

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.* at 54,425.

quires several pages of justifications on the EPA's part.⁸⁰ First, the EPA compares the Aircraft Endangerment Finding to the 2009 GHG Endangerment Finding.⁸¹ As explained *supra* Section II(C), the 2009 GHG Endangerment Finding was based on Section 202(a) of the Clean Air Act, which specifically deals with the Administrator's authority to regulate emissions from new motor vehicles.⁸² However, according to the EPA, because the 2009 GHG Endangerment Finding was predicated upon a finding that six well-mixed greenhouse gases cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, and because these are the same six well-mixed greenhouse gases at issue in the Aircraft Endangerment Finding, there is a common thread between the 2009 GHG Endangerment Finding and the Aircraft Endangerment Finding at issue here, despite the fact that the basis for authority derives from different sections of the Clean Air Act.⁸³

The EPA's approach to the 2009 GHG Endangerment Finding was ultimately affirmed by the D.C. Circuit, and on certiorari review by the U.S. Supreme Court that affirmation was not altered.⁸⁴ To the EPA's way of thought, since the manner of handling the 2009 GHG Endangerment Finding was consistent with the law and upheld by the judiciary, issuing the Aircraft Endangerment Finding in a substantially similar manner to the 2009 GHG Endangerment Finding was within the EPA's authority.⁸⁵

The Aircraft Endangerment Finding notes that Section 231(a)(2)(A) of the Clean Air Act requires the EPA to make two determinations: (1) whether aircraft emissions may reasonably be anticipated to endanger public health or welfare; and (2) whether any of the emissions at issue may be causing or contributing to this endangerment.⁸⁶ To make these determinations, the EPA must engage in an exercise of "scientific judgment by the Administrator about the potential risks posed by GHG emissions to public health and welfare," the same test used for the 2009 GHG Endangerment Finding arising out of Section

⁸⁰ *See id.* at 54,434.

⁸¹ *See id.*

⁸² 42 U.S.C. § 7521 (2012).

⁸³ Aircraft Endangerment Finding, 81 Fed. Reg. at 54,434.

⁸⁴ *Coal. for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 116 (D.C. Cir. 2012); *see also* *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014) (the U.S. Supreme Court decision that did not address the D.C. Circuit's affirmation of the EPA's 2009 GHG Endangerment Finding).

⁸⁵ Aircraft Endangerment Finding, *supra* note 5, at 54,434.

⁸⁶ *Id.*

202(a).⁸⁷ That the EPA used the same standard in both instances reinforces that it had authority to issue the Aircraft Endangerment Finding.

The EPA's "scientific judgment" involves five major principles.⁸⁸ First, the EPA must proactively work to protect the public's health by analyzing current and future risks to the environment.⁸⁹ Second, the Administrator must balance the likelihood and severity of the effects of air pollution based on a "sliding scale" that considers whether there is a lesser risk of greater harm, a greater risk of lesser harm, or some combination in between.⁹⁰ Third, the Administrator should not speculate to protect public health, but may have to make decisions based on the limited data available.⁹¹ Fourth, the Administrator cannot simply look to a single source or class of sources to assess the risks from air pollution, but instead must consider the cumulative impact of multiple sources.⁹² Finally, the Administrator must consider risks on an individualized basis, because some

⁸⁷ *Id.*

⁸⁸ *Id.* at 54,434.

⁸⁹ *Id.*; see also John S. Applegate, *The Taming of the Precautionary Principle*, 27 WM. & MARY ENVTL. L. & POL'Y REV. 13 (2002) (discussing this "precautionary principle" as regulatory policy).

⁹⁰ Aircraft Endangerment Finding, 81 Fed. Reg. at 54,434–35; see also *Coal. for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 325 (D.C. Cir. 2012) (using this same language as rationale for why EPA can make decisions even where "the relevant evidence is difficult to come by, uncertain, or conflicting because it is on the frontiers of scientific knowledge. . . .").

⁹¹ Aircraft Endangerment Finding, 81 Fed. Reg. at 54,434–35.

⁹² *Id.* This analysis of the "cumulative impact" of pollution has been a trending topic in environmental circles for about the past decade. One scholar described the issue as:

Billions of people acting individually and together in economic enterprises contribute to ecological degradation by causing a wide variety of impacts on the Earth: climate disruption from greenhouse gas emissions, deforestation (for logging and agriculture), degradation of productive land (from desertification, erosion and other processes), loss of freshwater watercourses and unpolluted water supplies for human use, depletion of marine fisheries (through over-fishing and destructive practices), discharges of toxic pollution (into air, water and land), biotic impoverishment from loss of species, and over-fertilization with nitrogen leading to dead zones in the seas.

Joseph H. Guth, *Cumulative Impacts: Death-Knell for Cost-Benefit Analysis in Environmental Decisions*, 11 BARRY L. REV. 23, 24 (2008).

subpopulations are more vulnerable to air pollution than others.⁹³

Considering these principles, the Finding states that the Administrator is mandated to issue an endangerment finding on the subject of aircraft engine emissions, even “while also recognizing uncertainties” because it is in the Administrator’s “judgment” that aircraft emissions do “contribute” to air pollution.⁹⁴

The Aircraft Endangerment Finding also details the scientific findings the EPA reviewed and considered, followed by the EPA’s responses to public comments.⁹⁵ The finding concludes with the various disclosures required by law, such as a statement about Executive Order 13132 on Federalism and Executive Order 12866: Regulatory Planning and Review.⁹⁶

Out of the Aircraft Endangerment Finding’s fifty-five total pages, the actual endangerment “finding” is remarkably brief:

Under CAA section 231(a)(2)(A), the Administrator finds that emissions of the six well-mixed GHGs from classes of engines used in U.S. covered aircraft, which are subsonic jet aircraft with a maximum takeoff mass (MTOM) greater than 5,700 kilograms and subsonic propeller drive, (*e.g.*, turboprop) aircraft with a MTOM greater than 8,618 kilograms, contribute to the air pollution that endangers public health and welfare.⁹⁷

This is also followed by an explicit statement that this finding does not prejudice what future EPA standards will be for engines used in any aircraft covered by the Aircraft Endangerment Finding.⁹⁸ Thus, the importance of the Aircraft Endangerment Finding is not so much the pithy statement above; the Aircraft Endangerment Finding’s real importance is that it lays the groundwork for future EPA rules under the Clean Air Act.⁹⁹

⁹³ *Id.*; see also Kristin Hines Gladd, *Air Toxics: EPA Action on Cumulative Impacts*, 17 NAT. RESOURCES & ENV’T 51 (Winter 2017) (discussing the impact of multiple air pollutants on at-risk populations).

⁹⁴ Aircraft Endangerment Finding, *supra* note 5, at 54,435.

⁹⁵ *Id.* at 54,468–74.

⁹⁶ *Id.* at 54,474–75.

⁹⁷ *Id.* at 54,461.

⁹⁸ *Id.* at 54,433.

⁹⁹ See generally Daniel P. Selmi, *Jurisdiction to Review Agency Inaction Under Federal Environmental Law*, 72 IND. L.J. 65 (1996) (discussing discretionary versus non-discretionary acts of the EPA and the ability of citizen suit provisions in federal environmental statutes to compel the EPA to act).

IV. COMPARATIVE ANALYSIS

The Aircraft Endangerment Finding is not the first endangerment finding that the EPA has issued pursuant to the Clean Air Act. A comparative review of some recent endangerment findings (including their genesis), the consequences following the findings, and their ultimate outcomes, may be helpful to better forecast the future impact of the Aircraft Endangerment Finding.

A. THE CLEAN POWER PLAN

On August 3, 2015, President Obama and then-EPA Administrator Gina McCarthy announced the final Clean Power Plan, called “a historic step in the Obama Administration’s fight against climate change.”¹⁰⁰ The Clean Power Plan—or, as it is formally identified in the *Federal Register*, the “Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units”—is an ambitious administrative rule that seeks to reduce carbon dioxide emissions from power plants.¹⁰¹ Of course, neither the President nor the EPA can simply issue a final rule regulating an entire industry’s emissions. Instead, the full bureaucratic process must be followed.

First, the EPA issued its power plant endangerment finding as the basis for its rulemaking under the Clean Power Plan. That finding is the same as the 2009 GHG Endangerment Finding, which was made final a full six years before the Clean Power Plan, an unusually long time between issuing the finding and rulemaking.¹⁰² Notwithstanding the delay, the EPA issued its

¹⁰⁰ White House Office of the Press Sec’y, *Fact Sheet: President Obama to Announce Historic Carbon Pollution Standards for Power Plants* (Aug. 3, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/08/03/fact-sheet-president-obama-announce-historic-carbon-pollution-standards> [perma.cc/8LMP-9CN5].

¹⁰¹ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, (Oct 23, 2015) (to be codified at 40 C.F.R. pt. 60). The overarching goal of the Clean Power Plan was to reduce carbon dioxide emissions, and thereby curtail greenhouse gases and slow climate change generally, by thirty-two percent by the year 2030. *Id.*

¹⁰² See Jay Holloway & Liz Williamson, *Undoing the Clean Power Plan*, LEXOLOGY (Nov. 22, 2016), <http://www.lexology.com/library/detail.aspx?g=89fe969f-ed8a-4e98-9da2-440fd9870cfd> [perma.cc/45KB-Z27N] (stating that, on “average, a rulemaking takes two years from proposal to final rule”).

proposed rule for the Clean Power Plan.¹⁰³ The proposed rule detailed the Clean Power Plan in all its technical glory, including 130 total pages of compliance schedules, technological requirements, states' goals and plans, and the proposed rule's impact on other EPA programs and rules.¹⁰⁴ Just as the 2009 GHG Endangerment Finding was controversial,¹⁰⁵ so too is the Clean Power Plan, which met fierce resistance at every step and from nearly all sides.¹⁰⁶

Nonetheless, the Clean Power Plan rulemaking process chugged along. Over two million public comments were submitted.¹⁰⁷ Public hearings were held in Atlanta, Pittsburgh, Denver, and the District of Columbia.¹⁰⁸ Then, following President Obama's announcement, the final Clean Power Plan was published.¹⁰⁹

That same day, October 23, 2015, twenty-four states filed suit against the EPA and Administrator McCarthy in the D.C. Circuit asking the Court to set aside the Clean Power Plan.¹¹⁰ The states argued that the Plan exceeds the EPA's statutory authority, is arbitrary and capricious, and is not otherwise in accordance with

¹⁰³ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014) (to be codified at 40 C.F.R. pt. 60).

¹⁰⁴ *Id.*

¹⁰⁵ The U.S. Chamber of Commerce complained that EPA was "willfully ignoring relevant, credible scientific information" by issuing the finding. Patricia Ross McCubbin, *EPA's Endangerment Finding for Greenhouse Gases and the Potential Duty to Adopt National Ambient Air Quality Standards to Address Global Climate Change*, 33 S. ILL. U. L.J. 437, 439 (2009).

¹⁰⁶ See, e.g., Tamar Cerafici, *The Six-Percent Solution: EPA's Clean Power Plan Doesn't Do the Math*, 46 AM. BAR ASS'N: TRENDS No. 3, http://www.americanbar.org/publications/trends/2014-2015/january-february-2015/the_sixpercent_solution_epas_clean_power_plan_doesnt_do_math.html [perma.cc/PC9B-TMZQ] (noting that if based on a standard where if "everybody hates your decision, you got it right" then the "Clean Power Plan (CPP) proposal must have gotten it right"); see also *id.* (putting it simply: "Everybody hates it").

¹⁰⁷ EPA, *Fact Sheet: Clean Power Plan & Carbon Pollution Standards Key Dates* (Jan. 7, 2014), <https://archive.epa.gov/epa/cleanpowerplan/fact-sheet-clean-power-plan-carbon-pollution-standards-key-dates.html> [perma.cc/8VW3-N7F8] (last visited Aug. 30, 2017).

¹⁰⁸ Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations, 80 Fed. Reg. 65,979 (Oct. 28, 2015) (to be codified at 40 C.F.R. pts. 60, 62, and 78).

¹⁰⁹ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).

¹¹⁰ *West Virginia v. EPA*, No. 15-1363 (D.C. Cir. Oct. 23, 2015).

the law.¹¹¹ Following approximately three months of initial briefing, the Supreme Court took the unusual step of staying the Clean Power Plan until the case concluded.¹¹²

While the case remains pending with the D.C. Circuit, nearly all commentators believe it is unlikely to be resolved, because of the inevitable demise of the Clean Power Plan at the hands of the Trump Administration.¹¹³

The Clean Power Plan has its origins in an endangerment finding similar to the one at issue here. However, the similarities likely end there. The Clean Power Plan was marred by strong opposition and public controversy from the outset, became mired in litigation brought by almost half the States in the Union, was subject to an almost unheard-of stay by the Supreme Court, and is now considered to be on the chopping block of a new presidential administration.

B. MEDIUM- AND HEAVY-DUTY TRUCK EMISSION STANDARDS

Another rulemaking topic that stems from the 2009 GHG Endangerment Finding are new regulations governing medium- and heavy-duty truck emissions.¹¹⁴ These rules started out in the same manner and largely followed the same course as the Clean Power Plan, but with a much different outcome.

¹¹¹ Petition at 2, *West Virginia v. EPA*, No. 15-1363 (D.C. Cir. Oct. 23, 2015).

¹¹² *West Virginia v. EPA*, 136 S. Ct. 1000 (2016).

¹¹³ See generally John Siciliano, *Trump Will Burn Obama's Energy Regulations*, THE WASH. EXAMINER (Feb. 6, 2017), <http://www.washingtonexaminer.com/trump-will-burn-obamas-energy-regulations/article/2613873> [perma.cc/BW7T-6QVS] (quoting Tom Pyle, former Energy Department transition chief for President Trump, as saying “the Climate Action Plan is dead, period”); Emily Holden, *Even Before Formal Death Knell, Clean Power Plan is History*, E&E NEWS (Jan. 24, 2017), <http://www.eenews.net/stories/1060048857> [perma.cc/A3GK-N5X2]; Amy Sisk, *Coal State Considers Carbon Future Under Trump*, INSIDE ENERGY (Jan. 12, 2017), <http://insideenergy.org/2017/01/12/coal-state-considers-carbon-future-under-trump/> [perma.cc/AD63-PQWP] (“The Clean Power Plan’s effectively dead. . . .”); Marlo Lewis, *Clean Power Plan is Dead*, COMPETITIVE ENTERPRISE INSTITUTE (Nov. 22, 2016), <https://cei.org/blog/clean-power-plan-dead> [perma.cc/9FFY-D5ZZ]. The Climate Action Plan, although not the same as the Clean Power Plan, was the Obama Administration’s overarching plan to reduce global carbon pollution levels, including the reductions to utility emissions covered under the Clean Power Plan. See *supra* Section II(C).

¹¹⁴ Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, 76 Fed. Reg. 57,106 (Sept. 15, 2011) (to be codified at 40 C.F.R. pts. 85, 86, 600, et al.); Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2, 81 Fed. Reg. 73,478 (Oct. 25, 2016) (to be codified at 40 C.F.R. pts. 9, 22, 85, et al.).

On February 18, 2014, President Obama directed his administration to create new emissions standards for medium- and heavy-duty commercial trucks, with the twin goals of increasing fuel efficiency and reducing emissions.¹¹⁵ The EPA worked with the National Highway Traffic Safety Administration (NHTSA) to create a proposed rule to fulfill those goals.¹¹⁶ The proposed rule, commonly referred to as Phase 2,¹¹⁷ would build on earlier standards (Phase 1)¹¹⁸ to reduce oil consumption by 2.2 million barrels per day by 2025 and cut greenhouse gas emissions by 6 billion metric tons over the lifetime of vehicles sold from 2011 to 2025.¹¹⁹

The EPA's mandate was to create engine emissions standards based on its authority under the Clean Air Act and the 2009 endangerment finding.¹²⁰ The NHTSA's role, on the other hand, was to create the fuel-consumption standards, derived from the Energy Independence and Safety Act.¹²¹ Following publication of the proposed Phase 2 rule, the EPA and the NHTSA held two public hearings in Chicago and Long Beach and accepted over 230,000 written comments.¹²² The final rule was published in the *Federal Register* on October 25, 2016.¹²³

¹¹⁵ Office of the Press Secretary, *Remarks by the President on Fuel Efficiency Standards*, THE WHITE HOUSE (Feb. 18, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/02/18/remarks-president-fuel-efficiency-standards-medium-and-heavy-duty-vehicle>.

¹¹⁶ See EPA & NHTSA, *Proposed Rules: Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2* (June 19, 2015), <https://www.nhtsa.gov/document/proposed-rules-greenhouse-gas-emissions-and-fuel-efficiency-standards-medium-and-heavy-duty>.

¹¹⁷ Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2, *supra* note 114, at 40,138 (to be codified at 40 C.F.R. pts. 9, 22, 85, et al.).

¹¹⁸ Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, *supra* note 114, at 57,106.

¹¹⁹ Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2, *supra* note 114, at 40,141.

¹²⁰ See *id.* at 40,169 (citing authority as Section 202(a) of the Clean Air Act and the 2009 GHG Endangerment Finding).

¹²¹ *Id.* at 40,152; The Energy Independence and Security Act, 42 U.S.C. ch. 152 (2007).

¹²² *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2: Response to Comments for Joint Rulemaking*, Docket No. EPA-420-R-16-901, at i (Aug. 2016).

¹²³ Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated to Endanger Public Health and Welfare, *supra* note 5, at 73,478.

Unlike with the Clean Power Plan, however, the Phase 2 rule has largely been accepted by the trucking industry,¹²⁴ which may be attributable to the collaboration between the EPA, the NHTSA, and the industry. The agencies worked directly with manufacturers like Chrysler,¹²⁵ Navistar,¹²⁶ and North American Trucks,¹²⁷ among others.¹²⁸ In total, the agencies conducted

¹²⁴ See, e.g., Sean McNally, *ATA Remains Optimistic on Truck Greenhouse Gas and Fuel Efficiency Proposal*, AM. TRUCKING ASSOCS. (June 19, 2015), <http://www.trucking.org/article.aspx?uid=0cd56806-26db-48c6-8e95-538ef626b12b> [https://perma.cc/G6RT-QLXW] (quoting ATA President and CEO Bill Graves: “Fuel is an enormous expense for our industry – and carbon emissions carry an enormous cost for our planet That’s why our industry supported the Obama Administration’s historic first round of greenhouse gas and fuel efficiency standards for medium and large trucks and why we support the aims of this second round of standards”); Kevin Jones, *Trucking Industry Reactions to GHG Phase II Vary*, FLEETOWNER (Jun. 19, 2015), <http://fleetowner.com/regulations/trucking-industry-reactions-ghg-phase-ii-vary> [https://perma.cc/FMK7-X3NM] (quoting CNA Corp. Military Advisory Board Chairman Gen. (Ret.) Ron Keys: “To date, fuel economy standards for cars and trucks have proved to be powerful tools that have speeded innovation, decreased our dependence on oil and improved our nation’s overall security. The CNA MAB supports the next phase of rulemaking for medium and heavy-duty trucks as a matter of national security”); *id.* (quoting Cummins Inc.’s Chairman and CEO Tom Linebarger: “Cummins supports the proposed Phase II rule and believes it will help our industry grow in a more sustainable way, which is a win for our customers and win for the environment” (internal quotations omitted)). This industry acceptance is not universal; in late December 2016 a truck-trailer manufacturer’s association and a truck racing coalition filed challenges to the rule in the *D.C. Circuit: Truck Trailer Mfr. v. EPA*, No. 16-1430 (D.C. Cir. 2016) and *Racing Enthusiasts & Suppliers v. EPA*, No. 16-1447 (D.C. Cir. 2016), respectively. Linda Chiem, *Enviros Defend EPA Heavy-Duty Truck Rule at DC Circ.*, LAW360 (Jan. 24, 2017, 5:43 PM), <https://www.law360.com/articles/884388/enviros-defend-epa-heavy-duty-truck-rule-at-dc-circ> [https://perma.cc/C279-3SQA].

¹²⁵ Letter from Sergio Marchionne, CEO, Chrysler Group LLC to Ray LaHood, U.S. Secretary of Transportation and Lisa Jackson, Administrator, EPA (May 20, 2010), <https://www.nhtsa.gov/document/chryslermd-hdcommitmentletter052010pdf> [https://perma.cc/VSJ9-5CY8].

¹²⁶ Letter from Daniel C. Ustlan, Chairman, President, and CEO, Navistar International Corporation to Ray LaHood, U.S. Sec’y of Transp. and Lisa Jackson, Adm’r, EPA (May 20, 2010), <https://www.nhtsa.gov/document/navistarmd-hdcommitmentletter052010pdf> [https://perma.cc/YFG4-GQEA].

¹²⁷ Letter from Dennis Slagle, President and CEO, North American Trucks to Ray LaHood, U.S. Sec’y of Transp. and Lisa Jackson, Adm’r, EPA (May 20, 2010), <https://www.nhtsa.gov/document/noramtrucksm-d-hdcommitmentletter052010pdf> [https://perma.cc/2N8Z-94J5].

¹²⁸ This collaboration included meetings with the Truck and Engine Manufacturers Association, the United Auto Workers (UAW) union, the Owner-Operator Independent Drivers Association, the American Trucking Association, the North American Dealers Association (NADA), the Manufacturers of Emissions Controls Association, Volvo, and Daimler Trucks. Office of Air & Radiation, *Memorandum*

over 300 meetings with such stakeholders.¹²⁹ Further, industry representatives themselves credit the collaborative process with creating a rule that all interested parties could accept.¹³⁰ Any rule affecting an industry like commercial trucking could be accepted without controversy only if they bought it first, with the “buy-in” coming as the rule was being written.

The point here, of course, is that the outcome for rulemaking on aircraft emissions will depend on the extent to which the airline, airframe, engine manufacturers and other stakeholders are involved in the process. The Clean Power Plan and Phase 2 both began with the 2009 GHG Endangerment Finding—but the consequences of each were totally different. The Clean Power Plan was met with fierce industry resistance and is now considered all but dead. Phase 2, on the other hand, was a collaborative endeavor from the outset, which produced a final rule that nearly all seem to accept. The latter path seems to offer a better outcome for regulating aircraft emissions.

in Response to Petition for Rulemaking to Adopt Ultra-Low NOx Standards for On-Highway Heavy-Duty Trucks and Engines, EPA (Dec. 20, 2016), <https://www.epa.gov/sites/production/files/2016-12/documents/nox-memorandum-nox-petition-response-2016-12-20.pdf> [<https://perma.cc/34BW-UG5J>].

¹²⁹ EPA, *Detailed Fact Sheet: EPA and NHTSA Propose Standards to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond*, <https://www.nhtsa.gov/document/fact-sheet-epa-and-nhtsa-propose-standards-reduce-greenhouse-gas-emissions-and-improve-fuel> [<https://perma.cc/2H8C-TE5J>] (last visited Aug. 30, 2017).

¹³⁰ “Over the past eight years, we have worked with our customers, technology partners and various other stakeholders to help government regulators develop regulations that drive economic growth while reducing the environmental footprint of our industry. As the Phase 2 rule is finalized, we are ready with the technology to meet and exceed both the goals and expectations of our customers and regulators.” Jack Roberts, *GHG Phase 2: Trucking Industry Reactions*, TRUCKINGINFO (Aug. 2016), <http://www.truckinginfo.com/article/print/story/2016/08/ghg-phase-2-trucking-industry-reactions.aspx> [<https://perma.cc/3Y3F-BAD8>] (quoting Tom Linebarger, Chairman and CEO of Cummins Inc.), “Our goal in this process was to work collaboratively with the agencies to simplify compliance while maximizing environmental benefits and overall cost savings for the fleets. I think we’ve achieved that.” *Id.* (quoting Dick Giromini, President and CEO of Wabash National) (internal quotations omitted); Jeff Crissey, *DTNA’s Daum: Service Improvements, Connectivity Efforts Continue*, COMMERCIAL CARRIER J. (Oct. 3, 2016), <http://www.cjdigital.com/dtnas-daum-service-improvements-connectivity-efforts-continue/> [<https://perma.cc/454Z-M3RU>] (quoting Martin Daum, CEO of Daimler Trucks North America: “It is great how the industry and regulators came together to develop a tough but manageable compromise.” (internal quotations omitted)).

IV. IMPACT OF THE ENDANGERMENT FINDING AND SUBSEQUENT RULES ON UNITED STATES' ROLE IN FOREIGN LAW AND POLICY

The EPA's endangerment findings for aircraft emissions have international, as well as domestic, ramifications. Most notably, the findings affect the United States' obligations under the emissions standards approved by the International Civil Aviation Organization (ICAO) and under the Paris Agreement, an international agreement created by the United Nations Framework Convention on Climate Change (UNFCCC).

A. THE INTERNATIONAL CIVIL AVIATION ORGANIZATION

The ICAO is a special agency of the United Nations, established in 1944, "in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically."¹³¹ The ICAO works with its member states to "reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies in support of a safe, efficient, secure, economically sustainable and environmentally responsible civil aviation sector."¹³² In 2004, the ICAO established three goals to combat aviation environmental issues: "(1) Limit or reduce the number of people affected by significant aircraft noise; (2) limit or reduce the impact of aviation emissions on local air quality; and (3) limit or reduce the impact of aviation GHG emissions on the global climate."¹³³

The ICAO's members that use aircraft in international transportation must adopt emissions standards that are at least as stringent as the ICAO's standards.¹³⁴ This gives member states

¹³¹ International Civil Aviation Organization (ICAO), *Convention on International Civil Aviation*, Dec. 7, 1944, 15 U.N.T.S. 295 [hereinafter Chicago Convention], http://www.icao.int/publications/Documents/7300_9ed.pdf [https://perma.cc/VPY8-3QGR]. The Ninth Edition of this Convention was adopted in 2006. *Id.*

¹³² International Civil Aviation Organization, *About ICAO*, ICAO, <http://www.icao.int/about-icao/Pages/default.aspx> [https://perma.cc/YMX7-AXEM] (last visited Aug. 30, 2017). The United States is one of the ICAO's 191 member states. See International Civil Aviation Organization, *Member States*, ICAO, <http://www.icao.int/about-icao/pages/member-states.aspx> [https://perma.cc/AV2Z-9VY2] (last visited Aug. 30, 2017) (click the "EN" Icon in the center of the page to access the English version of the list of ICAO member states).

¹³³ Aircraft Endangerment Finding, *supra* note 5, at 54,428.

¹³⁴ See generally Chicago Convention, *supra* note 131.

the ability to ban from their airspace aircraft that fail to meet the ICAO's standards.¹³⁵ Member states must also recognize airworthiness certificates of any state whose standards are "at least as stringent as the ICAO's standards."¹³⁶ To avoid unreasonable constraints on international commerce, a member state that adopts standards more stringent than the ICAO's must notify the ICAO of the differences between its own standards and the ICAO's.¹³⁷

1. *The Committee on Aviation Environmental Protection*

The ICAO uses its Committee on Aviation Environmental Protection (CAEP) to evaluate, research, and recommend measures to the ICAO's council that address international aviation's environmental impact.¹³⁸ Established in 1983, the CAEP is a technical committee that assists the ICAO Council in "formulating new policies and adopting new Standards and Recommended Practices (SARPs) related to aircraft noise and emissions, and more generally to aviation environmental impact."¹³⁹ The CAEP takes into account: (1) technical feasibility; (2) environmental benefit; (3) economic reasonableness; (4) interdependencies of measures; (5) developments in other fields; and (6) international and national programs.¹⁴⁰

After reviewing and adopting the CAEP's recommendations, the ICAO Council reports to the ICAO Assembly, where aviation environmental protection policies are adopted and then crafted into Assembly Resolutions.¹⁴¹ If the ICAO adopts a CAEP proposal, it becomes part of ICAO Standards and Recommended Practices.¹⁴² Nations around the world then adopt those standards into their domestic law. In the United States, the EPA and the Federal Aviation Administration (FAA) usually work "within the standard-setting process of the ICAO's Committee on Aviation Environmental Protection (CAEP) to establish interna-

¹³⁵ *Id.* art. 87.

¹³⁶ *Id.* art. 33.

¹³⁷ *Id.* art. 38.

¹³⁸ International Civil Aviation Organization, *Committee on Aviation Environmental Protection (CAEP)*, ICAO (Feb. 1–12, 2016), <http://www.icao.int/environmental-protection/Pages/Caep.aspx#ToR> [<https://perma.cc/P3NN-NMKK>] (last visited Aug. 30, 2017).

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

tional emissions standards and related requirements.”¹⁴³ Historically, after the ICAO adopts emissions standards, the EPA generally promulgates rules under CAA Section 231 to ensure that the United States’ emissions standards are at least as stringent as ICAO’s standards.¹⁴⁴

2. *Most Recent ICAO Developments and the EPA Endangerment Findings*

At the CAEP’s February 2016 meeting, it agreed on initial standards to regulate carbon dioxide emission from aircraft engines.¹⁴⁵ These standards were approved at the 39th ICAO Assembly in Montreal, Canada, in October 2016, and are expected to be formally adopted in March 2017.¹⁴⁶

There are several key elements that will require the United States to act. New carbon dioxide emissions standards will apply to all aircraft models launched after the year 2020.¹⁴⁷ Beginning in 2021, airlines will need to “purchase emissions offset credits to account for” any emissions growth beyond those 2020 levels.¹⁴⁸ These standards are designed to “encourage the broadest participation possible” and to provide flexibility by giving countries the option to participate starting in 2021 or waiting until 2024 or 2027 for those countries that have “limited capacity or that need technical assistance to participate.”¹⁴⁹

As of the October 2016 Assembly, “over 65 countries representing over eighty-five percent of global air traffic” decided to participate in 2021.¹⁵⁰ Finally, these standards create an incentive for the ICAO’s member states to act. By putting a price (the offset credits) on emissions from aircraft, these standards create

¹⁴³ EPA Finalizes First Steps to Address Greenhouse Gas Emissions from Aircraft Engines, EPA (July 2016), <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P1UN.PDF?Dockey=P100P1UN.PDF> [<https://perma.cc/CC2G-A349>].

¹⁴⁴ *Id.*

¹⁴⁵ International Civil Aviation Organization, *Historic Agreement Reached to Mitigate International Aviation Emissions*, ICAO (Oct. 6, 2016), <http://www.icao.int/Newsroom/Pages/Historic-agreement-reached-to-mitigate-international-aviation-emissions.aspx> [<https://perma.cc/M669-BTEZ>].

¹⁴⁶ *Id.*

¹⁴⁷ Press Release, The White House Office of the Press Secretary, FACT SHEET: 191 Countries Reach a Global Climate Deal for International Aviation (Oct. 6, 2016), <https://www.whitehouse.gov/the-press-office/2016/10/06/fact-sheet-191-countries-reach-global-climate-deal-international> [<https://perma.cc/M6KF-3ATY>].

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* That group of sixty-five countries includes the United States. *Id.*

an “incentive to further technology improvements, air traffic efficiency improvements, and the development and use of sustainable alternative fuels.”¹⁵¹

These standards, however, have not been welcomed with entirely open arms. Some environmental groups believe that the “ICAO merely ratified what manufacturers were already doing” and thus do not feel that the ICAO standards are groundbreaking.¹⁵² In fact, the latest aircraft models from companies like Boeing and Airbus already meet the emissions standards that will go into effect in 2020.¹⁵³

Still, these standards create international obligations to which the United States must conform by 2020, giving it a stepping stone to comply with the ICAO standards. The EPA Endangerment Findings allow the EPA to use Section 231 of the CAA to set standards for GHG emissions that are at least as stringent as those set by the ICAO.¹⁵⁴

B. THE PARIS AGREEMENT

The Paris Agreement, a product of the United Nations Framework Convention on Climate Change (UNFCCC), applies to more than just aircraft emissions.¹⁵⁵ It addresses and sets standards for all international GHG emissions, as well as sets standards for reducing such emissions.¹⁵⁶

1. *The UNFCCC and the Kyoto Protocol*

The UNFCCC is an international treaty and convention designed to “prevent dangerous anthropogenic interference with the climate system.”¹⁵⁷ It began in 1994, and today, 197 coun-

¹⁵¹ *Id.*

¹⁵² *EPA Finds Jetliner Pollution Endangers Public Health, Environment*, JAPAN TIMES (July 26, 2016), <http://www.japantimes.co.jp/news/2016/07/26/world/epa-finds-jetliner-pollution-endangers-public-health-environment/> [https://perma.cc/6C7W-ZL9U].

¹⁵³ *Id.*

¹⁵⁴ Finding That Greenhouse Gas Emissions From Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated To Endanger Public Health and Welfare, *supra* note 5, at 54,434.

¹⁵⁵ *First Steps to a Safer Future: Introducing the United Nations Framework Convention on Climate Change*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (2014), http://unfccc.int/essential_background/convention/items/6036.php [https://perma.cc/Q274-NJ4Y] (last visited Aug. 30, 2017).

¹⁵⁶ *Id.*

¹⁵⁷ United Nations Framework Convention on Climate Change art.2, June 4, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC], http://unfccc.int/essential_

tries, including the United States, are parties to the convention.¹⁵⁸ The UNFCCC sets an international environmental goal: to stabilize greenhouse gas concentrations “at a level that would prevent dangerous [human] . . . interference with the climate system.”¹⁵⁹

The UNFCCC did not set emissions standards or other goals to help lessen the effects of human activity on the environment. Therefore, it did not bind any of the Convention’s parties to act in any particular manner.¹⁶⁰ For that reason, the UNFCCC enacted the Kyoto Protocol, which set internationally binding emissions reduction targets for the countries that both signed and ratified it.¹⁶¹ The Kyoto Protocol was adopted in Kyoto, Japan, in December 1997, and officially entered into force in February 2005.¹⁶² Even though 192 countries have ratified the Kyoto Protocol, the United States is not among them; the United States signed the Protocol in 1998, but has yet to ratify it.¹⁶³

The first rules for implementing the Kyoto Protocol, the Marrakesh Accords, were adopted in 2001.¹⁶⁴ These Accords created a preliminary “commitment period” for the countries that ratified the Protocol; that “commitment period” began in 2008 and ended in 2012.¹⁶⁵ During this first commitment period, thirty-seven industrialized countries and Europe “committed to reduce GHG emissions to an average of five percent against 1990 levels.”¹⁶⁶

background/convention/items/6036.php [https://perma.cc/Q274-NJ4Y] (Click “English” link on right-hand side under “Text of Convention” heading and it will download as a PDF).

¹⁵⁸ *First Steps to a Safer Future: Introducing The United Nations Framework Convention on Climate Change*, *supra* note 155; see also *Status of Ratification of the Convention, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (2014)*, [hereinafter *Status of Ratification of Kyoto Protocol*] http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php [https://perma.cc/6WQV-VWUW] (last visited Aug. 30, 2016) (the United States signed the UNFCCC on June 12, 1992, and ratified it on October 15, 1994).

¹⁵⁹ UNFCCC, *supra* note 157, art. 2.

¹⁶⁰ Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 37 I.L.M. 22, [hereinafter *Kyoto Protocol*], http://unfccc.int/kyoto_protocol/items/2830.php [https://perma.cc/V2MY-ZVEX] (to access the full text of the protocol, click “English” link on right-hand side under “Text of the Kyoto Protocol” heading”) (last visited Aug. 30, 2017).

¹⁶¹ *Id.*

¹⁶² *Status of Ratification of Kyoto Protocol*, *supra* note 158.

¹⁶³ *Id.*

¹⁶⁴ *Kyoto Protocol*, *supra* note 160.

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

On December 8, 2012, the “Doha Amendment to the Kyoto Protocol” was adopted.¹⁶⁷ This amendment includes, among other changes to the Kyoto Protocol, a call to a second commitment period from January 1, 2013, to December 31, 2020.¹⁶⁸ During this second commitment period, the parties to the Convention “committed to reduce GHG emissions by at least eighteen percent below 1990 levels.”¹⁶⁹

2. *The Paris Agreement*

While the United States did not obligate itself to the Kyoto Protocol, it ratified the Paris Agreement on September 3, 2016, meaning that it will be subject to obligations thereunder.¹⁷⁰ The Paris Agreement “brings all nations [that are parties to the UNFCCC] into a common cause to undertake [] ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.”¹⁷¹ The ultimate focus of the Paris Agreement is to “strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.”¹⁷²

The Paris Agreement opened for signature on April 22, 2016, and would enter into force thirty days after fifty-five countries that account for at least fifty-five percent of global emissions have deposited their instruments of ratification.¹⁷³ That thresh-

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ Paris Agreement, Apr. 22, 2016, http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf [<https://perma.cc/8LJH-JGV9>]; *Status of Ratification of the Paris Agreement*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/paris_agreement/items/9444.php [<https://perma.cc/G2RS-8EPN>]; Adam Wernick, *The US and China Have Now Officially Ratified the Paris Climate Agreement*, PUBLIC RADIO INT’L (Sept. 25, 2016, 10:15 AM), <https://www.pri.org/stories/2016-09-25/us-and-china-have-now-officially-ratified-paris-climate-agreement> [<https://perma.cc/66MN-SCF6>].

¹⁷¹ United Nations Framework Convention on Climate Change, *Summary of the Paris Agreement*, <http://bigpicture.unfccc.int/#content-the-paris-agreement> [<https://perma.cc/ZVW7-QNX8>] (last visited Aug. 30, 2017).

¹⁷² *Id.*

¹⁷³ *Paris Agreement Officially Open for Signatures: 175 Countries Sign on the First Day*, CLIMATE POLICY OBSERVER (Apr. 22, 2016), <http://climateobserver.org/paris-agreement-officially-opens-signatures/> [<https://perma.cc/SF3Z-S22P>]; *Status of Ratification of the Paris Agreement*, *supra* note 170; *see also id.*

old was met on October 5, 2016, and the Paris Agreement entered into force on November 4, 2016.¹⁷⁴ As of July 2017, 153 of the original 197 parties to the original UNFCCC have ratified the Paris Agreement.¹⁷⁵

Several elements of the Paris Agreement affect the United States' aviation emissions obligations. The Agreement sets a long-term goal of limiting global temperature increase to "well below 2°C" and also makes an effort to limit that increase to 1.5°C.¹⁷⁶ To reach that goal, parties have agreed to reach peak GHG levels as soon as possible.¹⁷⁷ To quantify individual peak levels, the parties must "prepare, communicate, and maintain successive nationally determined contributions" (NDC) and "pursue domestic mitigation measures" to achieve them.¹⁷⁸ Each NDC must "represent a progression beyond . . . [the previous one and] reflect its highest possible ambition."¹⁷⁹

The Paris Agreement also calls for parties to "conserve and enhance . . . sinks and reservoirs" of GHGs.¹⁸⁰ Article 6 of the Agreement establishes a means to contribute to GHG emissions mitigation.¹⁸¹ Article 7 creates a global goal to strengthen national adaptation efforts through support and international cooperation.¹⁸² Finally, Articles 9, 10, and 11 call upon developed nations to support and aid developing countries to meet their climate goals.¹⁸³

3. *The ICAO, the Paris Agreement and Aircraft GHG Emissions*

The Paris Agreement, while comprehensive, does not address aircraft GHG emissions.¹⁸⁴ Because it limits domestic GHG emissions, however, some believe that domestic aviation is covered.¹⁸⁵ And, because domestic aviation "is responsible for one

¹⁷⁴ *Status of Ratification of the Paris Agreement*, *supra* note 170.

¹⁷⁵ *Id.*

¹⁷⁶ Paris Agreement, *supra* note 170, art. 2.

¹⁷⁷ *Id.* art. 4.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ *Id.* art. 5.

¹⁸¹ *Id.* art. 6.

¹⁸² *Id.* art. 7.

¹⁸³ *Id.* arts. 9–11.

¹⁸⁴ *The Paris Agreement and Implications for Reducing Aviation Emissions*, INT'L COALITION FOR SUSTAINABLE AVIATION (Aug. 18, 2016), <http://www.worldwildlife.org/publications/the-paris-agreement-and-implications-for-reducing-aviation-emissions> [https://perma.cc/27JE-BZU2].

¹⁸⁵ *Id.*

third of total aviation emissions,” parties to the Paris Agreement “must adopt measures within their NDCs to limit its climate impact.”¹⁸⁶

Some have expressed concern about how the ICAO’s standards potentially conflict with the goals of the Paris Agreement. In fact, some believe the ICAO’s plans may actually detract from the Paris Agreement.¹⁸⁷ For example, the ICAO plan will allow airlines to buy offsets for emissions exceeding the 2020 standards, which some ICAO critics believe will cause aircraft GHG emissions to increase, thus undermining the larger goals outlined in the Paris Agreement.¹⁸⁸

One commentator has outlined four ways in which the ICAO may “undercut” the Paris Agreement.¹⁸⁹ First, the credits that airlines may purchase to “offset” their emissions that fail to meet 2020 standards are essentially “worthless.”¹⁹⁰ “[O]n paper[,] it would seem as if airlines were offsetting their emissions, but, in practice, the atmosphere would not be fooled.”¹⁹¹ It is certainly a negative that the airlines would likely pass the cost of the offsets onto their passengers, leading to higher ticket prices, which could depress demand for travel and thus reduce overall emissions. However, the relative inelasticity in demand for air travel makes this proposition doubtful.

Second, the commentator claims that relying on forests to offset aircraft GHG emissions will not work.¹⁹² Airline companies may restore or protect a section of forest to “suck up the carbon dioxide that planes spew into the skies.”¹⁹³ However, this is a temporary solution, because the supply of forest land may decrease, and airlines may find themselves “creating social conflict . . . and . . . competing for land that people need to live on, and

¹⁸⁶ *Id.*

¹⁸⁷ Kate Wheeling, *How Aviation’s Carbon Market Could Undercut the Paris Agreement*, PACIFIC STANDARD (Nov. 14, 2016), <https://psmag.com/how-aviations-carbon-market-could-undercut-the-paris-agreement-929fee3effac#.4od8k0pf8> [<https://perma.cc/K5UT-W92B>]; Hannah Mowat, *ICAO’s Carbon Offset Plan for Aviation is a Threat to Paris Agreement*, EURACTIV.COM (Sept. 23, 2016), <https://www.euractiv.com/section/transport/opinion/icaos-carbon-offset-plan-for-aviation-is-a-threat-to-paris-agreement/> [<https://perma.cc/4N22-W7XU>].

¹⁸⁸ Mowat, *supra* note 187.

¹⁸⁹ Wheeling, *supra* note 187.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ *Id.*

to farm.”¹⁹⁴ Third, the comentator asserts that there are scenarios where carbon credits could be “double count[ed],” which could severely threaten the NDCs that parties to the Paris Agreement are obligated to set for themselves.¹⁹⁵ Finally, the commentator insists that offsetting will not solve the climate problems facing the world. “[A]irlines can’t offset forever,” and “[c]arbon credit-producing projects are a finite resource.”¹⁹⁶ Carbon credits should not be seen as a permanent solution, but rather, only should be “a placeholder policy while the industry attempts to scale up emerging technologies.”¹⁹⁷

V. RECENT DOMESTIC DEVELOPMENTS AND LOOKING FORWARD

Had Hillary Clinton won the presidential election (as the authors expected she would at the time this article began its initial draft), this section might have been written quite differently. With Donald Trump’s presidency still in its early days, it is difficult to predict how his administration will respond to recent environmental developments, such as the Endangerment Finding for Aircraft Emissions. However, “[h]istory suggests Trump will pause rulemaking efforts, freezing pieces of Obama’s regulatory legacy not completed before [Trump’s] inauguration.”¹⁹⁸ The transition from the Obama Administration to the Trump Administration may delay the EPA’s rulemaking on aircraft GHG emissions.¹⁹⁹

President Trump must decide if the he will move forward to regulate aircraft emissions.²⁰⁰ Despite the little attention President Trump has paid this issue, some Republicans believe that the endangerment finding may be one of his early targets.²⁰¹

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ Hannah Hess, *Obama Blueprint Aims to Cement His Regulatory Legacy*, GOVERNORS’ BIOFUELS COALITION (Nov. 21, 2016), <http://www.governorsbiofuelscoalition.org/?p=19520> [<https://perma.cc/FS92-R7R8>].

¹⁹⁹ *Id.*

²⁰⁰ David Schultz, *How Will Trump Handle Climate Regulation? Watch The Skies*, BLOOMBERG BNA (Dec. 28, 2016), <https://www.bna.com/trump-handle-climate-n73014449119/> [<https://perma.cc/QM7E-ZCA2>].

²⁰¹ *EPA Refuses to Reconsider Aircraft GHG Finding, Creating Test for Trump*, INSIDEEPA.COM (Dec. 30, 2016), <https://insideepa.com/daily-news/epa-refuses-reconsider-aircraft-ghg-finding-creating-test-trump?destination=node/197698> [<https://perma.cc/E6MM-82LY>].

A. THE TRUMP ADMINISTRATION AND THE ICAO

If the Trump Administration were to abandon the EPA's finding, the United States may find itself powerless to enforce the ICAO standards, and thus, unable to comply with them.²⁰² The same would result if the new administration simply blocked the regulations, while leaving the endangerment findings intact.

Under either scenario, U.S.-based aviation interests would suffer some consequences. Manufacturers like Boeing and Lockheed Martin would face uncertainty on whether they could sell planes in the international market, especially in countries that adopt the ICAO's standards.²⁰³ More importantly, "other countries [may] retaliate against U.S. aviation companies for reversing course on this international agreement."²⁰⁴ Though President Trump's commitment to the ICAO standards would help "maintain a level playing field for aircraft manufacturers," his decision with respect to the endangerment findings and subsequent regulations is still uncertain.²⁰⁵ Unfortunately, the process cannot tolerate much delay; regulatory development can take years to complete, and the ICAO standards take effect in 2020.²⁰⁶ Trump's decisions on these issues will show "whether the . . . [P]resident opposes reining in greenhouse gasses in all circumstances, or only when doing so could hurt business interests."²⁰⁷

B. THE TRUMP ADMINISTRATION AND THE PARIS AGREEMENT

As of early 2017, there have been discussions that President Trump may decide to have the United States pull out of the Paris Agreement,²⁰⁸ despite earlier reports that he would keep

²⁰² Schultz, *supra* note 200.

²⁰³ *Id.* ("Nobody is going to build a plane that you can only fly in half the world or a third of the world. That's crazy." (internal quotations omitted)).

²⁰⁴ *Id.*

²⁰⁵ *Id.* (internal quotations omitted).

²⁰⁶ *Id.*

²⁰⁷ *Id.*

²⁰⁸ See, e.g., Yann Aguila, *Donald Trump and Climate Change: Why The United States Should Respect the Paris Agreement*, THE HUFFINGTON POST (Nov. 29, 2016, 4:39 PM), http://www.huffingtonpost.com/yann-aguila/donald-trump-and-climate-_b_13287736.html [<https://perma.cc/7BMJ-DJAA>]; Henrik Selin & Adil Najam, *What if Trump Pulls U.S. Out of Paris Agreement on Climate Change?*, U.S. NEWS & WORLD REPORT (Nov. 14, 2016, 3:23 PM), <http://www.usnews.com/news/national-news/articles/2016-11-14/what-could-the-world-do-if-trump-pulls-us-out-of-paris-agreement-on-climate-change> [<https://perma.cc/8RF9-LYMK>].

“an open mind” about the United States’ position.²⁰⁹ Surprisingly, such a move can be accomplished legally.

Article 28 of the Paris Agreement allows a party to withdraw, which, if done by the United States, would be effective in late 2020 at the earliest.²¹⁰ President Trump could also simply have the United States withdraw from the UNFCCC entirely.²¹¹ Finally, President Trump could just ignore the Paris Agreement and not comply with it.²¹²

Any of the three strategies, however, could lead to unfavorable consequences. The United States’ failure to participate in the Paris Agreement “would set back international efforts to limit rising temperatures that have been linked to the extinctions of animals and plants, heat waves, floods and rising sea levels.”²¹³ Also, the United States could face legal liability. “[V]ictims of global warming could initiate lawsuits against” the United States both here and in jurisdictions across the globe.²¹⁴ Finally, there is a risk of diplomatic isolation. Withdrawal from the Paris Agreement could leave the United States “out of [the] common path, leaving the field [of combatting climate change] open to challengers,” such as China and the EU.²¹⁵ Such isolation seems to be a likely scenario, as many countries have vowed to move forward with the Paris Agreement, regardless of whether the United States participates.²¹⁶

²⁰⁹ See, e.g., Oliver Milman, *Paris Climate Deal: Trump Says He Now Has an ‘Open Mind’ About Accord*, THE GUARDIAN (internal quotations omitted) (Nov. 22, 2016, 2:48 PM), <https://www.theguardian.com/us-news/2016/nov/22/donald-trump-paris-climate-deal-change-open-mind> [<https://perma.cc/6HLQ-V5TV>]; *Trump Says He’s Keeping an ‘Open Mind’ on Pulling Out of Paris Climate Accord*, FORTUNE (Nov. 23, 2016), <http://fortune.com/2016/11/23/trump-open-mind-paris-climate-accord/> [<https://perma.cc/RP6N-GT78>].

²¹⁰ Aguila, *supra* note 208; Milman, *supra* note 209.

²¹¹ Aguila, *supra* note 208; Milman, *supra* note 209.

²¹² Aguila, *supra* note 208; Milman, *supra* note 209; Kathryn Galimberti, *What Will Trump’s Presidency Mean for the Historic Paris Agreement?*, ACCUWEATHER (Jan. 18, 2017, 7:00 AM), <http://www.accuweather.com/en/weather-news/trump-paris-agreement-climate-change-what-happens-now-with-emissions/61349858> [<https://perma.cc/FE9T-9L5N>].

²¹³ *Trump Says He’s Keeping an ‘Open Mind’ on Pulling Out of Paris Climate Accord*, *supra* note 209.

²¹⁴ Aguila, *supra* note 208.

²¹⁵ *Id.*

²¹⁶ See Wernick, *supra* note 170.

C. THE TRUMP ADMINISTRATION AND EPA CHANGES

The Trump administration has taken steps recently that will likely change the face of the EPA. On January 30, 2017, President Trump signed the Two-for-One Executive Order (Order),²¹⁷ which purports to “expand regulatory review with the goal of revoking two regulations for every new one put forward.”²¹⁸

This Order does not apply to rules and regulations mandated by statute.²¹⁹ Presumably, this restriction could save the endangerment finding and allow the EPA to enact regulations pursuant to the finding without facing the two-for-one requirement. Still, even if such regulations are subject to the Order, enforcing the Order may prove more difficult than originally thought.²²⁰ “[C]hanging rules involves going through detailed administrative processes and soliciting public comment;” an agency will not be able to simply “kill a regulation overnight.”²²¹ Such a process typically takes months, and can be further delayed by lawsuits filed by aggrieved parties.²²² Over time, the Administration may develop an implementation strategy that streamlines and speeds the process, but for now immediate change is not possible.²²³

More changes could arise with the Senate’s confirmation of President Trump’s pick to head the EPA: Scott Pruitt, Oklahoma’s Attorney General.²²⁴ While some senators have

²¹⁷ Nolan D. McCaskill & Matthew Nussbaum, *Trump Signs Executive Order Requiring That For Every One New Regulation, Two Must Be Revoked*, POLITICO (Jan. 30, 2017, 10:32 AM), <http://www.politico.com/story/2017/01/trump-signs-executive-order-requiring-that-for-every-one-new-regulation-two-must-be-revoked-234365> [<https://perma.cc/42M5-799J>]; Ayesha Rascoe & Amanda Becker, *Trump Order Targeting Business Rules Leaves Key Regulations Untouched*, REUTERS (Jan. 31, 2017, 9:22 AM), <http://www.reuters.com/article/us-usa-trump-regulations-idUSKBN15E1QU> [<https://perma.cc/H3VA-462S>].

²¹⁸ Jacob Pramuk, *Trump Signs Executive Order Aiming to Slash Regulations*, CNBC (Jan. 30, 2017 1:40 PM), <http://www.cnbc.com/2017/01/30/trump-set-to-sign-executive-order-aiming-to-slash-regulations.html> [<https://perma.cc/CL52-VWL4>].

²¹⁹ Rascoe & Becker, *supra* note 217.

²²⁰ Margaret Talev & Todd Shields, *Trump to Require Two Rules Be Killed for Each New One Issued*, BLOOMBERG (Jan. 30, 2017, 9:11 AM, updated 9:50 AM), <https://www.bloomberg.com/politics/articles/2017-01-30/trump-to-require-two-regulations-be-revoked-for-every-new-one> [<https://perma.cc/BJ44-4T9J>].

²²¹ *Id.*

²²² *Id.*

²²³ *Id.*

²²⁴ Chris Mooney et al., *Trump Names Scott Pruitt, Oklahoma Attorney General Suing EPA on Climate Change, to Head the EPA*, WASH. POST (Dec. 8, 2016), <https://>

asked to have his confirmation vote delayed due to concerns about some of Mr. Pruitt's answers at his confirmation hearing, the vote will likely take place the week of February 6, 2017.²²⁵ President Trump's choice of Pruitt has many concerned, because Pruitt "has long viewed the EPA skeptically and has sued the agency repeatedly as the top cop in Oklahoma."²²⁶ Pruitt does not believe that climate change is a "hoax,"²²⁷ however; and despite concerns that Pruitt will take over and "blow up the agency," some predict that he will take a more moderate approach to running the EPA.²²⁸ Some reports indicate that Pruitt "will use the legal tools at his disposal to pare back the agency's reach and power, and trim its budget selectively."²²⁹

VI. CONCLUSION

Overall, the future remains uncertain for the EPA's impending regulations setting standards for aircraft GHG emissions. Such regulations would help the United States meet international obligations and help American aircraft manufacturers better market their products internationally. The new Trump Administration leaves the outlook a little unclear. Only time will tell how President Trump decides to handle the EPA's endangerment findings on aircraft GHG emissions and the United States' international agreements to decrease total GHG emissions. This may be an area where President Trump decides that it makes more business sense to maintain the status quo, as opposed to instituting changes that could drastically affect an important segment of the U.S. economy.

www.washingtonpost.com/news/energy-environment/wp/2016/12/07/trump-names-scott-pruitt-oklahoma-attorney-general-suing-epa-on-climate-change-to-head-the-epa/?utm_term=.84267ced1231 [<https://perma.cc/7MSG-3NHJ>].

²²⁵ Dan Merica & Ashley Killough, *Democrats Boycott Pruitt's EPA Confirmation Hearing*, CNN POLITICS (Feb. 1, 2017), <http://www.cnn.com/2017/02/01/politics/democrats-boycott-pruitt-epa-confirmation-hearing/> [<https://perma.cc/6ACK-L6KJ>].

²²⁶ *Id.*

²²⁷ *Id.* (internal quotations omitted).

²²⁸ Coral Davenport, *Scott Pruitt Is Seen Cutting the E.P.A. with a Scalpel, Not a Cleaver*, N.Y. TIMES (Feb. 5, 2017), https://www.nytimes.com/2017/02/05/us/politics/scott-pruitt-is-seen-cutting-the-epa-with-a-scalpel-not-a-cleaver.html?_r=0 [<https://perma.cc/SUX9-LL9J>].

²²⁹ *Id.* ("The problem with many of Mr. Trump's promises for the environmental agency is that they cannot be met quickly without violating the law.")