

ORAL ARGUMENT NOT YET SCHEDULED**Nos. 21-1018 (LEAD), 21-1021**

**IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

STATE OF CALIFORNIA, *et al.*,
Petitioners,

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY, *et al.*,
Respondents,

and

THE BOEING COMPANY and
AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.,
Intervenor-Respondents.

*Petitions for Review of Final Administrative Actions
of the United States Environmental Protection Agency*

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**CERTIFICATE AS TO PARTIES,
RULINGS, AND RELATED CASES**

Pursuant to Circuit Rule 28(a)(1), The Boeing Company and Aerospace Industries Association of America, Inc. certify:

(A) Parties and *Amici*.

All parties, intervenors, and *amici* appearing in this Court are listed in the Brief for Respondent EPA.

(B) Rulings Under Review.

References to the rulings at issue appear in the State Petitioners' Opening Brief, Doc. 1937034.

(C) Related Cases.

There are no related cases as defined by D.C. Circuit Rule 28(a)(1)(C).

/s/ Amanda Shafer Berman
Amanda Shafer Berman

CORPORATE DISCLOSURE STATEMENTS

Pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Circuit Rule 26.1, The Boeing Company and Aerospace Industries Association of America, Inc. submit this disclosure statement.

The Boeing Company is a publicly traded company with no parent company. No publicly held corporation owns 10% or more of The Boeing Company's stock.

Aerospace Industries Association of America, Inc. ("AIA") is a trade association with no parent company. AIA has not issued shares to the public. Some AIA members are publicly traded companies.

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GLOSSARY

CO ₂	Carbon Dioxide
EPA	U.S. Environmental Protection Agency
FAA	U.S. Federal Aviation Administration
ICAO	International Civil Aviation Organization

INTRODUCTION

Petitioners demand that U.S.-manufactured aircraft be subject to broader and more stringent greenhouse gas emission standards than aircraft manufactured in any other International Civil Aviation Organization (“ICAO”) Member State. EPA lawfully declined this demand, explaining in the Aircraft Rule¹ both the need for domestic consistency with international standards and that adopting more stringent domestic standards would unreasonably disadvantage U.S. aircraft manufacturers compared to foreign manufacturers.

EPA’s choice was consistent with Section 231 of the Clean Air Act (“Act”), 42 U.S.C. § 7571. There, Congress gave EPA extraordinarily broad discretion in setting aircraft engine emission standards, but prohibited EPA from adopting any standard that might jeopardize airplane safety—which makes eminent sense for vehicles that operate tens of thousands of feet in the air. Congress also instructed EPA to allow the time necessary to apply the requisite technologies in light of their costs. Petitioners’ insistence that EPA should have required emission

¹ *Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures*, 86 Fed. Reg. 2136 (Jan. 11, 2021).

reductions based on technologies not yet fully developed and proven to be safe cannot be squared with these directives.

Petitioners also suggest that EPA should have considered emission standards requiring operational changes. But Congress gave FAA, not EPA, primary authority over aircraft operation and safety. Furthermore, FAA's aircraft certification process (specified in Section 232 of the Act for applying EPA's Section 231 standards) is ill-suited to implement operational mandates such as those governing takeoff and landing. EPA rightly chose not to regulate beyond its expertise and authority, and also rightly chose to limit greenhouse gas emissions from aircraft engines based on proven technologies that can be applied by *manufacturers* like Boeing and AIA's members acting alone.

EPA's choice to align U.S. regulations with international standards set by ICAO is also reasonable given the competitive harm to U.S. aircraft manufacturers that would result from broader or more stringent domestic standards. U.S. manufacturers have increased fuel efficiency and reduced emissions with each new generation of aircraft, and that trend is expected to continue. But if forced to incur increased costs to achieve emission standards not required of foreign competitors, U.S.

manufacturers will lose market share to those competitors. That is because, under the Convention of International Civil Aviation (“Chicago Convention”), Member States *must* allow the operation of foreign-manufactured and certificated aircraft *so long as they meet ICAO standards*. Thus, even if EPA adopts broader or more stringent U.S. standards, EPA *cannot* impose those standards on aircraft operated in the U.S. but manufactured and certificated abroad. EPA’s decision not to disadvantage U.S. manufacturers was particularly reasonable given that the industry continues to recover from the severe reduction in airplane sales resulting from the COVID-19 pandemic.

EPA’s decision to adopt a rule mirroring the ICAO standards was a lawful exercise of the Agency’s broad discretion under Section 231; consistent with its mandate to prioritize safety; and reasonable given the benefits of international consistency and the harm that adopting more stringent domestic standards would impose on the U.S. aircraft industry—and the fact that another round of ICAO standard-setting is already underway.

ISSUE PRESENTED

Section 231 instructs EPA to set aircraft engine emission standards without adversely affecting airplane safety, after considering the time needed to achieve those standards and the cost of the requisite technology. A separate agency—FAA—regulates aircraft design and operation to ensure safety. Under the Chicago Convention, EPA may not prohibit foreign-manufactured aircraft from being operated in the United States so long as such aircraft comply with the international emission standards.

Given this legal framework, did EPA permissibly adopt domestic greenhouse gas standards aligned with the international standards, rather than requiring U.S. aircraft manufacturers to achieve greater emission reductions through unproven technologies and operational changes?

STATUTES AND REGULATIONS

Additional relevant statutory provisions beyond those provided by EPA and Petitioners are attached hereto.

STATEMENT OF THE CASE

The Rule is the result of a years-long process that began, during the Obama administration, with the United States' participation in setting the first-ever international greenhouse gas emission standards for aircraft. The process ended with EPA's reasonable choice to conform domestic greenhouse gas standards for aircraft engines emissions to the international standards.

I. Section 231

Section 231 authorizes EPA to set emission standards “applicable to the emission of any air pollutant from any class or classes of aircraft engines,” to take effect only after sufficient time “to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance,” and with any modifications that the Administrator “deems appropriate.” 42 U.S.C. § 7571(a)(2)-(3) & (b). The discretion given EPA in Section 231 is unusually broad. *See Nat'l Ass'n of Clean Air Agencies v. EPA* (“NACAA”), 489 F.3d 1221, 1229-30 (D.C. Cir. 2007).

At the same time, Congress expressly *barred* EPA from setting standards that would “significantly increase noise” or “adversely affect

safety.” 42 U.S.C. § 7571(a)(2)(B)(ii). Both are uniquely critical factors for aircraft operation. Congress doubled down on its commitment to safety by empowering the President to disapprove any standard that “would create a hazard to aircraft safety.” 42 U.S.C. § 7571(c).

Unlike other provisions of the Act, Section 231 does not require EPA to set emissions standards that achieve any particular level of control. In contrast, the motor vehicle program requires EPA to set standards for the emission of pollutants by cars and trucks that “reflect the greatest degree of emission reduction achievable through the application of technology ... which will be available.” 42 U.S.C. § 7521(a)(3)(A)(i) & (l)(2). Section 112, the hazardous pollutant program, directs EPA to set standards requiring major sources to achieve “the maximum degree of reduction in emissions.” 42 U.S.C. § 7412(d)(2). And the Section 111 stationary source program instructs EPA to set new source performance standards based on the “best system of emission reduction.” 42 U.S.C. § 7411(a)(1). Section 231 is thus notable both for the latitude given EPA to decide how to regulate, and in setting express constraints providing what EPA may not do.

The legislative history of Section 231 confirms that Congress intentionally took a unique approach to aircraft engine emission regulation. The 1970 Amendments to the Act rejected the Senate’s proposal to fold aircraft regulation into Section 202 (42 U.S.C. § 7521), governing other mobile sources of air pollutants, and instead adopted the House’s proposal to create a *separate* section to govern aircraft emission standards. H.R. Rep. No. 91-1783, 91st Cong. at 54-55 (Dec. 17, 1970) (Conf. Rep.);² Pub. L. 91-604, 84 Stat. 1703-1704. Thus, contrary to Petitioners’ and amicus Thomas Jorling’s argument, the Senate report language suggesting that mobile source standards should be technology-forcing³ is relevant only to current Section 202—regulation of cars and trucks—and does *not* reflect a similar intent for aircraft emission standards.

Further, while Congress instructed EPA to consult with FAA before setting emissions standards, 42 U.S.C. § 7571(a)(2)(B)(i), FAA retains primary authority to regulate aircraft design, operation, performance, noise, and fuel—and to ensure safety. 49 U.S.C. § 44701(a) (requiring

² The Report incorrectly transcribes Sections 231 and 234 as 241 and 244.

³ See 128 S. Rep. No. 91-1196, 91st Cong. at 23-24 (Sept. 17, 1970); Pub. L. 91-604, 84 Stat. 1703-1704.

FAA to “promote safe flight of civil aircraft” by prescribing “minimum standards required in the interest of safety for ... the design, material, construction ... and performance of aircraft, aircraft engines, and propellers”), 49 U.S.C. § 44714 (FAA must set aviation fuel standards to control pollutant emissions found by EPA to endanger health or welfare under Section 231), 49 U.S.C. § 44715(a)(ii) (FAA must set standards to “control and abate aircraft noise”); *see also* 14 C.F.R. pt. 25 subparts B (regulating flight performance), C (aircraft structure), D (design and construction), & F (equipment).

II. The Chicago Convention

The Chicago Convention established ICAO and also set rules governing airspace usage and aircraft registration and safety. Based on the principle of reciprocity, the 193 Member States “agree on certain principles and arrangements so that international civil aviation may be developed in a safe and orderly manner[.]”⁴

Article 33 (JA__) requires Member States to recognize each other’s aircraft certificates, provided that the requirements for such certificates

⁴ *Convention on International Civil Aviation* (Ninth Edition, 2006), Preamble, JA__.

“are equal to or above the minimum standards” established under the Convention. Thus, while Article 38 (JA__) allows Member States to adopt regulations different from the international standards upon notice to ICAO, any requirement imposed by EPA (or FAA) that goes beyond ICAO standards *cannot be enforced against foreign-certificated aircraft*.

III. EPA’s and FAA’s Roles in the ICAO Process

The process of developing the first global greenhouse gas aircraft emission standards spanned two U.S. administrations. EPA and FAA played active roles throughout, with EPA “serving as an advisor to the U.S. member at the annual ICAO/[Committee on Aviation Environmental Protection (“Committee”)] Steering Group and triennial meetings, while also contributing technical expertise to the Committee’s working groups and assisting and advising FAA on aviation emissions, technology, and environmental policy matters.” 86 Fed. Reg. at 2141.

The Committee “agreed to the first airplane CO₂ emissions standards” in 2016, and ICAO adopted those standards in 2017. *Id.* at 2142. Those standards became applicable to *new-type* covered airplanes on January 1, 2020, and will apply to newly-manufactured *in-production* covered airplanes on January 1, 2028. *Id.*

EPA and FAA played “key leading roles” in developing these first-ever aircraft CO₂ standards; “it was only after dozens of in-person meetings and many more teleconferences in which hundreds of formal analytical papers ... were painstakingly considered, that the Committee agreed to the ICAO CO₂ Aircraft Standards.”⁵

Looking forward, EPA has signaled its intent to push for even more stringent international standards during the next round of ICAO standard-setting,⁶ and the U.S. formally proposed that ICAO set “more stringent CO₂ and [] noise standards” at the February 2025 meeting.⁷ The Committee reportedly has agreed to move forward with an integrated dual standard-setting process on that schedule.⁸

⁵ Airlines for America & Air Line Pilots Ass’n Int’l, *Comments on Proposed Rule 5* (Oct. 19, 2020) (“A4A and ALPA Comments”), EPA-HQ-OAR-2018-0276-0161, JA__.

⁶ *Statement on Airplane Greenhouse Gas Emissions Standards Litigation* (“EPA Statement”), <https://www.epa.gov/regulations-emissions-vehicles-and-engines/statement-airplane-greenhouse-gas-emissions-standards>.

⁷ *Views of the United States on Emissions Future Work During the CAEP/13 Cycle* at 2, https://icao.usmission.gov/wp-content/uploads/sites/280/CAEP.12.WP_.062.16.en-VIEWS-OF-THE-UNITED-STATES-ON-EMISSIONS-FUTURE-WORK-DURING-THE-CAEP13-CYCLE.pdf.

⁸ Int’l Bus. Aviation Council, *ICAO CAEP Meeting Overview 2*, https://ibac.org/files/documents/ICAO_CAEP12_Overview_2022-

IV. EPA’s Rulemaking Approach Under Section 231.

EPA’s parallel process to set domestic aircraft engine greenhouse gas emission standards began before the ICAO standards were adopted. In 2016, EPA determined that (1) atmospheric greenhouse gas concentrations endanger the health and welfare of future generations, and (2) greenhouse gas emissions from aircraft engines on certain larger aircraft—those being considered for coverage in the ICAO proceeding—cause or contribute to that air pollution. 81 Fed. Reg. 54422 (Aug. 15, 2016). EPA was then obligated to issue standards for the emission of greenhouse gases from those classes of engines. 86 Fed. Reg. at 2139. EPA proposed standards in 2020, 85 Fed. Reg. 51556, based in part on the ICAO standards, but also on an independent technical analysis.

EPA “has historically given significant weight to uniformity with international requirements as a factor in setting aircraft engine standards,” 86 Fed. Reg. at 2157, and therefore “has traditionally

final.pdf; *see also* Linnea Ahlgreen, Simply Flying, *Is ICAO Eyeing Stricter Emissions Standards?*, <https://simpleflying.com/icao-aircraft-emissions-standards/> (“ICAO[] ... agreed on [February 16, 2022] to already begin drafting newer and even stricter standards for civil aircraft. This would be part of a broader effort set to be completed in 2025, updating rules for both noise and emissions.”).

established domestic standards that track the ICAO standards.”⁹ As explained in EPA’s rulemaking implementing the first ICAO standards:

With the establishment of the international standards, the U.S. now has an obligation to frame national standards to be as compatible as possible with the ICAO standards, consistent with U.S. environmental goals and with EPA’s responsibilities under Section 231 of the Clean Air Act.

47 Fed. Reg. 58462, 58464 (Dec. 30, 1982). When developing subsequent Section 231 standards, EPA similarly relied on ICAO assessments regarding the technical feasibility/safety and cost/timing of implementing new standards, noting for example that EPA had “participated in these [] analyses and supported the results.”¹⁰

ENGO Petitioners assert (at 16-17) that “the United States has opted in the past to adopt standards that are more stringent than ICAO’s,” citing FAA’s comments on the proposed Rule. This misrepresents FAA’s comments, which objected to the idea that the U.S. has a treaty obligation to adopt domestic standards that are “as least as stringent as those adopted by ICAO.”¹¹ FAA noted that, under Chicago

⁹ 80 Fed. Reg. 37758, 37805 (July 1, 2015) (“2015 ANPR”).

¹⁰ 77 Fed. Reg. 36341, 36375 (June 18, 2012).

¹¹ *Interagency Comments* 1 (May 15, 2020), EPA-HQ-OAR-2018-0276-0038, JA__.

Convention Article 38, the U.S. may implement *less stringent* standards, but did not suggest that the U.S. has a practice of setting *more stringent* standards.¹² Indeed, FAA has a policy similar to EPA's, which it described in a 2012 rulemaking to implement EPA exhaust emission standards:

In keeping with U.S. obligations under the [Chicago Convention], it is FAA policy to conform to [ICAO] Standards ... to the maximum extent practicable.¹³

EPA did not, however, simply adopt the ICAO standards; it undertook an independent analysis of whether those standards were reasonable and consistent with Section 231's requirements, considering several alternatives.¹⁴ Only after that extensive technical analysis did EPA conclude that implementing the ICAO standards was the best alternative and consistent with EPA's obligations under Section 231.¹⁵

¹² See *id.* at 1, 9-10, 14, 19, 21, JA___, ___-___, __, __, __.

¹³ 77 Fed. Reg. 76842, 76849 (Dec. 31, 2012).

¹⁴ *E.g.*, 86 Fed. Reg. at 2145, 2163, 2165-69; *Airplane Greenhouse Gas Standards Technical Support Document* 14, 106, 127-133 (Jan. 2021) ("TSD"), EPA-HQ-OAR-2018-0267-0227, JA___, __, ___-___.

¹⁵ See 86 Fed. Reg. at 2139; TSD at ES-3, JA___.

SUMMARY OF ARGUMENT

EPA's adoption of domestic greenhouse gas standards aligned with the international CO₂ standards set by ICAO was lawful and reasonable.

First, consideration of the ICAO standards when setting domestic greenhouse gas standards is consistent with the broad discretion Congress granted EPA under Section 231. As this Court has confirmed, nothing in Section 231 prohibits EPA from considering the benefits of harmonizing domestic and international standards, which include preserving international consistency, fostering innovation, and ensuring continued U.S. climate leadership in future ICAO negotiations.

Second, this is not, as Petitioners argue, a "do nothing" rule. The Rule locks in historic improvements in fuel efficiency, prevents backsliding, and will force older models off the market. Given Section 231's prohibition on standards that might jeopardize safety and its requirement that adequate time be provided to implement any needed technologies, considering costs, EPA reasonably declined to consider more stringent alternatives based on unknown or unproven technologies. EPA also reasonably declined to consider standards based on changes to aircraft operation, over which FAA (not EPA) has primary authority.

Finally, EPA's decision not to impose more stringent domestic standards is reasonable because it avoids competitive harm to the U.S. aircraft industry. Otherwise, U.S. manufacturers would lose market share to their foreign counterparts who would be held to a less stringent emissions standard. EPA reasonably considered such competitive harms. Adoption of the ICAO standards is particularly reasonable given the pandemic-related challenges faced by the aircraft industry.

ARGUMENT

I. EPA Lawfully and Reasonably Chose to Conform Domestic Greenhouse Gas Aircraft Emission Standards to the ICAO Standards.

EPA's choice to adopt domestic aircraft engine greenhouse gas emissions standards "equivalent to the airplane [CO₂] standards adopted by" ICAO in 2017 was both reasonable and lawful. This Court previously recognized that in Section 231 Congress "conferred broad discretion to [EPA] to weigh various factors in arriving at appropriate standards"—including "international standards." *NACAA*, 489 F.3d at 1229-30. The Court rejected petitioners' counter-argument that factors not specifically identified as relevant in Section 231 could not be considered. *Id.* ("In the absence of clear congressional direction to the contrary, we will not

deprive the agency of the power to fine-tune its regulations to accommodate worthy nonsafety interests under a statute focused upon safety.”) (cleaned up). *NACAA*’s holding disposes of Petitioners’ argument that EPA improperly considered the need for international uniformity as a key reason to adopt the ICAO standards. Here, that consideration was eminently reasonable and well within EPA’s broad discretion.

A. The Rule reasonably preserves international consistency, fosters innovation, and ensures continued U.S. climate leadership.

Aviation is a global industry requiring global standards, which “level[] the playing field for the aviation industry” and “decrease administrative complexity for aircraft manufacturers and air carriers ... while encouraging global competition.” 86 Fed. Reg. at 2157.

But the benefits of global standards go beyond economics and include broader environmental—and climate—benefits. Adopting uniform global standards allows aircraft manufacturers to focus additional resources “on improvement for the benefit of the environment, (including investments creating CO₂ emissions reductions via ... the non-

airplane-technology elements of ICAO’s basket of measures).”¹⁶ Every dollar spent on technology improving aircraft CO₂ metric values is a dollar that cannot be spent on more sustainable aviation fuels, better air traffic management technologies, or other programs that could lower overall CO₂ emissions from aviation in a more cost-effective manner.

EPA also reasonably explained that aligning domestic standards with the ICAO standards will have “substantial benefits for future international cooperation on airplane emission standards,” which is “key for achieving worldwide emission reductions.” *Id.* at 2144-45, 2158. Put simply, if the U.S. were to adopt more stringent domestic standards, it could have a negative impact on the next ICAO standard-setting round. Member States such as China and India may be unwilling to adopt more stringent standards that they view as having been dictated by the United States. *See id.* at 2158 (“Having invested significant effort and resources ... to gain international consensus within ICAO to adopt the first-ever international CO₂ standards,” “aligning domestic standards with [those]

¹⁶ Proposed Rule, 86 Fed. Reg. at 2157; The Boeing Company, *Comments on EPA’s Proposed Rule for the Promulgation of Aircraft GHG Standards* 21 (Oct. 19, 2020) (“Boeing Comments”), EPA-HQ-OAR-2018-0276-0181, JA__; ICAO, *2019 Environmental Report: Aviation and Environment* 112 (“ICAO 2019 Report”), EPA-HQ-OAR-2018-0276-0184, JA__.

ICAO standards, rather than adopting more stringent standards,” will lead to “future international cooperation”). *Id.* at 2144-45.

So far, other major aircraft-producing ICAO Member States have adopted the ICAO standards.¹⁷ Thus, if Petitioners’ demand for more stringent U.S. standards were granted, the U.S. likely would stand alone. That could undermine the United States’ ability to “press for ambitious new international CO₂ standards at the upcoming round of ICAO negotiations” to be completed in 2025.¹⁸

By aligning the domestic aircraft engine greenhouse gas standards with the ICAO standards, the Rule respects the outcome of the international process in which the United States and its fellow ICAO Member States participated for nearly a decade. It thereby advances the “United States’ continued leadership role within [ICAO] to achieve important environmental objectives,” including more ambitious CO₂

¹⁷ 86 Fed. Reg. at 2138 (“The ICAO Airplane CO₂ Emission Standards have been adopted by other ICAO member states[.]”); *see, e.g.*, European Union Aviation Safety Agency, *ED Decision 2019/016/R* (Aug 1, 2019), <https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019016r>; *Regulations Amending the Canadian Aviation Regulations (CO₂ Emissions)* (Dec. 9, 2020), <https://gazette.gc.ca/rp-pr/p2/2020/2020-12-09/html/sor-dors251-eng.html>.

¹⁸ EPA Statement, *supra* n.6.

standards in the upcoming ICAO negotiations.¹⁹ It is not for Petitioners to second-guess EPA's view of how divergence from the international standards might impact future ICAO negotiations.

B. EPA's consideration of the ICAO standards when setting domestic CO₂ standards is consistent with the broad discretion Congress gave EPA.

EPA's consideration of the ICAO CO₂ standards when setting domestic standards is consistent with the broad discretion granted it by Congress. Contrary to Petitioners' arguments, nothing in Section 231 requires EPA to turn a blind eye to the benefits of harmonizing domestic and international aircraft greenhouse gas standards.

In *NACAA*, this Court explained that Congress's choice of language in Section 231, directing the Administrator to act "in his judgment" and "as he deems appropriate," "conferred broad discretion to the Administrator to weigh various factors in arriving at appropriate standards." 489 F.3d at 1229. Given this broad statutory latitude—and EPA's history of coordinating domestic emission standards with international standards—EPA's decision to align the first-ever domestic

¹⁹ A4A and ALPA Comments at 8, JA__.

aircraft greenhouse gas standards with the first-ever international standards was neither unlawful nor unreasonable.

Congress has impliedly ratified EPA's longstanding practice of setting aircraft emission standards under Section 231 that reflect the ICAO standards. Congress amended the Act, including Section 231, in 1990—but did not change the key language granting the Administrator broad discretion in setting aircraft engine emission standards, even though EPA had already established its practice of adopting ICAO-equivalent standards. “The re-enacting ... without substantial change ... amounts to an implied legislative recognition and approval of the executive construction of the statute.” *Nat'l Lead Co. v. U.S.*, 252 U.S. 140, 145-46 (1920); *see also Commodity Futures Trading Comm'n v. Schor*, 478 U.S. 833, 846 (1986) (“[W]hen Congress revisits a statute giving rise to a longstanding administrative interpretation without pertinent change, the congressional failure to revise or repeal the agency's interpretation is persuasive evidence that the interpretation is the one intended by Congress.”) (quotation omitted).

EPA's approach to setting aircraft greenhouse gas emission standards is also consistent with the Supreme Court's recognition that

climate change is a global problem, and it is appropriate for EPA to consider both the domestic and international implications when determining whether and how to regulate a particular industrial sector's greenhouse gas emissions. *See Am. Elec. Power Co. v. Conn.*, 564 U.S. 410, 427 (2011) (“The appropriate amount of regulation in any particular greenhouse gas producing sector cannot be prescribed in a vacuum: As with other questions of national or international policy, informed assessment of competing interests is required. The Clean Air entrusts such complex balancing to EPA”). Considering the actions of international agencies addressing the same problem—as well as FAA and EPA's roles in that international process—also aligns with the Supreme Court's admonition in *Massachusetts v. EPA* that, when regulating greenhouse gas emissions, EPA should consider the “manner, timing, content, and coordination of its regulations with those of other agencies.” 549 U.S. 497, 533 (2007).

EPA's choice to adopt the ICAO standards is also both lawful and reasonable given that the ICAO process took into consideration all of the factors identified in Section 231. EPA explained that ICAO considered:

Technical feasibility; environmental benefit; economic reasonableness; interdependencies of measures (for example

... measures taken to minimize noise and emissions of pollutants other than CO₂) ... and international and national programs.

86 Fed. Reg. at 2141 (citation omitted). These considerations parallel Section 231's mandate that EPA set standards after considering the time needed to apply the needed technologies and their costs. 42 U.S.C. § 7571(a)-(b). Also consistent with Section 231's mandate, the ICAO process considered safety as a key element of its technical feasibility analysis, requiring that the international standards be based on technology "demonstrated to be safe and airworthy and proven Technology Readiness Level 8 (TRL 8)²⁰ by 2016 or shortly thereafter."²¹ Given the alignment between the international and EPA processes and the broad discretion granted EPA by Congress, it was both lawful and reasonable for EPA to consider the ICAO standards when setting domestic aircraft greenhouse gas emission standards.

²⁰ TRL is measured on a scale of 1-9, with TRL 8 defined as "the actual system completed and flight qualified through test and demonstration." 86 Fed. Reg. at 2166 n.145 (citation omitted).

²¹ TSD at 15, JA__ (quoting ICAO Tenth Meeting Rep. at 5C-15).

II. The Rule Sets Meaningful Emission Standards for Aircraft Engines Based on Safe, Proven Technologies.

State and ENGO Petitioners make two main arguments. First, they argue that the Rule has no impact on emissions, allowing the U.S. aircraft industry to proceed with “business as usual.” Second, they argue that EPA should have considered a broader range of alternatives—including technology-forcing alternatives and changes to airplane design and operation. Both arguments miss the mark.

A. The Rule locks in historic improvements in fuel efficiency, prevents backsliding, and will force older, higher-emitting models off the market.

For decades, the U.S. aircraft industry has continually improved aircraft fuel efficiency, with each new generation of aircraft significantly more efficient than the last.²² But even setting aside that important baseline for consideration of the Rule’s benefits, this is not a “do nothing” rule. ENGO Br. at 4; State Br. at 14. Rather, the Rule ensures that newly designed aircraft are at least as efficient as the new-type standard and prevents existing (in-production) aircraft from being re-designed in ways that significantly increase CO₂ emissions. For example, the Rule would

²² 86 Fed. Reg. at 2139; TSD at 16, JA__; Response to Comments (“RTC”) at 191-192, EPAHQ-OAR-2018-0267-0228, JA__-__.

prevent a manufacturer from designing a new aircraft with improved speed or range capabilities, noise profile, or non-greenhouse gas emissions performance at the expense of a substantial increase in CO₂ emissions. Moreover, the Rule imposes a production cut-off date for existing aircraft that don't meet the new standard. 86 Fed. Reg. at 2138.

The emissions limits imposed by the Rule are real and meaningful. Under both the ICAO standards and the Rule, compliance is measured by a "CO₂ metric"—in effect, a measure of aircraft fuel efficiency. Because of the direct correlation between the amount of fuel burned and the volume of CO₂ emitted, the Rule limits CO₂ emissions from new and in-production aircraft, locking in the significant progress that manufacturers have already made and setting that as the new, mandatory baseline all domestic manufacturers *must* meet. With respect to the new-type standard, the Rule will assure that Boeing and other manufacturers' next commercial airplane designs will incorporate the safe, proven fuel-efficiency technologies identified by ICAO and EPA as the basis for their standards, including those used on Boeing's newest, best-selling airplanes.

While this is meaningful by itself, the Rule does more. For example, barring the FAA's grant of a public interest exemption, *see* 49 U.S.C. § 44701(f), the Rule's in-production standard will require the popular Boeing 767 and 777 freighter models to exit the market by 2028, years sooner than they otherwise would.²³ The Rule thus does not result in "business as usual" for U.S. manufacturers, but forces them to go beyond historic efficiency gains by acting sooner to design and manufacture new, more efficient aircraft to replace older models.

State Petitioners argue (at 40) that, under the Rule, a manufacturer could make a series of small changes, each increasing CO₂ emissions less than 1.5% (the threshold that would require accelerated certification to the new standard) but collectively resulting in significantly increased emissions. Historic practice, basic economics, and common sense suggest this won't happen. As EPA recognized, powerful market incentives drive manufacturers to improve fuel efficiency to make their products comparatively less expensive to operate.²⁴ The cost of jet fuel accounts for

²³ *See* Boeing Comments at 39-40, JA__-__; FedEx Corporation, *Comment in response to [Aircraft GHG Rule NPRM]* 3-4 (Oct. 19, 2020), EPA-HQ-OAR-2018-0276-0178, JA__-__.

²⁴ TSD at 96, JA__.

approximately 20%–40% of an air carrier's operating expenses and often represents its single largest operating expense. Carriers therefore pursue fuel efficiency as an economic imperative. Each time a carrier chooses among new airplane options, the expected fuel costs of each are evaluated, along with other expected operating costs and the price of the airplane, to determine which will be the most economically advantageous. This drives manufacturers to continually pursue new fuel efficiency technology that can safely and cost-effectively be incorporated into new models and into performance-improvement packages for existing models. Indeed, over 75% of Boeing's commercial airplane research and development budget benefits the environmental performance of its aircraft, reflecting the competitive necessity of meeting its customers' demands for increased fuel efficiency.

While a change might conceivably be made to an already-certified aircraft model (for example, reconfiguring aircraft exits or adding an antenna) that could result in a slight emissions increase, such changes are infrequent. This is not only because manufacturers have a strong economic incentive to avoid changes that reduce fuel efficiency, but also because *any* design change to an aircraft model requires significant time

and expense. And the airline industry's pledge to achieve net-zero CO₂ emissions by 2050 reflects its long-term commitment to continued greenhouse gas emission reduction.

Petitioners' contrary suggestion—that manufacturers will try to game the Rule through successive design changes each resulting in small emission increases but collectively significant—has no basis in fact or logic. Again, EPA reasonably adopted standards based on the unique history of, and conditions applicable to, the U.S. aircraft industry, and it was within EPA's discretion not to formulate requirements to prevent this highly unlikely scenario.

B. EPA reasonably declined to adopt more stringent alternatives.

EPA reasonably chose among alternatives when promulgating the Rule. While Section 231 gives EPA great discretion, it *requires* EPA to take into account the time and cost necessary to “develop[] and appl[y] [the] requisite technology.” 42 U.S.C. § 7571(a)-(b). EPA reasonably “weigh[ed] [those statutory] factors” when it declined to adopt a more stringent alternative. *NACAA*, 489 F.3d at 1230.

EPA explained that it “analyzed the impacts of two more stringent alternatives”: the first “would result in limited additional costs,” but “no

additional ... GHG emission reductions compared to the final standards,” while the second would impose “further additional costs” but result in only “relatively small” additional greenhouse gas emission reductions, which EPA concluded “do not justify deviating from the international standards and disrupting international harmonization.” 86 Fed. Reg. at 2145.

That was a reasonable choice. EPA assessed the comparative benefits and harms of adopting these more stringent alternatives and explained why the alternatives did not justify deviation from the ICAO standards. *See id.* (explaining that all but one of the airplanes affected by more stringent standards were expected to go out of production by the Rule’s effective date, while deviating from the ICAO standards—even to make U.S. aircraft more efficient—could make it harder for U.S. manufacturers to market their aircraft abroad); *see also* TSD at 122-58, JA__-__. EPA then reasonably declined to adopt a costlier alternative that would yield only “relatively small” additional greenhouse gas reductions, while simultaneously “disrupting” the harmony between the federal and international standards. 86 Fed. Reg. at 2145.

Because EPA gave sound reasons for its choice between the three alternatives reflecting proven technology, that choice must be upheld. *See Motor Vehicle Mfrs. Assc. v. State Farm Mutual Automobile Ins. Co.*, 463 U.S. 29, 48 (1983).

C. EPA reasonably declined to consider alternatives based on unknown or unproven technologies.

State Petitioners argue (at 17-18) that EPA should have considered a broader range of alternatives based on technology not yet in existence or proven safe (*e.g.*, electric aircraft). This argument is fatally flawed.

To begin, it ignores that considering technology-forcing alternatives that could not be implemented in the same timeframe as the ICAO standards would negate a core purpose of EPA's rulemaking: to enable U.S.-manufactured aircraft to be certified for international use *over the next few years*, while more stringent standards are considered at ICAO.²⁵ EPA reasonably chose to limit the alternatives it considered to those consistent with this purpose. *See Dep't of Homeland Security v. Regents of Univ. of Cal.*, 140 S. Ct. 1891, 1914-15 (2020) (agency is not required to "consider all policy alternatives" or "explore every alternative device

²⁵ *See* 86 Fed. Reg. at 2157-58; RTC at 87, 256, JA____, ____.

and thought conceivable by the mind of man”) (internal quotations omitted); *Sherley v. Sebelius*, 689 F.3d 776, 785 (D.C. Cir. 2012) (agency need not address comments that run counter to the “start[ing] premise” of the rulemaking).

EPA also cannot be *required* to consider technology-forcing aircraft emission standards given the broad discretion Congress gave EPA in Section 231—and given that EPA is prohibited from adopting any standard that might negatively impact aircraft safety. EPA rightly recognized, in a 2005 rulemaking, that Section 231 does not compel the Agency to obtain the “greatest degree of emission reduction achievable as per sections 213 and 202 of the [Act],” or to “achieve a ‘technology-forcing’ result.”²⁶ To the contrary, it instructs EPA to set standards conservatively, in consultation with the nation’s air safety regulator (FAA), considering the unique safety concerns implicated when setting standards for vehicles that operate tens of thousands of feet above the ground, often carrying hundreds of passengers. *See* 42 U.S.C. § 7571(a)(2)(B). EPA appropriately did so here.

²⁶ 70 Fed. Reg. 69664, 69676 (Nov. 17, 2005). When that approach was challenged, the D.C. Circuit deferred to EPA’s interpretation. *NACAA*, 489 F.3d at 1230.

Petitioners' contrary regulatory approach is inherently risky, and thus contrary to EPA's explicit statutory obligation—reiterated twice in Section 231—not to set standards that might compromise aircraft safety. Boeing noted in its comments on the Proposed Rule that, “if EPA were to pursue technology-forcing standards for CO₂, the Agency would need to demonstrate that such standards would not adversely affect safety.”²⁷ Other commenters voiced similar concerns regarding standards not premised on proven technologies. For example, A4A, representing airline operators, and ALPA, representing the interests of American pilots, explained that the “[u]se of TRL8 to evaluate ‘technological feasibility’ ... ensures emissions standards reflect what aircraft technologies can safely deliver, rather than hypothetical ‘technology forcing’ standards that could pose a potential threat to air safety.”²⁸ Engine manufacturer General Electric rightly explained:

To maintain the trust and confidence of the flying public, it is imperative that EPA not adopt standards that could in any way be perceived as sacrificing aviation safety.... This objective is best achieved by EPA remaining aligned with []

²⁷ Boeing Comments at 25, JA__.

²⁸ A4A and ALPA Comments at 6, JA__.

ICAO ... which ha[s] helped ensure the continuation of aviation's impressive safety record.²⁹

Petitioners' proposed technology-forcing approach also presents a practical problem. Aircraft manufacturers *cannot* lawfully incorporate technologies into their products until those technologies are proven safe and compliant with FAA airworthiness certification requirements.³⁰ Adopting technology-forcing emission standards requiring the deployment of unproven technologies that have not been approved by the FAA, and as to which there are currently no FAA airworthiness certification standards, would be contrary to FAA's safety-focused regulatory scheme.

Given the need to regulate in a way that coheres with FAA's certification process as well as the statutory prohibition against any regulation that would adversely affect safety, EPA reasonably chose to consider only options based on *proven* technologies.³¹

²⁹ General Electric Co., *Comment to NPRM 2* (Aug. 20, 2020), EPA-HQ-OAR-2018-0276-0157, JA__.

³⁰ *See* 14 C.F.R. §. 21.20 (applicant for aircraft certification must demonstrate compliance with all applicable FAA requirements). *See also* 14 C.F.R. pt. 25 (airworthiness standards for transport airplanes).

³¹ *See* 86 Fed. Reg. at 2167 ("ICAO decided on the international Airplane CO₂ Emission Standards, which are equivalent to the final GHG

D. EPA reasonably declined to set standards that would require changes in aircraft operation.

Petitioners are also wrong to suggest that EPA should have set standards that require emissions reductions through changes to aircraft *operations*, such as “improved takeoffs and landings.” *E.g.*, State Br. at 26. As EPA observed, “[i]mposing a[n operational] restriction [on air carriers] would be unprecedented for the EPA, and it is not clear how it could be accomplished.... Operational restrictions would typically be the purview of the FAA under its enabling legislation.” 86 Fed. Reg. at 2158.

It is indeed FAA, not EPA, that is entrusted with authority to regulate aircraft design and operation to ensure safety. *See* 49 U.S.C. § 44701; 14 C.F.R. § 21.183 (FAA issues airworthiness certificate when new aircraft conforms to type design and is in a condition for safe operation). As this Court explained in *Flyers Rights. Educ. Fund, Inc. v. FAA*: “Congress has charged the [FAA] with ensuring the safety and security of commercial airline passengers. In fulfilling that role, the Administration has plenary authority to [m]ake and enforce safety

standards, based on proven technology by 2016/2017 that was expected to be available over a sufficient range of in-production and on-order airplanes by approximately 2020.”).

regulations governing the design and operation of civil aircraft' in order to ensure the maximum possible safety." 864 F.3d 738, 741 (D.C. Cir. 2017) (citations omitted); *see also Wallaesa v. FAA*, 824 F.3d 1071, 1079 (D.C. Cir. 2016) (explaining that, following a "rash of aircraft accidents," Congress "consolidate[d] regulatory authority" in FAA, giving it authority to "make rules necessary to provide adequately for national security and safety in air commerce").

As a practical matter, for EPA to set emission standards that require operational changes, such as using only one engine during takeoff and landing, could well jeopardize aircraft safety. Takeoff and landing are the most critical times in the operation of an aircraft, when ensuring sufficient engine power is essential. If one engine were purposefully shut down to reduce greenhouse gas emissions and the remaining engine fails, the shut-down engine would require additional time to spool up and give sufficient thrust to keep the plane airborne. That delay could prove catastrophic.

Even setting such potential safety issues aside, an emission standard predicated on operational changes that must be implemented during flight would be difficult for FAA to implement through its aircraft

certification process, as required under Section 232 of the Act (42 U.S.C. § 7572). That process assesses whether an aircraft, *as designed and manufactured*, meets all required regulatory standards (including emission standards) at the time a certificate of airworthiness is issued at the factory, as opposed to prescribing operational mandates that pilots (who are employees of the airlines, not the aircraft manufacturers) must implement during flight. *See* 14 C.F.R. pt. 25 (airworthiness certification standards).³² Given these practical difficulties, safety issues, and FAA’s primacy over aircraft safety and operation, EPA reasonably declined to consider changes to aircraft operation as a basis for domestic emission standards under Section 231.

State Petitioners’ suggestion (at 26) that EPA *must* consider broad measures such as reducing aircraft weight or other major design changes should also be rejected. While the domestic greenhouse gas emission standards are designed to reflect fuel efficiency achievable with proven

³² *See also* Daniel H. Conrad, *Into the Wild Green Yonder: Applying the Clean Air Act to Regulate Emissions of Greenhouse Gases from Aircraft*, 34 N.C. J. INT’L L. 919, 934-35 (2008) (explaining that the legislative history of Section 231 does not support “operational procedures, such as carrying less fuel or idling less,” because it is not clear how such standards “could be enforced during the [FAA] certification process”).

technologies for limiting engine emissions, EPA has no authority under Section 231 to require that any particular technology or measures be applied to meet the emission standards it sets. And for EPA to set standards that can only be met through the redesign of existing airplane models to reduce weight would be inconsistent with the fact that Section 231(a)(2)(A), 42 U.S.C. § 7571(a)(2)(A), directs EPA to set standards for emissions from aircraft *engines*.³³

Petitioners' view of Section 231 as allowing EPA to mandate aircraft redesign and operational changes would take substantial control over airplane design, safety, and operation out of the hands of FAA, and put it into the hands of an agency that has no expertise in that area. A statutory interpretation that dramatically expands an agency's authority where there is no indication that Congress intended to do so is unreasonable. *See Utility Air Regulatory Grp. v. EPA*, 573 U.S. 302, 324 (2014) ("EPA's interpretation ... is also unreasonable because it would

³³ While EPA adopted standards "consistent with" "ICAO's approach to measure the fuel efficiency based on the performance of the whole airplane," EPA confirmed it was "not asserting independent regulatory authority over airplane design." 86 Fed. Reg. at 2143; *see also* RTC at 89, JA__ ("[T]he EPA clarifies that by adopting a fuel efficiency standard the agency is not directly regulating 'the entire aircraft.' Instead, EPA is adopting a standard that controls aircraft engine GHG emissions...").

bring about an enormous and transformative expansion in EPA’s regulatory authority without clear congressional authorization.”). The Court should decline to presume that, in authorizing EPA to set emission standards for aircraft engines, Congress intended EPA to comprehensively regulate aircraft design and operation. Congress does not “hide elephants in mouseholes.” *Whitman v. Am. Trucking Associations*, 531 U.S. 457, 468 (2001).

To suggest that operational or design-based standards would be appropriate, Petitioners point to Section 231(a)’s requirement that EPA “study” the “emissions of air pollutants from *aircraft*” to determine the technological feasibility of controlling those emissions before setting standards. 42 U.S.C. § 7571(a) (emphasis added). But the study that Congress required EPA to conduct in subsection (a) is distinct from EPA’s duty to set standards under subsection (b). Congress deliberately chose to use different language in the latter, limiting the application of emission standards to “aircraft *engines*.” *Id.* § 7571(b) (emphasis added). Congress’s choice to direct a study of “aircraft” emissions but to limit EPA’s standard-setting authority to “aircraft engines” is significant, and that statutory text must be construed in light of Congress’s delegation of

primary authority regarding aircraft design and operation to FAA. Cf. *Truck Trailer Manufacturers Ass'n v. EPA*, 17 F.4th 1198, 1201-13 (D.C. Cir. 2021) (vacating rule setting emission standards for trailers because Act only authorizes EPA to regulate “motor vehicles”).

While more stringent standards will likely be appropriate in the future—and ICAO has already begun considering such standards—EPA reasonably declined to promulgate standards in 2021 based on unproven technologies or broad changes to aircraft design and operation, and instead reasonably chose to follow ICAO’s safety-focused approach.

III. EPA Reasonably Declined to Competitively Disadvantage U.S. Aircraft Manufacturers.

The Rule recognizes two major economic benefits to aligning U.S. aircraft greenhouse gas standards with ICAO’s: (1) ensuring that U.S.-manufactured and FAA-certified aircraft will be able to operate internationally, and (2) ensuring that U.S. aircraft manufacturers can compete in the global market. 86 Fed. Reg. at 2138, 2156-57.

EPA reasonably considered these benefits of international harmonization and the corresponding negative impacts to U.S. aircraft manufacturers employing hundreds of thousands of workers of implementing standards that require domestic manufacturers to reduce

greenhouse gas emissions more than their international counterparts. Such considerations are well within EPA's "broad discretion . . . to weigh various factors in arriving at appropriate standards," *NACAA*, 489 F.3d at 1229-30, and particularly appropriate in light of Section 231's mandate that EPA consider the "cost of compliance" when determining the standards' effective dates. 42 U.S.C. § 7571(b).

A. Adopting the ICAO standards assures global acceptance of U.S.-manufactured aircraft.

EPA explained that "the standards established in the United States need to be at least as stringent as the ICAO Airplane CO₂ Emission Standards in order to ensure global acceptance of FAA airworthiness certification." 86 Fed. Reg. at 2142. In so recognizing, EPA acknowledged the concerns of aircraft manufacturers and other commenters, who explained that it was critical to quickly adopt ICAO-equivalent standards so that U.S.-certified aircraft may operate internationally without being forced to "seek CO₂ emissions certification from an aviation certification authority of another country." *Id.* at 2144; *see* A4A and ALPA Comments at 9, JA__ ("[A]doption of GHG aircraft engine standards equivalent to the ICAO [] Standards will ensure U.S. aircraft ... are able to obtain FAA

certification of their products, in turn ensuring that these products will be accepted in the world marketplace.”).

EPA also rightly recognized that imposing more stringent standards than the ICAO standards “could have disruptive effects on manufacturers’ ability to market planes for international operation,”³⁴ causing confusion or imposing administrative hurdles that decrease sales for U.S.-certified aircraft. As ALPA’s Air Safety Organization explained to EPA in comments, “[a] patchwork of various engine emissions standards by countries around the world would create confusion, ... plus endanger the economic viability of the airline industry.”³⁵ By instead aligning U.S. standards with the ICAO standards, the Rule “facilitate[s] the acceptance of U.S. manufactured airplanes and airplane engines by [Chicago Convention] member States and airlines around the world.” 86 Fed. Reg. at 2157-58. It avoids any need for U.S. manufacturers to convince their foreign customers that, although U.S. standards are different, that difference does not pose any problem. While this may seem obvious if the U.S. standards were more stringent, foreign buyers may be

³⁴ RTC at 204, JA__; 86 Fed. Reg. at 2145.

³⁵ RTC at 29, JA__.

hesitant to accept aircraft certified to standards that, on their face, simply do not align with the ICAO standards.

By aligning the Rule with the ICAO standards, EPA ensured that U.S. manufacturers will be able to continue to sell U.S.-made aircraft abroad without the need for a separate foreign certification process, or confusion as to whether EPA-certified aircraft meet the international standards. *See* 86 Fed. Reg. at 2168. As AIA explained to EPA:

[A]irlines make decisions on the aircraft they purchase several years in advance.... [A] key consideration is the assurance that an aircraft will meet the required standard to be allowed to operate in an airline's jurisdiction – which outside of the U.S. will be demonstrated by compliance with the ICAO CO₂ standard. Without relevant domestic regulations in place from the EPA, the FAA are unable to certificate an aircraft as meeting the ICAO CO₂ standard and U.S. manufacturers would be at a serious competitive disadvantage to those based elsewhere.³⁶

Boeing anticipates that it may need to certify around 19 airframe/engine combinations to the Rule's in-production standard before 2028, while U.S. manufacturers Cessna and Gulfstream together may need to certify approximately 14 airframe/engine combinations within

³⁶ AIA, *Comments on Control of Air Pollution from Airplanes and Airplane Engines: Greenhouse Gas Emission Standards and Test Procedures* 5, 13 (Oct. 19, 2020), EPA-HQ-OAR-2018-0276-0167, JA__.

the same timeframe.³⁷ It was imperative that FAA be able to move forward quickly, after ICAO-equivalent standards were adopted by EPA pursuant to Section 231, to implement a process to certify domestic aircraft to those standards as required by Section 232 of the Act. Any delay in FAA's ability to do so would have detrimental impacts for Boeing and other manufacturers' ability to meet existing contracts.

EPA reasonably considered the benefits of quickly adopting the ICAO standards and thereby enabling FAA to implement those standards in the domestic certification process. *See* 86 Fed. Reg. at 2138, 2168 & n.157; RTC at 87, JA__; TSD at 51, JA__. The Court should decline to second-guess EPA's decision and thereby plunge the U.S. aircraft industry into costly uncertainty—particularly when another round of ICAO standard-setting will be completed in 2025.

B. Adopting the ICAO standards ensures a level playing field for U.S. manufacturers.

EPA correctly recognized in the Rule that, if it finalized aircraft greenhouse gas standards more stringent than the ICAO standards, then

³⁷ Boeing Comments at 21-22, JA__-__.

U.S. manufacturers would face a competitive disadvantage compared to foreign aircraft manufacturers. *See* 86 Fed. Reg. at 2157.

If EPA's new-type standard is made more stringent *only for U.S. manufacturers*, then U.S.-manufactured aircraft would be more costly than foreign-manufactured aircraft, depressing global demand for U.S. aircraft. Further, under the Chicago Convention, EPA could not apply a standard more stringent than ICAO's to aircraft certificated in other countries. *See British Caledonian Ltd. Airways v. Bond*, 665 F.2d 1153, 1162-68 (D.C. Cir. 1981) (holding that FAA violated Article 33 of the Convention and the Federal Aviation Act by barring aircraft even after foreign agencies found them airworthy and certificated them). EPA's standard would apply *only* to U.S.-certified aircraft, placing domestic manufacturers at a distinct competitive disadvantage. Among other things, the stricter EPA standard would likely complicate and add expense to the process by which U.S.-manufactured aircraft receive airworthiness approvals in countries that adopt the ICAO standard, adding to the competitive disadvantage of U.S. manufacturers seeking to sell aircraft to foreign airlines. And amicus ICCT admits (at 23) that more stringent new-type standards would require "increase[d]" lead time

before implementation, resulting in a period where U.S.-made aircraft could not be certificated domestically for sale abroad. EPA reasonably declined to impose standards that would result in lost U.S. aircraft sales.

Furthermore, any U.S.-only requirement that would obsolete another existing U.S.-manufactured model necessarily cedes market share to foreign competitors, including those producing less efficient (but ICAO compliant) aircraft, and could thereby *increase* global greenhouse gas emissions. A more stringent U.S. standard that renders additional newer U.S. models unavailable also likely prolongs the use of older, less fuel-efficient aircraft—thereby *increasing* global greenhouse gas emissions. For example, if the stringency of the in-production U.S. standard is increased such that even one more Boeing product would become subject to the 2028 production cut-off, the Boeing 737-9 MAX airplane (a sub-model with a first delivery in 2018, but with the narrowest margin of compliance with the Rule’s in-production standard) would become obsolete even though it is one of the most fuel-efficient aircraft in its class. At the same time, foreign-manufactured aircraft, such as China’s Comac C919 airplane, that meet the ICAO standards but are less fuel efficient than the 737-9 MAX (based on comparative

compliance margins) would remain in production for global service. This asymmetric approach would not only terminate a Boeing program that could contribute up to \$160 billion in economic impact and support up to 65,000 U.S. jobs (including more than 300 suppliers in 37 States), but also increase the price of other aircraft as competition between sellers within the 737-9 MAX's market segment would be severely restrained. EPA reasonably declined to impose a more stringent standard that would take business from U.S. airplane manufacturers, have broader anticompetitive effects, and potentially increase global emissions as market share is transferred to less fuel-efficient airplanes.

The adoption of more stringent greenhouse gas standards could also harm U.S. manufacturers' ability to obtain cost-effective, high quality engines from global suppliers. Although airplane engines are not interchangeable, in many cases their manufacturers benefit from efficiencies allowing the development of engines that can serve the needs of multiple airplane manufacturers, both in the U.S. and abroad—so long as emission standards remain harmonized. For example, the CFM engines for the Boeing 737 MAX and the Airbus A320neo share a common architecture that is significantly more fuel efficient than the prior engine

generation they replace. More stringent U.S. standards could result in engine manufacturers developing separate lines for U.S. and non-U.S. markets in order to remain competitive in non-U.S. markets. As a result, the cost of advances in engine technology would be borne by a fraction of the global market, disadvantaging Boeing and other U.S. manufacturers and making it more difficult for engine manufacturers to commit to efficiency-promoting technological developments.

Last but not least, imposing a more stringent new-type standard on U.S. manufacturers could negatively affect other attributes of U.S.-made aircraft, such as noise, the emission of other pollutants, speed and range capabilities, and airframe and engine durability. As ICAO has recognized, there are significant tradeoffs between these attributes and fuel efficiency.³⁸ For example, “[t]he steps to reduce fuel burn, such as increasing [overall pressure ratio], has generally led to higher emissions of NO_x.”³⁹ And “many measures taken to mitigate aircraft noise could [also] have implications on engine emissions.”⁴⁰ The Committee

³⁸ ICAO 2019 Environmental Report at 25, 29, 36, 42, JA__, __, __, __.

³⁹ *Id.* at 29, JA__.

⁴⁰ *Id.* at 42, JA__.

reportedly plans to consider noise standards at the same time it considers further reductions in CO₂ emissions as part of an integrated dual standard-setting process currently underway and scheduled to be completed in 2025.⁴¹ EPA reasonably chose not to get ahead of the international process by imposing more stringent domestic greenhouse gas standards that might increase noise or other emissions from U.S.-made aircraft.

C. Adopting the ICAO standards is reasonable given the challenges the aircraft industry faces due to the COVID-19 pandemic.

The COVID-19 pandemic affected airline customer demand, production continuity, and supply chain stability like nothing seen before. Airlines delayed purchases of new jets and put the brakes on delivery schedules. Grounded fleets also decreased the demand for Boeing's commercial service business.

Largely because of this industry-wide downturn, Boeing delivered only 70 commercial aircraft in the first half of 2020 (compared to 238 commercial aircraft in the first half of 2019 and 378 aircraft in the first

⁴¹ See n.10 *supra*.

half of 2018). Boeing's 2020 loss from commercial airplane operations was over \$13.8 billion and in 2021 was over \$6.4 billion.⁴² Although deliveries increased in the latter half of 2021, they remain well below pre-pandemic levels, and Boeing, its supply chain, and its customers continue to face a challenging environment in the wake of the pandemic.

The International Air Transport Association's March 2022 forecast indicates that global passenger traffic will not return to pre-COVID levels until 2024—not accounting for the effects of the Russia-Ukraine conflict, which further depressed air travel.⁴³ Given these on-going challenges, now is not the time to impose additional costs on U.S. manufacturers through the adoption of domestic greenhouse gas standards that are broader or more stringent than the ICAO standards.

⁴² See Boeing Reports Fourth-Quarter Results, Table 4 (Jan. 26, 2022), <http://investors.boeing.com/investors/investor-news/press-release-details/2022/Boeing-Reports-Fourth-Quarter-Results/default.aspx>.

⁴³ IATA, *Air Passenger Number to Recover in 2024*, <https://www.iata.org/en/pressroom/2022-releases/2022-03-01-01/>; see also Boeing Form 10-Q, Q1 2022 at 31, https://s2.q4cdn.com/661678649/files/doc_financials/2022/q1/07d53103-45d1-4066-8c2b-32682cbc35a0.pdf (predicting “commercial air travel to return to 2019 levels in 2023 to 2024” and “it will take a few years beyond that for the industry to return to balanced market conditions”).

Intervenors anticipate that, as they recover from the pandemic's impacts, U.S. manufacturers will continue to design and produce ever-more-efficient aircraft, enabling them to meet more stringent standards in the future. They are aware that EPA intends to push for more ambitious standards in the next ICAO standard-setting process, due to be completed in 2025.⁴⁴ While that may be appropriate, it was reasonable for EPA to decline, in 2021, to promulgate standards for greenhouse gas emissions from aircraft engines that impose greater burdens on U.S. aircraft manufacturers than the current international standards.

CONCLUSION

The Petitions for Review should be denied because EPA's Aircraft Rule is both lawful and reasonable.

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Respectfully submitted,

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⁴⁴ See notes 6-8, *supra*.

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation set for Intervenors' joint brief in this Court's January 10, 2022 Briefing Order because it contains 8,988 words, not counting the parts excluded by Fed. R. App. P. 32(f) and Circuit Rule 32(e)(1).

This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5)-(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point Century Schoolbook font.

/s/ Amanda Shafer Berman

CERTIFICATE OF SERVICE

I hereby certify that on May 27, 2022, I caused the foregoing brief to be electronically filed through this Court's CM/ECF system. Participants in the case who are registered CM/ECF users will be served by the CM/ECF system.

/s/ Amanda Shafer Berman