

ORAL ARGUMENT NOT YET SCHEDULED  
Case No. 21-1018 (and consolidated cases)

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

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STATE OF CALIFORNIA, et al.,

*Petitioners,*

v.

UNITED STATES ENVIRONMENTAL PROTECTION  
AGENCY, et al.,

*Respondents.*

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STATE PETITIONERS' INITIAL OPENING BRIEF

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CERTIFICATE AS TO PARTIES, RULINGS,  
AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), the undersigned counsel of record certifies as follows:

A. Parties

Petitioners

The following parties appear as petitioners:

In case no. 21-1018: State of California (by and through Attorney General Rob Bonta and the California Air Resources Board), State of Connecticut, State of Illinois, State of Maryland, Commonwealth of Massachusetts, State of Minnesota, State of New Jersey, State of New York, State of Oregon, Commonwealth of Pennsylvania, State of Vermont, State of Washington, and the District of Columbia (together, State Petitioners).

In case no. 21-1021: Center for Biological Diversity, Friends of the Earth, and Sierra Club (together, Environmental Petitioners).

Respondents

The following parties appear as respondents: the United States Environmental Protection Agency and Michael S. Regan, in his official

capacity as Administrator of the U.S. Environmental Protection Agency (together, EPA).

### Intervenors

The following parties have intervened on the side of respondents: the Boeing Company and Aerospace Industries Association of America.

### Amici

Airlines for America has been granted leave to appear as amicus curiae.

## B. Ruling Under Review

The State and Environmental Petitioners seek review of the final agency action by EPA entitled: "Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures," published at 86 Fed. Reg. 2136 (Jan. 11, 2021) (the Aircraft Rule).

### C. Related Cases

The final agency action at issue in this proceeding has not been previously reviewed in this or any other court. There are no related cases within the meaning of D.C. Circuit Rule 28(a)(1)(C).

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## GLOSSARY

Aircraft Rule	Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures, 86 Fed. Reg. 2136 (Jan. 11, 2021)
Aircraft Rule RTC	EPA, <i>Airplane Greenhouse Gas Standards Response to Comments</i> (Jan. 2021), EPA-HQ-OAR-2018-0267-0228
Aircraft Rule TSD	EPA, <i>Airplane Greenhouse Gas Standards Technical Support Document</i> (Jan. 2021), EPA-HQ-OAR-2018-0267-0227
CO <sub>2</sub>	Carbon dioxide
Endangerment Finding	Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution that May Reasonably Be Anticipated to Endanger Public Health & Welfare, 81 Fed. Reg. 54,422 (Aug. 15, 2016)
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas(es)
ICAO	International Civil Aviation Organization
JA	Joint Appendix
NOx	Oxides of nitrogen
Section 231	42 U.S.C. § 7571

## INTRODUCTION

The State Petitioners challenge EPA's final rule titled Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures, 86 Fed. Reg. 2136 (Jan. 11, 2021) (Aircraft Rule or Rule). The Aircraft Rule fails on two counts: *first*, it is contrary to law for the reasons set forth in the Environmental Petitioners' brief; and *second*, it is arbitrary, capricious, and an abuse of EPA's discretion for the reasons discussed herein.

In 2016, EPA properly found that airplanes' greenhouse gas emissions contribute to pollution that endangers the public health and welfare. Greenhouse gas pollution causes disastrous changes to Earth's climate systems, with more frequent and destructive storms, wildfires, floods, and drought costing lives, ruining crops and fisheries, drowning coastlines, and threatening to eliminate whole species and ways of life. EPA's finding, which is not disputed by any party to this case, triggered its obligation to develop protective standards to control aircraft greenhouse gas emissions. Clean Air Act § 231, *codified at* 42 U.S.C. § 7571. Yet the Rule, by EPA's own analysis, will reduce no emissions whatsoever and will prompt no improvements to airplanes' emissions

reduction technology, compared to a no-rule scenario. 86 Fed. Reg. at 2164, 2167. In fact, *none* of the three narrow alternatives EPA considered would have mitigated, by any amount, the pollution that EPA found to be a danger to public health and welfare.

The Aircraft Rule's total inefficacy stems from EPA's decision to rubber-stamp standards adopted by the International Civil Aviation Organization (ICAO) rather than consider airplanes' real-world potential to reduce greenhouse gas emissions. ICAO is a multilateral organization created to facilitate international air travel and its emissions standards are designed to be a global "floor" that even the worst-performing fleets in the world can readily achieve. Thus, its greenhouse gas standards for new aircraft in 2028 already lag *current* technology by a decade. EPA's insistence on treating these technology-lagging standards as a "ceiling" for domestic standards cannot be justified as a reasoned exercise of its discretion under section 231.

Moreover, despite the agency's express commitment to considering the environmental justice and federalism implications of its rules, as set out in Executive Orders 12,898 and 13,132, respectively, EPA left both aspects entirely unexamined and unaddressed, with cursory, irrational

dismissals in place of analysis. These failures underscore the agency's arbitrary and shallow approach to the Rule.

As a response to the endangerment finding, the Aircraft Rule is equivalent to no rule at all. For the reasons set forth herein and in the Environmental Petitioners' brief, this Court should grant the petitions for review and hold the Rule is unlawful and arbitrary.

#### JURISDICTIONAL STATEMENT

State Petitioners adopt the Jurisdictional Statement set forth in the Environmental Petitioners' Opening Brief.

#### ISSUES PRESENTED

State Petitioners adopt the Statement of the Issues set forth in the Environmental Petitioners' Opening Brief.

#### STATUTES AND REGULATIONS

Applicable statutes and regulations are set forth in the Addendum to the Environmental Petitioners' Opening Brief.

#### STATEMENT OF THE CASE

State Petitioners adopt the Statement of the Case set forth in the Environmental Petitioners' Opening Brief.

## STANDARD OF REVIEW

Petitioners adopt the Standard of Review set forth in the Environmental Petitioners' Opening Brief.

## SUMMARY OF ARGUMENT

The Aircraft Rule violates section 231 of the Clean Air Act and is arbitrary and capricious.

1. As explained in the Environmental Petitioners' opening brief, EPA violated section 231 by adopting completely ineffectual standards based on its decision to tie domestic aircraft standards to standards adopted by ICAO, rather than on the factors enumerated in statute.

2. EPA arbitrarily failed to adopt or even consider adopting standards that would reduce aircraft greenhouse gas emissions. As a response to EPA's 2016 finding that greenhouse gas emissions posed a danger to public health and welfare, the Aircraft Rule's zero-benefit standards are equivalent to doing nothing at all. And despite extensive public comments identifying emission-reduction technologies and strategies that are already in use, EPA did not examine what level of protection these or future reduction measures could actually achieve.

Instead, EPA relied entirely on extra-statutory considerations of “harmonization” with ICAO’s standards and aircraft manufacturers’ competitive position. This “harmonization” interest, as the Rule applied it, reduced section 231 to a rubber stamp on ICAO’s standards and was unjustified by the record. Nor did EPA substantiate its concern that more stringent standards would result in a competitive disadvantage to the U.S. aviation industry, or find that these purported disadvantages would outweigh the well-documented costs of letting dangerous aircraft emissions increase unabated.

3. The Aircraft Rule similarly gave short shrift to EPA’s commitment under Executive Order 12,898 to consider environmental justice. The Rule devoted two sentences to asserting, without support, that it carries no disproportionately high health or environmental effects on any population, contrary to the ample evidence in the record that aircraft greenhouse gas and co-pollutant emissions particularly harm low-income communities and communities of color.

4. Finally, EPA arbitrarily disregarded federalism concerns raised by State Petitioners, in spite of Executive Order 13,132. Because section 233 of the Clean Air Act prohibits States from adopting aircraft

emissions standards unless these standards are identical to EPA's, the Rule's do-nothing approach means that States cannot effectively control greenhouse gas or co-pollutant emissions from flights in and out of their own airports, despite the significant impact these emissions have on state-law climate mandates and the attainment or maintenance of national ambient air quality standards.

### STANDING

It is well-established that the adverse effects of climate change injure the States, including through increased heat-related deaths, lost or damaged coastal areas, disrupted ecosystems, more severe weather events, and longer and more frequent droughts. *Massachusetts v. EPA*, 549 U.S. 497, 522-23 (2007). State Petitioners drew EPA's attention to the specific harms they face due to increasing greenhouse gas emissions and are submitting several declarations highlighting these threats.<sup>1</sup> For example, States face enormous fire suppression costs, the destruction of

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<sup>1</sup> Comments of California et al., EPA-HQ-OAR-2018-0267-0176, at 8-15 (States' Comment), JA\_\_-\_\_; Declaration of Elizabeth Scheele (California); Declaration of Lisa Engler (Massachusetts); Declaration of Christine Kirby (Massachusetts); Declaration of Erica Fleishman (Oregon). These declarations are included an addendum filed with the State Petitioners' opening brief.

state parklands and infrastructure, and strains on state health services associated with the unprecedented wildfire seasons that climate change has made more frequent, longer, and more destructive, such as the 2020 fires that burned five million acres and caused weeks of terrible air quality across California, Oregon, and Washington.<sup>2</sup> Massachusetts and other coastal States incur significant expenditures to protect residents, commercial zones, and public infrastructure from sea-level rise and face major losses of coastal industries, property taxes, and state-owned land and infrastructure from increased severe storms and flooding.<sup>3</sup> In 2016, EPA itself determined that emissions from aircraft covered by the Rule contribute to the increasing atmospheric concentrations of greenhouse gases that drive climate change and its associated harms. *See Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution that May Reasonably Be Anticipated to Endanger Public Health & Welfare*, 81 Fed. Reg. 54,422, 54,452-58, 54,461 (Aug. 15, 2016) (Endangerment Finding).

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<sup>2</sup> Fleishman Decl. ¶¶10-15; Scheele Decl. ¶¶17-18, 20, 21; States' Comment at 9-10, JA\_\_-\_\_.

<sup>3</sup> Engler Decl. ¶¶19-23, 25; Scheele Decl. ¶¶18-20; Fleishman Decl. ¶¶22-24; States' Comment at 10-14, JA\_\_-\_\_.

The Rule also injures State Petitioners' interests by increasing the burden of achieving state-law decarbonization mandates and attaining or maintaining national ambient air quality standards for co-pollutants associated with aircraft greenhouse gas emissions, specifically, oxides of nitrogen (NO<sub>x</sub>), ozone, and particulate matter.<sup>4</sup> Passenger flights account for 9-10 percent of energy-related carbon dioxide emissions in New York and California, and 7 percent in Massachusetts, Washington, and New Jersey.<sup>5</sup> In the airshed around Los Angeles International Airport, aircraft will emit 20 tons of NO<sub>x</sub> *per day* by 2030.<sup>6</sup> Because the States must rely on EPA to regulate these emissions effectively, *see* 42 U.S.C. § 7573, EPA's failure to adopt protective standards increases the burden on States to reduce greenhouse gases and aviation co-pollutants from other sources more aggressively.<sup>7</sup>

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<sup>4</sup> Scheele Decl. ¶¶26-29; Kirby Decl. ¶¶8, 16-19; States' Comment at 17-21, JA\_\_-\_\_.

<sup>5</sup> Scheele Decl. ¶26 & n.43 (citing Zheng, X. & Rutherford, D., "Reducing aircraft CO<sub>2</sub> emissions: The role of U.S. federal, state, and local policies," at 2-3 (Feb. 4, 2021)).

<sup>6</sup> States' Comment at 17, JA\_\_.

<sup>7</sup> *Id.*; Kirby Decl. ¶¶17-18.

Meaningful standards developed as a result of a favorable order from this Court would result in decreased climate-changing emissions and a decreased burden on States to meet their climate mandates and national ambient air quality standards.

## ARGUMENT

### I. THE AIRCRAFT RULE IS CONTRARY TO SECTION 231

Once EPA found that aircraft greenhouse gas emissions contribute to dangerous pollution, the Clean Air Act required EPA to adopt aircraft emission standards to address that danger, based on express statutory factors: pollution impacts, the technological feasibility of controlling the emissions, lead time, costs, noise, and safety. 42 U.S.C. § 7571(a)(1), (a)(2), (b), (c). Yet the Aircraft Rule unlawfully grounded its emission standards solely in EPA's choice to "harmonize" U.S. standards with those adopted in 2017 by ICAO (the ICAO Standards). By disregarding Congress's mandatory factors in favor of a non-statutory "harmonization" goal and the wholly ineffectual ICAO Standards, EPA violated section 231. *See* *Env'tl. Petrs. Br.* 26-41.

## II. EPA ACTED ARBITRARILY IN FAILING TO ADOPT OR EVEN TO CONSIDER ADOPTING STANDARDS THAT ACTUALLY REDUCE AIRCRAFT GREENHOUSE GAS EMISSIONS

The Aircraft Rule is indefensible as a reasoned application of the statutory factors to the record before EPA. A rule that “runs counter to the evidence before the agency,” “relie[s] on factors which Congress has not intended it to consider,” or “entirely fail[s] to consider an important aspect of the problem” is arbitrary and capricious. *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). Here, EPA’s 2016 Endangerment Finding compelled EPA to set standards to limit aircraft greenhouse gas emissions precisely because of the danger they represent. 42 U.S.C. § 7571(a)(2). Under the Rule, however, that danger remains wholly unmitigated. EPA did not even investigate whether feasible emission-reduction strategies—including current and projected technologies identified by the Petitioners—could support more protective standards. At the very least, the impact of aircraft emissions on public health and welfare and the feasibility of controlling those emissions are important aspects of the regulatory problem, which EPA ignored. 42 U.S.C. § 7571(a)(1), (a)(2); see *Mozilla Corp. v. FCC*, 940 F.3d 1, 60 (D.C. Cir. 2019) (“A statutorily mandated factor, by

definition, is an important aspect of any issue before an administrative agency." (cleaned up)).

Instead, EPA arbitrarily relied on considerations well outside the Clean Air Act: its desire to tie domestic standards to ICAO minimum standards and a purported competitive disadvantage to industry from stricter standards. Because EPA "prioritize[d] non-statutory objectives to the exclusion of the statutory purpose," the Aircraft Rule is arbitrary and capricious. *Gresham v. Azar*, 950 F.3d 93, 104 (D.C. Cir. 2020), *cert. granted*, 141 S. Ct. 890; *Indep. U.S. Tanker Owners Comm. v. Dole*, 809 F.2d 847, 854 (D.C. Cir. 1987) (agency's substitution of "new goals in place of the statutory objectives" was arbitrary).

A. The Aircraft Rule Arbitrarily Ignored the Catastrophic Harms of Climate Change

Climate change is an important aspect of the problem for any greenhouse gas regulation; the point of regulating greenhouse gas emissions is to mitigate the danger posed by their climate-forcing effect. *See Am. Lung Ass'n v. EPA*, 985 F.3d 914, 993 (D.C. Cir. 2021) (holding EPA's deferral of the compliance deadlines in power plant greenhouse gas rule was arbitrary where EPA "did not even mention the need for prompt reduction of emissions or the human and environmental costs"

of delayed action on climate change), *cert. granted on other grounds sub nom. West Virginia v. EPA*, 142 S. Ct. 420.<sup>8</sup> But, just as in *American Lung*, a casual reader of the Rule “would have no idea that the EPA actually recognized that greenhouse gas pollution was causing a global climate crisis requiring urgent remediation.” *Id.* at 994. Accordingly, the Rule is arbitrary and capricious.

EPA’s failure to consider climate change is particularly egregious given its own Endangerment Finding. Surveying an extensive body of scientific literature, EPA determined that human activities have caused unprecedented levels of carbon dioxide and other greenhouse gases in the atmosphere, which are driving global temperature increases, sea-level rise, and acidifying oceans. 81 Fed. Reg. at 54,440-44. EPA traced how these climate impacts lead to deadly heat waves; aggravated respiratory illnesses; more food-, water-, and insect-borne diseases; and grave harms to agriculture, forestry, water supplies, infrastructure, and other resources from increasingly severe wildfires, storms, and drought.

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<sup>8</sup> In *American Lung*, this Court reviewed the repeal of a 2015 rule, its replacement rule, and EPA’s revisions to regulatory deadlines for States to submit compliance plans. 985 F.3d at 995. The Supreme Court granted certiorari only on the first two issues; no party challenged the Court’s vacatur of the revised deadlines. 142 S. Ct. 420.

*Id.* at 54,452-58. And EPA explained how aircraft emissions contributed to this dangerous pollution, with greenhouse gas emissions from regulated U.S. aircraft outpacing the *total* greenhouse gas emissions of more than 150 countries. *Id.* at 54,486.

In addition to the Endangerment Finding, public comment on the proposed rule by Petitioners and others supplied more recent evidence of climate change's threats to public health and welfare, including the U.S. Government's own 2017-18 Fourth National Climate Assessment.<sup>9</sup> State Petitioners catalogued how wildfires, extreme weather, flooding, and drought, exacerbated by climate change, were anticipated to cause and have already caused grievous loss of lives, property, resources, and

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<sup>9</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I*, at 36 (D.J. Wuebbles, et al., eds., 2017), EPA-HQ-OAR-2018-0276-0151, JA\_\_ (finding "no alternative explanations supported by the evidence" for the observed rise in global temperatures, besides anthropogenic greenhouse gas emissions, "that are either credible or that can contribute more than marginally to the observed patterns"); *ibid.*, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II: Report-in-Brief*, at 102 (D.R. Reidmiller et al. eds., 2018), EPA-HQ-OAR-2018-0276-0151, JA\_\_ (by shifting from a high-emissions scenario to a low-emissions scenario, "thousands of American lives could be saved and hundreds of billions of dollars in health-related economic benefits gained *each year*" (emphasis added)).

livelihoods for their residents and industries.<sup>10</sup> The record is clear: deep reductions across sectors and in this decade are needed to constrain warming to 1.5° Celsius and avoid even more severe, cascading harms.<sup>11</sup> Yet the aviation industry is not on anything like a decarbonization path: airplanes' emissions are expected to *triple* by midcentury and constitute more than a quarter of the global "carbon budget" that keeps warming below 1.5° Celsius.<sup>12</sup>

The Aircraft Rule's response to this danger is to do nothing about it. The Rule creates *zero* environmental benefits: in terms of emissions, the Rule is equivalent to no rule at all. 86 Fed. Reg. at 2164 (projecting the Rule's "standards will not result in reductions in . . . GHG emissions beyond the baseline"). As EPA explained, because all new U.S. aircraft covered by the Rule are projected to comply with current technology (or

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<sup>10</sup> States' Comment at 8-15, JA\_\_-\_\_.

<sup>11</sup> See, e.g., Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C: An IPCC Special Report*, SPM-8 to SPM-15, 153-65, 177-182 (Oct. 2018), EPA-HQ-OAR-2018-0276-0151, JA\_\_-\_\_, \_\_-\_\_, \_\_-\_\_.

<sup>12</sup> Comment of Earthjustice, et al., at 5, EPA-HQ-OAR-2018-0267-0151, JA\_\_ (Envtl. Petitioners' Comment).

go out of production)<sup>13</sup> by the time its standards take effect, it found “no cost” and “no benefit” from its standards. *Id.* Nor did EPA consider any alternative standards that would reduce emissions. *See, infra*, Part B.2. And when confronted with the Endangerment Finding and commenters’ climate change impacts, EPA refused to engage this evidence: “we do not address in this rule the potential environmental or other impacts requiring reduced airplane emissions beyond adopting the ICAO CO<sub>2</sub> standards.”<sup>14</sup> Instead, the Rule allows aircraft greenhouse gas emissions to continue to increase unabated through 2040, worsening the problem.<sup>15</sup> “In short, Petitioners called the EPA’s attention to an important aspect of the regulatory problem, and the EPA looked away.” *Am. Lung*, 985 F.3d at 995.

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<sup>13</sup> EPA concluded that even if the no-rule, “business as usual” scenario involved *no* improvements to existing technologies to reduce emissions, new airplanes would still meet the ICAO standards with these existing technologies and thus, “the projected GHG emissions reductions for the final standards will still be zero.” *Id.*

<sup>14</sup> EPA, *Airplane Greenhouse Gas Standards Response to Comments*, at 330 (Jan. 2021), EPA-HQ-OAR-2018-0267-0228 (Aircraft Rule RTC), JA\_\_.

<sup>15</sup> EPA, *Airplane Greenhouse Gas Standards Technical Support Document*, at 106 (Jan. 2021), EPA-HQ-OAR-2018-0267-0227 (Aircraft Rule TSD), JA\_\_.

B. The Aircraft Rule Ignored Feasible Technologies to Control Greenhouse Gas Emissions from Aircraft

EPA's failure to adopt standards that will trigger *any* greenhouse gas emission reductions is all the more arbitrary given the U.S. fleet's ability to reduce emissions. As EPA admits, the Aircraft Rule produces "no benefit" because all new U.S. aircraft subject to the rule ("covered aircraft") are either already in compliance today or projected to go out of production by the compliance deadline under a no-rule, "business as usual" scenario. 86 Fed. Reg. at 2164. Even this is an understatement: the ICAO Standards adopted by the Rule "lag[] the existing efforts of manufacturers by more than 10 years" and new U.S. aircraft deliveries *in 2019* comfortably outperformed limits the Rule set for *2028*.<sup>16</sup>

As discussed below, the ICAO Standards produce no emission benefits because they are based on only a small subset of feasible technologies and are so lax that even the dirtiest new aircraft can meet them. By limiting its analysis of alternatives to ICAO's technology-

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<sup>16</sup> Zheng, S. & Rutherford, D., "Fuel Burn of New Commercial Jet Aircraft: 1960 to 2019," at iv, 8 (Sept. 2020), EPA-HQ-OAR-2018-0276-0168, JA\_\_, \_\_ (finding 89% of new aircraft deliveries meet the emission limits adopted in the Aircraft Rule, and the average new delivery exceeds the limits by 6%).

lagging standards and two minor variations on those standards—none of which prompted *any* action to apply available control technologies—EPA effectively disregarded the wide range of options that commenters urged it to study. This crabbed approach turned the Rule’s alternatives analysis into an empty exercise, back-calculated to ratify the ICAO Standards rather than explore whether effective standards were in fact possible. EPA thereby deprived itself and the public of any legitimate analysis and guaranteed an uninformed decision.

1. ICAO’s Standards Are Based on Only a Small Subset of Feasible Control Technologies and Methods

To appreciate how inadequate the Aircraft Rule’s consideration of technological feasibility was, a brief overview of the different means of reducing aircraft greenhouse gas emissions is necessary.

First, airplanes can be *built* or *retrofitted* to reduce the amount of fuel they burn per mile traveled, by improving engines’ performance or by making the planes lighter or more aerodynamic.<sup>17</sup> Second, airplanes can be *operated* to reduce fuel burn per flight—*e.g.*, by using only one

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<sup>17</sup> Aircraft Rule TSD at 33-39, JA\_\_-\_\_.

engine during runway taxiing or through improved routing and traffic control.<sup>18</sup> Third, lower-emitting *alternative fuels* and technologies (such as some biofuels, hydrogen fuels, or electric aircraft) can be phased into the fleet,<sup>19</sup> reducing the fleet's aggregate contribution to greenhouse gas pollution.<sup>20</sup> Under section 231, EPA does not prescribe the use of any particular technology, operational method, or fuel, only emission standards; but EPA bases its emission standards on the reductions such measures can achieve. 42 U.S.C. § 7571.

The level of reduction that each approach can achieve will vary for the different stages of an airplane's life cycle. *New type* designs, which

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<sup>18</sup> See *Envtl. Petrs. Br.* at 9-10.

<sup>19</sup> *Contra* 86 Fed. Reg. at 2156 (asserting that "limiting fuel burn is the only means by which airplanes control their GHG emissions"). In fact, EPA and the FAA have recently announced initiatives to promote sustainable aviation fuels and other, non-efficiency emission controls in the aviation sector. See U.S. Climate Aviation Plan 2021 at pp. 15-23, [https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation\\_Climate\\_Action\\_Plan.pdf](https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation_Climate_Action_Plan.pdf). The Rule offers no explanation why technologies that can be adopted by the fleet voluntarily should not inform consideration of section 231 aircraft emission standards.

<sup>20</sup> States' Comment at 31, JA\_\_; *Envtl. Petitioners' Comment* at 24 & n.167, 27, JA\_\_, \_\_; see also *Regulating Greenhouse Gas Emissions under the Clean Air Act*, 73 Fed. Reg. 44,354, 44,472 (July 30, 2008) (recognizing EPA authority to impose a "declining fleet average emissions program" for aircraft, similar to fleet standards for vehicles).

represent new or significantly modified airplane models, “typically yield large fuel burn reductions—10 percent to 20 percent over the prior generation they replace”—but by EPA’s estimate occur only every 8-10 years. 86 Fed. Reg. at 2146. *In-production* aircraft—those built off an existing design, but which have not yet entered service—can still meaningfully reduce emissions through retrofits, like advanced wingtips or “riblet coatings” installed on the airframe to reduce drag.<sup>21</sup> *In-service* aircraft—airplanes that are currently being flown—can reduce emissions significantly through improved operations and some retrofits.<sup>22</sup> Finally, retiring particularly old and dirty in-service airplanes and replacing them with new, cleaner models—a process called *fleet renewal* or turnover—can improve fleet total emissions.<sup>23</sup>

The ICAO Standards, however, address only *new type* designs and *in-production* aircraft; there is no standard for in-service planes. 86 Fed. Reg. at 2146. For these aircraft, the ICAO Standards examined

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<sup>21</sup> Aircraft Rule TSD at 35, 37-38, JA\_\_\_, \_\_\_-\_\_\_.

<sup>22</sup> Env’tl. Petitioners’ Comment at 24-26, JA\_\_\_-\_\_\_; Comment of Intl. Council on Clean Transp. at 3-4, EPA-HQ-OAR-2018-0267-0168 (ICCT Comment), JA\_\_\_-\_\_\_.

<sup>23</sup> *Id.*

only emission reduction technologies that improved fuel efficiency, and only a subset of those. *Id.* at 2167. And from among *those* technologies, ICAO considered only those that were in wide commercial application by 2016-17.<sup>24</sup> Using this subset of widely commercialized fuel efficiency technologies, ICAO developed ten “stringency levels,” with “1” being the least stringent and “10” the most stringent considered.<sup>25</sup> ICAO then set its standards at a stringency level so low that even the worst-performing new aircraft could meet it.<sup>26</sup>

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<sup>24</sup> Aircraft Rule TSD at 39, JA\_\_; *see also* States’ Comment at 30 & n.144, JA\_\_.

<sup>25</sup> *Id.* at 122-23, JA\_\_. These stringency levels are difficult to visualize. An ICAO standard is not a specific value (*e.g.*, 0.4 kilogram of fuel burned per kilometer of flight), but a mathematical formula that produces different values based on the airplane’s weight (*e.g.*, 0.4 kg/km for a 40,000 kg aircraft, 0.6 kg/km for a 60,000 kg aircraft, etc.). Figures IV-1 to IV-4 in the Aircraft Rule plot the ICAO Standards as compliance curves, with the ICAO metric on the vertical axis and aircraft weight on the horizontal axis. 86 Fed. Reg. at 2149-50, 2152-53. Greater stringency means a compliance curve that is generally “lower” on the graph, allowing less emissions for a given aircraft weight, and lesser stringency means a compliance curve that is generally “higher” on the graph, allowing more emissions for a given aircraft weight.

<sup>26</sup> Aircraft Rule TSD at 39, JA\_\_ (“Thus, most or nearly all in-production and on-order airplanes already meet the levels of the final standards.”); *see also* 86 Fed. Reg. at 2149-50, 2152-53. These levels range from “8.5” all the way down to “3” for different classes of aircraft. Aircraft Rule TSD at 123-25, JA\_\_-\_\_. Figures IV-1 to IV-4 show every

## 2. EPA Refused to Consider Any Standards that Actually Reduce Emissions

EPA recognized the limitations of ICAO's approach when it first started developing the Aircraft Rule.<sup>27</sup> And, importantly, EPA quickly realized that the ICAO Standards would not reduce emissions at all over "business as usual."<sup>28</sup> Yet not only did EPA proceed to adopt these standards, it refused to consider alternatives that *did* reduce emissions. Instead, EPA modeled three scenarios: the ICAO Standards (Scenario 1); the ICAO Standards with advanced compliance dates (Scenario 2);

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single aircraft model projected to remain in production (the black dots) plotted *below* the compliance curves—*i.e.*, passing the standards—while aircraft models projected to go out of production (the white dots) are the only ones plotted *above* the curves—*i.e.*, failing the standards.

<sup>27</sup> 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, 37,803 (July 1, 2015) (2015 ANPR) (noting that none of the stringency levels under consideration at ICAO considered forward-looking technologies and that the lowest stringency options would achieve "minimal" reductions).

<sup>28</sup> Control of Air Pollution From Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures (Proposed Rule), 85 Fed. Reg. 51,556, 51,583 (Aug. 20, 2020) (explaining EPA's modeling work showed that ICAO had incorrectly projected emissions reductions over "business as usual," all of which occurred in aircraft models slated to go out of production, and concluding that its "no cost-no benefit conclusion is quite robust").

and standards 2-7 percent more stringent than the ICAO Standards, with advanced compliance dates as well (Scenario 3). Scenarios 1 and 2 produced no emission benefit.<sup>29</sup> Scenario 3 required improvement from one airplane model, but that model was projected to go out of production (and in fact did go out of production) in 2021; so Scenario 3 produced no emission benefit either.<sup>30</sup> EPA did not consider any other alternative. 86 Fed. Reg. at 2145.

This blinkered analysis was arbitrary. *Int'l Ladies' Garment Workers' Union v. Donovan*, 722 F.2d 795, 816 & n.41 (D.C. Cir. 1983) (“the agency’s consideration of some alternatives does not free it from considering other obvious alternatives”). By restricting its alternatives analysis to standards that had *no* effect on greenhouse gas emissions, EPA left obvious, safe, and effective alternatives unexamined.

*First*, EPA should have evaluated standards reflecting the current state of the art. Standards for new type designs or in-production aircraft could be at least as stringent as ICAO level “10,” given there are planes

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<sup>29</sup> Aircraft Rule TSD at 107, JA\_\_.

<sup>30</sup> *Id.* at 107, 130-31, 134-35, JA\_\_, \_\_-\_\_, \_\_-\_\_.

currently in service—*i.e.*, being safely flown now—that already perform to this level.<sup>31</sup> By EPA's own record, there are in-production models that even exceed ICAO's stringency level "10."<sup>32</sup> Thus, it was irrational not to study standards for new type and in-production airplanes at and above ICAO's stringency level "10."<sup>33</sup>

*Second*, EPA should have evaluated technology-forcing standards based on controls that could be developed and deployed with sufficient lead time. According to EPA, new aircraft designs occur every eight to ten years and "typically yield large fuel burn reductions—10 percent to 20 percent over the prior generation." 86 Fed. Reg. at 2146.<sup>34</sup> Another study showed cost-effective technologies could reduce emissions from

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<sup>31</sup> States' Comment at 29 & n.140, JA\_\_.

<sup>32</sup> Aircraft Rule TSD at 126-127 (Figures 6-1, 6-2), JA\_\_-\_\_.

<sup>33</sup> States' Comment at 29-30, JA\_\_-\_\_. The most stringent standard studied under Scenario 3 corresponds to stringency level 9. *Id.* at 129-31, JA\_\_-\_\_.

<sup>34</sup> *See also* Aircraft Rule TSD at 14 ("with the fast pace of advancing aviation technology[,] the status of CO<sub>2</sub> technology improvements has changed" even from 2015 to 2018).

new aircraft by 2.2 percent annually through 2034.<sup>35</sup> This translates to improved emissions reduction of *25 percent* in 2024 and *40 percent* in 2034, relative to 2015 aircraft.<sup>36</sup> Thus, it should be feasible for EPA to set a standard for new type designs, with a compliance date eight to ten years in the future, that are 10 to 20 percent—or even 25 to 40 percent—more stringent than the ICAO Standards.<sup>37</sup> Yet EPA refused to consider this possibility either.

EPA's refusal to look beyond ICAO's stringency options was particularly arbitrary because these options were explicitly restricted to technology widely commercialized *four years prior* to the Rule.<sup>38</sup> Section 231, by contrast, steers EPA toward setting its standards according to technology expected to be developed *in the future*, provided EPA allows manufacturers sufficient lead time. 42 U.S.C. § 7571(b); *Env'tl. Petrs. Br.* 29-32.

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<sup>35</sup> Kharina, A. et al., "Cost Assessment of Near and Mid-Term Technologies to Improve New Aircraft Fuel Efficiency," at 28 (Sept. 27, 2016), EPA-HQ-OAR-2018-0276-0151, JA\_\_.

<sup>36</sup> *Id.* at 28, 31, 35, JA\_\_, \_\_, \_\_.

<sup>37</sup> States' Comment at 30, JA\_\_.

<sup>38</sup> Aircraft Rule TSD at 39, JA\_\_; *see also* States' Comment at 30 & n.144, JA\_\_.

Standards based on the current state of the art and technologies under development are both obvious alternatives that EPA had a duty to consider. The agency was “required to address common and known or otherwise reasonable options, and to explain any decision to reject such options.” *Int’l Ladies Garment Workers’ Union*, 722 F.2d at 818. EPA’s failure to do so here was arbitrary.

3. By Not Considering the Full Range of Feasible Technologies, EPA Ignored an Important Aspect of the Problem

Multiple commenters urged EPA to consider a third, equally obvious option: in addition to considering what stringency levels current and future fuel efficiency technologies could support, EPA should have considered controls *beyond* fuel efficiency as a supplement to the ICAO Standards. Instead, by narrowing its review to minor variations on the ICAO Standards, EPA disregarded most of the available emission reduction technologies and methods. In a similar vein, because ICAO Standards apply to new aircraft only, EPA never considered what reductions *in-service* aircraft could achieve.<sup>39</sup> Because ICAO considered

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<sup>39</sup> Aircraft Rule RTC at 103, JA\_\_ ; Env’tl. Petitioners’ Comment at 24-25, JA\_\_-\_\_ ; ICCT Comment at 3-4, JA\_\_-\_\_.

only fuel efficiency technologies, EPA never studied emission reductions from operational improvements or alternative fuels. Because ICAO's test procedures measure fuel burn only at "cruise altitude," 86 Fed. Reg. at 2139 n.11, EPA never studied reductions from improved takeoffs and landings. Because the ICAO Standards do not reward reductions in airplanes' weight,<sup>40</sup> EPA excluded all weight reduction technologies from consideration—even though these constituted one-third of the technologies its own consultant determined to be available.<sup>41</sup> "Such an artificial narrowing of options is antithetical to reasoned decisionmaking," *Int'l Ladies Garment Workers' Union*, 722 F.2d at 817 (cleaned up), and "ignored an important aspect of the problem," *State Farm*, 463 U.S. at 43.

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<sup>40</sup> Because ICAO made the standard a function of an aircraft's weight, reducing aircraft weight simply moves the plane to a different spot on the same compliance curve, rather than bring the plane *below* the compliance curve. *Cf.* nn. 25-26 *supra*. While ICAO's choice to design the standard this way has its benefits, it undervalues the real emission reductions that occur when individual planes, or even entire fleets, are lighter. States' Comment at 31 & n.145, JA\_\_; ICCT Comment at 5, JA\_\_.

<sup>41</sup> Aircraft Rule TSD at 33, JA\_\_.

EPA was aware of all these options long before commenters raised them in public comment. In 2008, EPA published an advance notice of proposed rulemaking to collect input on numerous strategies to reduce greenhouse gas emissions across different mobile and stationary sources, including aircraft. 73 Fed. Reg. at 44,468-73. There, EPA noted potential emissions reductions not only from fuel efficiency technologies applied to engines and airframes, *id.* at 44,470-71, but also from weight reduction; operational changes such as improved air traffic control and single-engine taxiing; phase-ins of alternative fuels; and a fleet average emission standard for in-service aircraft, *id.* at 44,471-73. EPA also recognized it could develop its section 231 emission standards at levels reflecting application of these strategies to in-service aircraft as well as to new-type and in-production planes. *Id.* at 44,473.

This makes the Aircraft Rule's sole explanation for not evaluating these strategies—that EPA ran out of time—ring hollow. According to EPA, because it must adopt the ICAO Standards now, there is no longer time to study and receive comment on the above reduction strategies.<sup>42</sup> But that does not explain or excuse EPA's failure to study such options

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<sup>42</sup> Aircraft Rule RTC, at 26, 87, 203, 256, JA\_\_\_, \_\_\_, \_\_\_, \_\_\_.

in the *twelve years* since it first sought public comment on them, or the four years since the Endangerment Finding. Nor does EPA intend to study these reduction strategies now that it has finalized the Rule. *Id.* at 2146 (“Through this action, . . . the EPA is *fully discharging* its obligations under the CAA that were triggered by the 2016 Findings”) (emphasis added); Doc. #1922539 at 1-2 (EPA will not revisit Aircraft Rule).<sup>43</sup> And for EPA to refuse to consider safe, widely available, and cost-effective options solely because it failed to study and present them in the notice of proposed rulemaking violates EPA’s duty to consider all important aspects of a problem, *see State Farm*, 463 U.S. at 43, and to seriously consider significant public comment, *see AT&T Servs., Inc. v.*

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<sup>43</sup> The lack of further, pending standard-setting proceedings, among many other factors, distinguishes this case from *National Association of Clean Air Agencies v. EPA*, 489 F.3d 1221 (D.C. Cir. 2007) (“*NACAA*”). There, EPA faced the real prospect of the United States falling out of compliance with ICAO’s 1999 emission standards for NO<sub>x</sub> without immediate agency action to adopt them. *Id.* at 1225-26; 70 Fed. Reg. 69,664, 69,675 (Nov. 17, 2005). EPA therefore used an “ongoing phased approach” to implement 1999 ICAO standards for NO<sub>x</sub> emissions in the near term while studying the just-adopted 2005 ICAO NO<sub>x</sub> standards for further rulemaking. *NACAA*, 489 F.3d. at 1225-26. The Court also held the petitioner had forfeited most of its arguments that the NO<sub>x</sub> rule was arbitrary and capricious, so it did not reach the merits of any argument resembling those the State Petitioners bring here. *Id.* at 1231-32.

*FCC*, 21 F.4th 841, 853 (D.C. Cir. 2021) (“[T]he opportunity to comment is meaningless unless the agency responds to significant points raised by the public.”).

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A rational consideration of the feasible control technologies for aircraft greenhouse gas emissions, given the Endangerment Finding, would have produced a rule that significantly reduced aircraft emissions over a “business as usual” scenario. Not only did EPA fail to adopt a meaningful rule, it did not even consider doing so. This failure was arbitrary, capricious, and an abuse of discretion.

C. EPA’s Reliance on Extra-Statutory Interests in “International Uniformity” and Industry Competitiveness Was Arbitrary

Because the Aircraft Rule cannot be justified as a rational product of the record under the statutory factors, EPA instead relied on a miscellany of reasons for tying domestic limits precisely to the ICAO Standards. But EPA may not “rel[y] on factors which Congress has not intended it to consider.” *State Farm*, 463 U.S. at 43. Assuming it could properly consider factors that are not mentioned explicitly in the Clean Air Act, still, EPA “is not free to substitute new goals in place of the

statutory objectives without explaining how these actions are consistent with [its] authority under the statute." *Indep. U.S. Tanker Owners*, 809 F.2d at 854.

As discussed below, while all parties agree that EPA should adopt U.S. aircraft emission standards that are "at least as stringent as ICAO standards," 86 Fed. Reg. at 2140, EPA restricted itself further, citing a goal of "regulatory uniformity throughout the world" to justify standards that do not *exceed* ICAO's. *Id.* at 2157. This so-called "harmonization" rationale is arbitrary, both as a general policy and on the specific record here. Similarly, the Rule's other rationales of protecting U.S. aircraft manufacturers from "competitive disadvantage," *id.* at 2157, promoting international cooperation, *id.* at 2158, and preventing "backsliding," *id.*, are inconsistent with section 231's objectives, unsupported by the record, or both.

1. A General Policy of Restricting Section 231 Standards to ICAO Standards Is Arbitrary

No one disputes the U.S. must adopt domestic aircraft emission standards "equal to or above the minimum standards" established by

ICAO.<sup>44</sup> But the Rule's "harmonization" rationale committed it to *never exceeding* ICAO Standards, to ensure "regulatory uniformity throughout the world." 86 Fed. Reg. at 2157. This is not a goal of the Clean Air Act, *see* *Env'tl. Petr. Br.* at 38-41, and it was arbitrary for EPA to substitute this goal for a reasoned evaluation of the section 231 factors. *See Indep. U.S. Tanker Owners*, 809 F.2d at 854.

An interest in international harmonization can, of course, play a limited role in a reasoned application of the statutory factors. *See, e.g., NACAA*, 489 F.3d at 1230. EPA may "fine-tune its regulations to accommodate worthy [extra-statutory] interests" without letting these interests wholly displace the statutory factors. *Id.* (quoting *George E. Warren Corp. v. EPA*, 159 F.3d 616, 623-24 (D.C. Cir. 1998)). But here, EPA elevated "regulatory uniformity throughout the world" into an overriding goal. The Rule started with the premise that EPA should fix aircraft emission standards exactly at ICAO's stringency, then used its "harmonization" goal to *dismiss* record evidence about the danger of

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<sup>44</sup> Chicago Convention on International Civil Aviation, art. 33, Dec. 7, 1944, 15 U.N.T.S. 295 (9th ed. 2006, ICAO Doc. 7300/9), EPA-HQ-OAR-2018-0276-0006, JA\_\_ (Chicago Convention).

aircraft greenhouse gas emissions and the feasibility of reducing them.  
86 Fed. Reg. at 2157-58.

An agency may not simply rubber-stamp international standards in lieu of its mandate in the name of “harmonization.” *Natural Res. Def. Council v. EPA*, 808 F.3d 556, 570 (2d. Cir. 2015) (EPA’s adoption of International Maritime Organization’s standards for certain discharges was arbitrary, where EPA failed to explain “why standards higher than the IMO Standard should not be used given available technology”). As this Court explained, harmonization for its own sake compromises the bases of agency authority:

[W]hen an agency delegates power to outside parties, lines of accountability may blur, undermining an important democratic check on government decision-making. . . . Also, delegation to outside entities increases the risk that these parties will not share the agency’s “national vision and perspective,” . . . *and thus may pursue goals inconsistent with those of the agency and the underlying statutory scheme.*

*U.S. Telecom Ass’n v. FCC*, 359 F.3d 554, 565-66 (D.C. Cir. 2004)

(citations omitted, emphasis added).

The divergent mandates for EPA under the Clean Air Act and ICAO under the Chicago Convention underscore the above concerns.

EPA's core mission is to protect public health and welfare against pollution. 42 U.S.C. § 7401(b)(1). Consistent with that mission, EPA's obligation to regulate aircraft emissions arises from the danger that these emissions pose to the public, and its standards must reflect the scientific and technical record developed in response to that danger. 42 U.S.C. §§ 7571(a)(2), 7607(d)(9). By contrast, ICAO's core mission is to "develop the principles and techniques of international air navigation" and "foster the planning and development of international air transport."<sup>45</sup> ICAO adopts emission standards not in response to any endangerment finding, but as a negotiation among member nations to set minimum conditions for flying over each other's airspaces and landing in each other's airports.<sup>46</sup>

For ICAO's members, it makes sense to adopt minimum emission standards that all fleets can readily achieve: if standards are too strict, a member's airplanes may be cut off from others' airports and airspaces.

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<sup>45</sup> Chicago Convention, art. 44, JA\_\_.

<sup>46</sup> *Id.* art. 33, JA\_\_ (requiring member nations to recognize airworthiness certificates issued by other members, provided "the requirements under which such certificates or licences [sic] were issued . . . are equal to or above the minimum standards" set by ICAO).

In that sense, it is reasonable for ICAO's emission standards—like its standards for air traffic control and landing strip markings—to reflect a global consensus. But EPA, charged with protecting the public against dangerous pollution, fails that charge when it automatically restricts its standards to the lowest common denominator.

EPA and ICAO's divergent mandates also translate to important substantive and procedural differences in developing their standards. EPA considers technologies that could be developed and applied by the rule's effective date, and can adopt technology-forcing rules. 42 U.S.C. § 7571(b); 86 Fed. Reg. at 2157. ICAO considers widely commercialized technologies only.<sup>47</sup> EPA is accountable to the electorate via the President; ICAO is not. EPA is bound by rational decision-making on a record, 42 U.S.C. § 7607(d)(9); ICAO is driven by diplomatic majorities.<sup>48</sup> EPA's process is transparent due to public notice and comment obligations, 42 U.S.C. § 7607(d)(4)-(6); ICAO's deliberations are opaque to virtually everyone outside the national government

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<sup>47</sup> Aircraft Rule TSD at 39, JA\_\_.

<sup>48</sup> Chicago Convention, art. 48(c), JA\_\_.

parties and industry.<sup>49</sup> For all these reasons, unthinking adherence to ICAO standards, without regard to their efficacy in protecting the public health and welfare, is an irrational exercise of EPA's discretion.

*U.S. Telecom*, 359 F.3d at 565-66.

## 2. Restricting Section 231 Standards to the ICAO Standards Is Arbitrary in this Instance

The Aircraft Rule's "harmonization" interests are also irrational on this particular record. The Rule did cogently explain that failure to adopt standards "at least as stringent as" the ICAO Standards, 86 Fed. Reg. at 2142, would undermine important (if extra-statutory) interests, including the United States' credibility in ICAO negotiations and the marketability and certification of U.S.-manufactured aircraft, *id.* at 2145-46, 2157-58. Yet the Rule claimed, without explanation, that these interests would also be compromised by EPA standards that *exceed* the ICAO Standards in stringency. *Id.* at 2157-58.

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<sup>49</sup> See, e.g., 2015 ANPR, 80 Fed. Reg. at 37,797 (explaining the "official stringency options under consideration at [ICAO]," in developing what would become the 2017 ICAO Standard, "have not been cleared for release outside of the participating members since deliberations on the standard are still ongoing . . .").

The Rule offered no reasoned explanation for this position despite commenters' objections to it.<sup>50</sup> EPA failed to identify any evidence that aircraft certifications to stricter domestic standards will not be accepted abroad or that any U.S. interest at all supports "worldwide recognition of the *sufficiency* of ICAO's standards." *Id.* at 2157 (emphasis added); *see also infra*, Part II.C.4. Nothing in the Chicago Convention suggests ICAO's emissions standards should be a ceiling as well as a floor.<sup>51</sup> Because the Rule failed to offer a reasoned explanation as to why "harmonization" requires EPA to stop at the ICAO Standards—despite overwhelming evidence that EPA can and must go further—it is arbitrary. *State Farm*, 463 U.S. at 43 (agency acts arbitrarily where it does not "articulate a satisfactory explanation for its action" (cleaned up)).

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<sup>50</sup> *See, e.g.*, States' Comment at 32, JA\_\_.

<sup>51</sup> *See* Chicago Convention, art. 33, JA\_\_ (providing for mutual recognition of airworthiness certificates where domestic laws are "equal to *or above* the minimum [ICAO] standards") (emphasis added); *id.*, art. 38 (member nation "which deems it necessary to adopt regulations or practices differing" from ICAO standard need only give notice to ICAO).

### 3. Concern for Industry Competitiveness Is No Reason to Adopt Wholly Ineffectual Standards

The Aircraft Rule's unsupported assertion that a more protective greenhouse gas emission standard places U.S. aircraft manufacturers at a "competitive disadvantage" is irrational as well. 86 Fed. Reg. at 2157. Section 231 gives no indication that protecting the aviation industry's competitive advantage should limit EPA's protection of the public from dangerous pollution. *See* *Env'tl. Petrs. Br.* at 39-40. But assuming that EPA could ground such a concern in technological feasibility, lead time, or compliance costs, *see* 42 U.S.C. § 7571(a)(1)(B), (b), the Aircraft Rule identified no factual basis to believe stricter standards actually create a disadvantage—particularly because EPA never evaluated such stricter standards. At most, EPA vaguely suggested that stricter domestic standards might pose "administrative complexity" or create unspecified "disruptive effects on manufacturers' ability to market planes for international operation," but never explained what these effects are or offered supporting evidence. 86 Fed. Reg. at 2157-58. Assuming, again, that manufacturers face some non-trivial costs in responding to a stricter standard, the Rule never evaluated such costs in light of the dangers of unmitigated carbon pollution. Because EPA never analyzed

any standards that would reduce aircraft emissions over “business as usual,” its conclusory references to “competitiveness” are no basis to elevate one industry’s economic interests above the public health and welfare.

Nor did the Aircraft Rule analyze the competitive *advantages* of stricter domestic standards. As State Petitioners explained in their comments, holding U.S. aircraft manufacturers to ambitious standards could help U.S. aircraft compete in global markets that have adopted or are planning to adopt stricter controls on aviation emissions, such as China and Europe.<sup>52</sup> Aircraft that meet stricter emission limits through reduced fuel burn gain a cost advantage in fuel savings.<sup>53</sup> Ambitious standards likewise protect U.S. industry’s technological superiority by spurring innovation. Assuming EPA may consider competitive impacts, it must study both the advantages and disadvantages of a meaningful standard; in failing to do so, it again acted arbitrarily. *See Michigan v. EPA*, 576 U.S. 743, 753 (2015) (“[R]easonable regulation ordinarily

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<sup>52</sup> States’ Comment, at 33 & n.150, JA\_\_; Comment of the Office of the Comptroller of New York City et al. at 2, EPA-HQ-OAR-2018-0276-0166, JA\_\_.

<sup>53</sup> States’ Comment at 33 & n.149, JA\_\_.

requires paying attention to the advantages *and* the disadvantages of agency decisions.”).

#### 4. The Aircraft Rule’s Other Reasons for Adopting Zero-Benefit Standards Are Irrational

The Aircraft Rule’s remaining justifications for not adopting or considering more stringent standards fare no better. The Rule asserted, counterintuitively, that refusing to adopt more stringent U.S. standards would carry “substantial”—albeit unspecified—“benefits for future international cooperation on airplane emission standards.” 86 Fed. Reg. at 2158. Assuming, again, that “international cooperation” can be relevant to what level of regulation EPA adopts under section 231,<sup>54</sup> the Aircraft Rule never examined how more stringent standards might *positively* impact international cooperation. In today’s pledge-based climate diplomacy, it is domestic ambition, not complacency, that gives a nation credibility to lead in multilateral negotiations.<sup>55</sup>

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<sup>54</sup> *But see Massachusetts*, 549 U.S. at 533-34 (rejecting EPA’s argument that regulating greenhouse gases might impair the President’s ability to negotiate with other nations to reduce emissions, since President’s foreign affairs power “does not extend to the refusal to execute domestic laws”).

<sup>55</sup> Jody Freeman, *The Environmental Protection Agency’s Role in U.S. Climate Policy—A Fifty-Year Appraisal*, 31 DUKE ENVTL. L. &

The Aircraft Rule's "anti-backsliding" rationale is similarly conclusory. The Rule asserted that tying domestic standards to ICAO's standards "prevent[s] backsliding by ensuring that all new type design and in-production airplanes are at least as efficient as today's airplanes." 86 Fed. Reg. at 2158. This assertion contradicts the record showing that "today's airplanes" are in fact far *more* efficient than the Rule requires and thus have room under EPA's standards to backslide. *See supra*, Part II.B.2. It also ignores a glaring loophole in the Rule allowing aircraft design modifications to *increase* emissions by 1.5 percent at a time. 86 Fed. Reg. at 2151.<sup>56</sup> Because there is no limit to how many such modifications (and thus, how many 1.5 percent increases) a manufacturer may undertake, even the Rule's "anti-backsliding" benefit is illusory.

At the very least, it was incumbent on EPA to ask whether these putative benefits prevail over the imperative need, unmistakably

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POL'Y F. 1, 64, 75 (2020) ("[EPA's] experience shows that domestic action can drive international climate progress rather than the other way around. ... [U.S.] credibility internationally hinges on our ability to deliver meaningful emission reductions through domestic policies.").

<sup>56</sup> Env'tl. Petitioners' Comment at 16, JA\_\_.

supported by EPA's own record, to slash greenhouse gas emissions from major sectors in this decade. Its failure to do so was arbitrary.

### III. THE AIRCRAFT RULE ARBITRARILY DISMISSED ENVIRONMENTAL JUSTICE IMPACTS

Like its treatment of climate change, the Aircraft Rule's regard for environmental justice, and EPA's commitment under Executive Order 12,898 to examine the effect of its rules on vulnerable communities, is alarmingly scant. In the Endangerment Finding, EPA detailed the numerous ways that climate impacts of greenhouse gas emissions will fall especially heavily on particular populations and disadvantaged communities—low-income communities and communities of color, the elderly, indigenous peoples, and children. 81 Fed. Reg. at 54,454-55, 54,458. As EPA found, although climate change is a global challenge, its impacts are experienced unevenly. Thus, for example, "limited resources make low-income populations more vulnerable to ongoing climate-related threats, less able to adapt to anticipated changes, and less able to recover from climate change impacts," *id.* at 54,454, while indigenous peoples face unique losses of traditional homelands and livelihoods, *id.* at 54,458. In addition, State Petitioners and other commenters offered uncontradicted evidence that co-pollutants

associated with aircraft greenhouse gas emissions—especially criteria pollutants and toxic air contaminants emitted during aircraft takeoffs and landings—severely harm the health and welfare of communities near major airports, which are disproportionately low-income communities and communities of color.<sup>57</sup>

The Aircraft Rule answered none of this evidence. Its discussion of environmental justice—two sentences in total—claimed without support that the Rule’s standards have no “disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population.” 86 Fed. Reg. at 2171. This finding “runs counter to the evidence before the agency.” *State Farm*, 463 U.S. at 43. The Response to Comments does not elaborate, but refers back to the preamble and declines to “address . . . the potential environmental or other impacts requiring reduced airplane emissions beyond adopting the ICAO CO<sub>2</sub> standards.”<sup>58</sup>

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<sup>57</sup> States’ Comment at 34-35 & n.153, JA\_\_-\_\_; see also Aircraft Rule RTC at 281-82, 293-99, 308-11, 315-17, 319, 321-24, 327-29, JA\_\_-\_\_, \_\_-\_\_, \_\_-\_\_, \_\_-\_\_, \_\_, \_\_-\_\_, \_\_-\_\_.

<sup>58</sup> Aircraft Rule RTC at 330, JA\_\_.

EPA's cavalier treatment of environmental justice reinforces how arbitrary the agency's approach to the Aircraft Rule was. This Court recently found a federal agency's environmental justice analysis arbitrary and capricious where it failed to examine a pipeline project's environmental effects extending beyond the two-mile radius it studied. *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1330-31 (D.C. Cir. 2021). Here, the Aircraft Rule performed *no* analysis: not in the preamble, not in the technical support document, and not in response to the twenty-four pages of environmental justice comments. This failure falls far short of the rational decision-making demanded of agencies, especially where vulnerable communities are at stake. EPA's decision not to reduce aircraft emissions despite readily available means to do so arbitrarily places environmental justice communities in needless risk and cannot be sustained.

#### IV. EPA'S FINDING THAT THE AIRCRAFT RULE CARRIED NO FEDERALISM IMPLICATIONS IS ARBITRARY

The Rule's perfunctory conclusion that "[t]his action does not have federalism implications" is further evidence of EPA's arbitrary analysis. 86 Fed. Reg. at 2170. Executive Order 13,132 instructs agencies, before promulgating rules with "substantial direct effects on the States, [or] on

the relationship between the national government and the States,” to ensure “meaningful and timely input” from State and local officials in the rule’s development. Exec. Order 13,132 §§ 1(a), 6(a), 6(b)(2)(A), 64 Fed. Reg. 43,255, 43,256-58 (Aug. 4, 1999). The agency must also include in the rule preamble a “federalism summary impact statement” describing “the extent of the agency’s prior consultation with State and local officials, a summary of the nature of their concerns and the agency’s position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met.” *Id.* § 6(b)(2)(B). Here, however, EPA provided nothing more than a bald assertion that the Rule “will not have substantial direct effects on the states, [or] on the relationship between the National Government and the states,” and thus provided no impact statement under Executive Order 13,132. 86 Fed. Reg. at 2171.

EPA was wrong. As State Petitioners explained,<sup>59</sup> because the Clean Air Act prohibits them from adopting aircraft emission standards unless they are identical to federal standards, 42 U.S.C. § 7573, States depend on the federal government to adopt effective aircraft standards

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<sup>59</sup> States’ Comment at 25, 35-36, JA \_\_, \_\_-\_\_.

and are injured when EPA shirks this duty. *See Massachusetts*, 549 U.S. at 519-21 (having surrendered their “sovereign prerogatives” to the Union, the States are harmed when the federal government refuses to regulate greenhouse gas emissions). This harm extends beyond the loss of life, industry, territory, and resources detailed above.<sup>60</sup> In particular, the Aircraft Rule frustrates State Petitioners’ efforts to meet state-law climate mandates and to attain or maintain national ambient air quality standards for certain co-pollutants,<sup>61</sup> because “when EPA allows higher [] emissions from aircraft engines, state agencies have no choice but to impose greater restrictions on other sources.” *NACAA*, 489 F.3d at 1227. The Rule’s total inefficacy thus gravely burdens the States’ quasi-sovereign interests and the relationship between the national government and the States.

EPA’s refusal to acknowledge these burdens and insistence that the Rule “does not have federalism implications” further illustrate the agency’s arbitrary and irrational decision-making. 86 Fed. Reg. at 2170.

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<sup>60</sup> *Id.* at 8-15, JA\_\_-\_\_.

<sup>61</sup> *Id.* at 18-21, 34-36, JA\_\_-\_\_, \_\_-\_\_. Nonattainment of ambient air standards carries serious federal sanctions, including loss of federal highway construction funds. *See* 42 U.S.C. § 7509(b).

EPA's sole response to States' comments on the issue was similarly absurd: "The EPA acknowledges the commenting states' long history of litigation and regulatory efforts to limit GHG emissions, and notes that no specific request was made by the commenters."<sup>62</sup> The Rule contains no "summary of the nature of [State] concerns and . . . the extent to which the concerns . . . have been met," EO 13,132 § 6(b)(2)(B), because EPA would not even admit the States *have* concerns.

But the States' "request" is and has always been clear: EPA must adopt technologically feasible standards that actually and meaningfully mitigate the danger from aircraft greenhouse gas emissions, as section 231 requires. Its failure to do so is not neutral, but undermines the cooperative federalism model the Clean Air Act exemplifies.

## CONCLUSION

For the foregoing reasons, and for the reasons stated in the Environmental Petitioners' opening brief, the Aircraft Rule is unlawful, arbitrary, capricious, and an abuse of discretion. The Court should grant the petitions for review and direct EPA to set aircraft greenhouse gas emission standards justified by the statutory factors and the record.

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<sup>62</sup> Aircraft Rule RTC at 333, JA\_\_.

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I hereby certify that:

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/s/ Theodore McCombs  
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I hereby certify that on February 28, 2022, I electronically filed the following documents with the Clerk of the Court by using the CM/ECF system:

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ADDENDUM OF DECLARATIONS IN SUPPORT OF STANDING**

I certify that **all** participants in the case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

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Charlette Sheppard

Declarant

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*Charlette Sheppard*

Signature