

# **Domestic Action on Aviation Carbon**

Using the Clean Air Act to Cut Aviation Emissions  
and Create an Alternative to the European Union  
Emissions Trading System

Nathan Richardson and Samuel Grausz July 2012

## About the Blue Skies project

The Blue Skies project is a collaborative research initiative that works to help make aviation safe, affordable, secure, and clean. The project provides in depth legal, political, and economic research on issues that vitally affect the aviation sector. Through this research and outreach to key stakeholders, the project seeks to build consensus and positive collaboration.

Our first report, “Is the Sky Falling for Airline profits in the European Union?”, seeks to create common understanding of the economic consequences of one of the most controversial aviation emissions policies currently under consideration, the inclusion of aviation in the European Union Emissions Trading System. This report, our second and also a collaboration between Climate Advisers and the Center for American Progress, explores the possibilities of using the Clean Air Act to prepare for an international policy in ICAO or crafting a domestic alternative policy for the United States. Both of these reports are analytical and do not attempt to advocate for a specific policy or set of policies.

This paper is based off a more detailed analysis of the same issue by Nathan Richardson, “Aviation, Carbon, and the EPA,” published by Resources for the Future.

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# Introduction and summary

**I**nternational aviation generates more than 3 percent of total global greenhouse gas emissions per year. This amount is relatively small but growing quickly, with worldwide aviation emissions projected to increase 300 percent to 700 percent by 2050. Until recently the sector faced no limits on these emissions. But starting this year, 2012, the European Union began regulating emissions from all flights to and from EU airports. Crucially, the European Union law covers both foreign and EU airlines and their emissions produced over their entire flight path, not just over EU airspace.

The new law, which is opposed by much of the aviation industry, has led to an ongoing legal and diplomatic conflict with the United States and other countries and threatens to trigger a trade war. Opponents contend that the law violates Europe's international obligations and will substantially increase aviation costs. Supporters argue that the law is legal and will do little to harm airlines and could even benefit them in the short run. (We discuss the economic impacts in greater detail in our first Blue Skies Project report, "Is the Sky Falling for Airline Projects in the European Union?"<sup>1</sup>)

Many U.S. airlines and the U.S. government have been leading opponents of the EU law. Three U.S. airlines and their trade association pursued legal claims against the EU that the European Court of Justice ultimately rejected in late 2011.<sup>2</sup> The U.S. aviation industry is also calling on the federal government to challenge the EU law in international court.<sup>3</sup> The U.S. government helped to convene two meetings (in Delhi, India and in Moscow) of opponents of the EU law and spearheaded a resolution in the International Civil Aviation Organization, or ICAO, declaring the EU law illegal.<sup>4</sup>

Despite this opposition, the U.S. airlines and government have so far complied with the EU law, unlike China and India, who refuse to allow their airlines to comply. In retaliation, China also recently cancelled an order of airplanes from European plane manufacturer Airbus.<sup>5</sup> The U.S. stance could soon change: In October 2011 the U.S. House of Representatives passed a measure that would prevent U.S. airlines from complying with the EU law. The U.S. Senate held hearings on the measure in June. The conflict with the EU could quickly escalate into a trade war and do significant harm to the weak U.S. and European economies.

Countries on both sides of the dispute support replacing the EU law with an international policy under the direction of ICAO. ICAO is currently considering possible market-based measures to reduce greenhouse gas emissions from aviation. It has debated such a policy for 15 years, though it has recently accelerated the process and a draft proposal is expected in March 2013. Past failures, however, and the inherent difficulties of global climate negotiations make it unclear whether ICAO will succeed.

The U.S. Clean Air Act<sup>6</sup> will play a vital role in future policy discussions whether the ICAO process succeeds or fails. If ICAO succeeds, then the United States will likely use the Clean Air Act to implement the ICAO policy much as it has done for past aviation policies. If ICAO fails, then the United States could develop its

own aviation emissions policy under the Clean Air Act and thereby escape the EU program. A U.S. measure to limit greenhouse gas emissions that is deemed equivalent to the EU program would exempt flights to and from the United States under the EU law.<sup>7</sup> Any other policy through new legislation under either of these scenarios is unlikely due to the current political climate in Washington. Thus, to inform either of these scenarios, this paper explores opportunities for regulating greenhouse gases from aviation under the Clean Air Act, focusing on opportunities for flexible, cost-effective regulation.

We contend that the EPA could craft aviation emissions regulations under the Clean Air Act that could achieve both environmental and industry goals while implementing the ICAO policy or satisfying the EU “equivalency” requirement. These regulations could be both broad and flexible, covering existing and new aircraft engines and allowing compliance through airframe and operational changes. The EPA might also be able to use market-based regulatory tools, further increasing flexibility and likely cost-effectiveness.

We recognize, however, that there are important limitations as well as challenges. Clean Air Act regulation could not generate revenue to fund international climate finance or other priorities. Further, the regulation would likely not cover emissions outside of U.S. airspace, though it would indirectly reduce them. Also, international law may complicate regulation of foreign-flag airlines. And as with any contentious regulation under the Clean Air Act, political, administrative, and legal challenges are likely.

These and other findings are summarized in Figure 1.

**FIGURE 1**  
**Summary of findings**

Issue	Finding
Could EPA regulate greenhouse gases from aviation?	Yes
Could EPA regulate airframes and operations in addition to engines?	Yes
Could EPA regulate existing engines in addition to new engines?	Yes
Could EPA regulate foreign air carriers?	Maybe
Could EPA regulate emissions outside U.S. airspace?	No, but indirect reductions occur
Could EPA employ flexibility mechanisms like trading, banking, and borrowing?	Probably
Does EPA have discretion over stringency?	Yes
Could EPA use the regulation to raise revenue?	No

# Regulatory history

## **The Clean Air Act and aviation**

The Clean Air Act grants the EPA authority to regulate aviation emissions under Title II, Part B (Sections 231-234). These provisions, part of the 1970 Clean Air Act, are only about a page in length and their substantive provisions are even shorter. The core provision, Section 231(a)(2)(A), is only a single paragraph:

The Administrator shall, from time to time, issue proposed emissions standards applicable to the emission of any air pollutant from any class or classes of aircraft engines which in his judgment causes, or contributes to, air pollution which may reasonably be anticipated to endanger public health or welfare.<sup>8</sup>



The remainder of Part B deals mostly with procedural requirements. In developing the standards, for example, the EPA must consult with the Federal Aviation Administration, or FAA, which has the power and the responsibility to enforce the standards developed by the EPA.<sup>9</sup> The EPA would probably consult with the FAA regardless of this requirement, as the FAA has the sole authority to regulate aviation fuels, which could have a significant impact on the stringency, effectiveness, and the cost of air emissions regulations.<sup>10</sup> Further, Section 231 of the Clean Air Act requires the EPA to consider the adverse impacts of the standards on safety and noise<sup>11</sup> and requires consideration of the costs and the pace of technological development in setting compliance timelines.<sup>12</sup>

The EPA first issued aviation emissions standards under Title II Part B in 1973, imposing limits on smoke, fuel venting, and specified pollutants, specifically, hydrocarbons, carbon monoxide, and nitrogen oxides.<sup>13</sup> The standards applied to both new and existing engines, though stringency differed between the types of pollutants. The EPA, however, never updated the existing engine standards and relaxed new engine standards over the next decade, bringing the standards into line with those issued by the International Civil Aviation Organization.<sup>14</sup> Since then the EPA has generally set standards that closely follow those issued by the ICAO.<sup>15</sup> As the ICAO standards only apply to new engines and have not been particularly aggressive, and since U.S. manufacturers must comply with them as a condition of selling aircraft engines on the international market, the EPA's standards have likely not independently led to significant changes to engine or aircraft design.

## **The Clean Air Act and carbon**

The U.S. Supreme Court's 2007 decision in *Massachusetts v. EPA* opened the way for regulation of greenhouse gases under the Clean Air Act.<sup>16</sup> The EPA under the George W. Bush administration did not issue an endangerment finding for greenhouse gases—the prerequisite for regulation—though it did issue an Advance Notice of Proposed Rulemaking discussing possible regulatory actions and requesting comment.<sup>17</sup>

The EPA under the Obama administration, however, has moved forward with greenhouse gas regulations under the Clean Air Act. The agency made a formal endangerment finding for greenhouse gases from light-duty vehicles and issued expansive regulations for light-duty and heavy-duty vehicles. The EPA has also

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moved to regulate greenhouse gas emissions from certain large new and modified stationary sources through permitting and performance standards,<sup>18</sup> and will likely regulate existing sources in the near future.

## **Domestic developments to date**

The EPA under the Obama administration has not, however, moved to regulate greenhouse gas emissions from aviation under the Clean Air Act. This is not particularly surprising. While U.S. greenhouse gas emissions from aviation are not trivial and are expected to grow dramatically in coming decades, they are dwarfed by emissions from the sectors targeted by the EPA to date—road transportation and electric power generation.<sup>19</sup>

Despite this, some have sought to push the agency to regulate aviation greenhouse gas emissions. Shortly after the Supreme Court’s Massachusetts decision in 2007, several state governments and environmental groups separately petitioned the EPA to regulate aviation emissions.<sup>20</sup> When the agency did not formally respond to these petitions, the environmental groups sued, claiming that the Clean Air Act, in light of the agency’s decision to regulate road-vehicle greenhouse gas emissions, requires it to pursue aviation greenhouse gas regulation.<sup>21</sup> In July 2011 the D.C. Circuit Court of Appeals denied a preliminary motion by the EPA to dismiss the case, finding that the agency has a duty to undertake an endangerment determination for aircraft engines. In March 2012 the Court held that to date, EPA’s delay in initiating the regulatory process has not been unreasonable, but that the agency must provide a formal response to the environmental groups’ petition within 90 days.<sup>22</sup> EPA subsequently responded that it would delay taking action until it resolved legal disputes surrounding its regulations of GHGs from stationary sources.<sup>23</sup>

But this litigation addresses only whether the EPA *must* regulate now, not *how* it could do so. A new look at the relevant statute, informed by both past use and more recent regulatory action for greenhouse gases under other parts of the Clean Air Act, is therefore needed.

# What and how can the EPA regulate?

**I**f and when the EPA does regulate aviation greenhouse gas emissions, the agency will have to make three choices:

- Scope of the regulation
- Regulatory tools available
- Regulation stringency

The scope of the regulation and the regulatory tools available to the EPA are legal questions, but the stringency of the regulation is predominately a policy question, albeit with some legal constraints. Our legal analysis indicates that the EPA has broad authority to determine the scope, regulatory tools, and stringency of its regulations in this area. We conclude, however, that the agency probably cannot generate revenues for international climate finance through the regulation—an important limitation of a Clean Air Act approach.

## Scope

While in the past the EPA has generally followed the International Civil Aviation Organization in regulating only new aircraft engines of air carriers flying into and out of the United States, the relevant sections of the Clean Air Act give the EPA much broader powers.

Specifically, we find that the statute provides the agency with authority to regulate emissions from new and existing engines operated by both foreign and domestic air carriers, and to do so with performance standards that allow those carriers to use airframe improvements and operational changes (as well as engine upgrades) to meet emissions reduction requirements. The EPA does not likely have the authority to regulate emissions outside U.S. airspace, but regulations would likely indirectly reduce these emissions.

### Beyond new engines

Traditionally, EPA aviation standards have only applied to new engines, imposing a lab-measured maximum emissions rate for each engine class. The EPA could easily impose similar standards for greenhouse gas emissions, but the statute allows much broader regulation.

First, the Clean Air Act does not limit EPA authority to new engines—standards may apply to “any class or classes of aircraft engines.”<sup>24</sup> The absence of a limitation to new engines (and the existence of such a limitation elsewhere in the Clean Air Act for other sources) indicates that Congress did not intend to restrict the regulations to new engines.<sup>25</sup> Moreover, the EPA regulated existing aircraft engines as part of its first set of emissions standards in 1973.

Secondly, engine improvements need not be the only method of complying with emissions rules. A narrow reading of the statute would restrict the EPA to its traditional approach—direct regulation of engines alone. But engine emissions rates depend largely on airframe design and operational factors and traditional engine-only standards would not allow operators to take advantage of emissions-reduction opportunities from these nonengine characteristics.

A broader, and we believe, superior reading of Section 231 would not limit the EPA to engine-only regulation. The standards prescribed by the statute do not target engines themselves but instead the emissions from engines. Specifically, the statute authorizes “standards applicable to the emission of any air pollutant from . . . aircraft engines.”<sup>26</sup> The EPA could therefore create performance standards based on real-world engine emissions, not one-time lab-measured emissions rates for each engine model. Such performance standards could be set at benchmark rates of greenhouse gas emissions per ton/kilometer traveled for different classes of aircraft.

An air carrier covered by such a performance standard could comply by upgrading or retrofitting engines to improve fuel economy, but also by upgrading or retrofitting its airframes or changing its operational practices. Carriers could reduce their emissions and comply with a performance standard by cutting aircraft weight, adding wingtip devices, or changing cruise speed or taxi patterns, to give only a few examples. Choices over how to comply would remain with the air carriers, which likely have the best information about which compliance strategies are most cost effective.

Performance standards are a well-understood regulatory tool used under the Clean Air Act and other environmental statutes. While Section 231 does not explicitly mention performance standards, they seem well within its authorization to impose “emission standards.”<sup>27</sup> The EPA signaled that it would consider a performance standards-like approach in the 2008 Advance Notice of Proposed Rulemaking.<sup>28</sup>

By framing its regulation as a set of performance standards for the emissions of air pollutants across the range of actual operational contexts, the EPA can give complying airlines freedom to select among a broad set of compliance strategies. This approach would reduce costs and foster innovation not only in engine design, but also more broadly in airframe design; on-board avionics; landing, takeoff, climb, and cruise practices; air-traffic management technologies; and other areas.

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## Foreign carriers operating in the United States

The Clean Air Act does not limit EPA authority to U.S. carriers—as previously noted, standards may apply to “any class or classes of aircraft engines” that cause or contribute to air pollution.<sup>29</sup> In fact, the agency would have little or no basis under the Clean Air Act on which to distinguish foreign carriers’ emissions in the United States. Foreign carriers already must comply with other existing Federal Aviation Administration and EPA regulations, including EPA emissions standards for nitrogen oxides and other pollutants.

International law, however, might constrain regulations on foreign carriers. Specifically, the 1947 Chicago Convention on International Civil Aviation (the “Chicago Convention”)<sup>30</sup> may limit state parties’ authority to impose regulations on foreign air carriers that are more stringent than international standards adopted by the International Civil Aviation Organization. The U.S. airline industry made this argument in its lawsuit against the European Union<sup>31</sup> and the EPA itself has taken a similar position.<sup>32</sup> The European Union and others have argued, however, that the Chicago Convention imposes no such restriction.<sup>33</sup>

Politically, regulating foreign air carriers might expose the United States to claims of hypocrisy if the United States continues to oppose the European Union’s decision to do the same thing. From an economic and environmental perspective, however, regulation that applies equally to foreign and domestic air carriers is superior to domestic-only standards as the latter would favor foreign over domestic air carriers while allowing greater emissions and environmental harm. Domestic-only standards would also likely necessitate policies to protect U.S. carriers from competition with unregulated foreign carriers.

## Aviation emissions outside the United States

The EPA almost certainly cannot regulate aviation emissions outside the United States under the Clean Air Act. Courts generally interpret statutes not to grant extraterritorial authority unless the statute explicitly grants it, and no extraterritorial authority is in this article of the Clean Air Act.<sup>34</sup>

Practically, however, regulation would likely result in emissions reductions outside of U.S. airspace. Any engine or airframe upgrades in response to regulation would

cause emissions to be reduced wherever those airplanes fly. Airplane and engine manufacturers might also respond to emissions regulations in major markets like the European Union and the United States by improving the fuel efficiency of all their products—as they are already doing in response to market forces.

## Regulatory tools

Performance standards, as described above, would give carriers a wide variety of compliance options. In their basic form, however, performance standards still require each engine operated by each air carrier to meet the standard each year. But the EPA may be able to grant broader flexibility to airlines, including the ability to “average” emissions performance across their fleets, “bank” improvements in emissions performance for the future, and trade improvements in emissions performance among airlines. Using these types of flexibility tools could allow airlines to achieve the same emissions reductions at a lower cost.

Does the Clean Air Act allow the EPA to offer this flexibility to airlines? The agency argued that it does in its 2008 Advanced Notice of Proposed Rulemaking<sup>35</sup> and nothing in the sparse language of the statute contradicts this view. The statute only requires use of “emissions standards” without discussing flexibility. The EPA and legal scholars have broadly interpreted similar language elsewhere in the Clean Air Act to allow at least some forms of flexibility. Section 111 of the act, for example, directs the agency to craft “performance standards”—presumably a subtype of “emissions standards”—and the EPA<sup>36</sup> and legal scholars<sup>37</sup> have taken the position that this section allows the types of flexibility mechanisms described above.<sup>38</sup> The agency has also allowed similar flexibility in other regulations such as interstate trading programs for nitrogen oxides emissions,<sup>39</sup> auto fleet fuel economy standards,<sup>40</sup> and other Clean Air Act programs.<sup>41</sup>

None of these policies offer an exact parallel and no court has addressed the permissibility of these flexibility measures under Section 231. The courts have ruled, however, that the EPA’s interpretation of Section 231 deserves substantial deference due to the breadth of its grant of authority,<sup>42</sup> and on balance the evidence in favor of the EPA having the authority to allow this type of flexibility appears strong. If the EPA can employ averaging, banking, and trading under the Clean Air Act, it might be able to craft more creative, flexible, and likely more cost-effective aviation emissions regulations such as tradable performance standards or even a cap-and-trade system.

## Stringency

The Clean Air Act places few restrictions on the level of stringency—the degree of emissions reductions required—that the EPA can set on aviation regulations. As described earlier, the statute only requires that the EPA consult with the Federal Aviation Administration, that the standards not significantly increase noise or adversely affect safety, and that the EPA consider the technological concerns and costs in setting the time allowed for emitters to comply.<sup>43</sup> This is unlike other sections of the Clean Air Act, which require regulations to meet specified stringency targets such as protection of public health and/or welfare,<sup>44</sup> or to be based on specified technology levels such as the “best system of emission reduction.”<sup>45</sup>

Without such explicit limitations or standards, courts have generally held that the EPA has broad discretion over stringency. The EPA therefore has discretion to balance costs with sufficient stringency to meet environmental goals and demonstrate “equivalence” with EU regulation or implement an ICAO policy. Policy and political considerations, not the Clean Air Act, would determine the stringency of EPA standards.

## Revenues

Cost-effectively reducing greenhouse gas emissions via regulation is important, but if such regulation generates revenues that can then be spent on projects to reduce emissions in developing countries or help those countries adapt to climate change—so-called international climate finance—the regulation can be doubly effective in reducing emissions. At the 2009 climate talks in Copenhagen, developed countries agreed to raise \$100 billion in such financing. Unfortunately, the world has made relatively little progress towards meeting that goal, with only \$30 billion pledged thus far.<sup>46</sup> With hundreds of billions of dollars spent annually in developed countries for air travel, many countries and NGOs see aviation as a potential source for international climate finance.<sup>47</sup>

In principle, aviation greenhouse gas regulations like those we just described could raise revenue—for example, through auction of tradable emissions allowances. In practice, however, the EPA lacks the legal authority to raise revenues. Under the Constitution, revenue-raising authority—taxation power—lies with Congress,<sup>48</sup> and Congress has not delegated this power to the EPA in the relevant

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parts of the Clean Air Act. The EPA itself has argued that this makes direct revenue raising under the Clean Air Act difficult, if not impossible.<sup>49</sup> There is also no precedent for the EPA raising revenue directly through emissions standards except through fines. Still, some legal scholars argue that revenues raised from permit auctions could be classed as permissible fines rather than impermissible taxes, though this is a minority view.<sup>50</sup> Moreover, even if the EPA were to somehow raise revenue under the airline regulations the money would go directly to the U.S. Treasury and thus could not be directed by the EPA to developing countries for emissions mitigation.<sup>51</sup>

Many Clean Air Act programs also delegate authority to states, which can and have raised revenues from emissions regulation, including through the use of allowance auctions. Section 231 explicitly excludes states, however, from aviation emissions regulation.

# Conclusion

**T**he aviation sector is responsible for a small but significant and growing part of the world's greenhouse gas emissions. The European Union's recent decision to regulate aviation emissions and the recent lawsuit in U.S. courts have forced the United States to consider regulating aviation emissions on its own terms, failing an agreement being reached in the International Civil Aviation Organization. Likewise, political gridlock in Congress makes the Clean Air Act the only currently viable option for regulating aviation emissions.

We contend that the EPA could craft aviation emissions regulations under the Clean Air Act that could achieve both environmental and industry goals while satisfying the EU “equivalency” requirement or implementing an ICAO policy. These regulations could be both broad and flexible, covering existing and new aircraft engines and allowing compliance through airframe and operational changes. The EPA might also be able to use market-based regulatory tools, further increasing flexibility and likely cost effectiveness.

We recognize, however, that there are important limitations as well as challenges. Clean Air Act regulation could not generate revenue to fund international climate finance or other priorities. Further, the regulation would likely not cover emissions outside of U.S. airspace, though it would indirectly reduce them. Also, international law may complicate regulation of foreign-flag airlines. And as with any contentious regulation under the Clean Air Act, political, administrative, and legal challenges are likely.

## About the authors

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## Endnotes

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- 6 See Directive 2008/101 of the European Parliament and of the Council of 19 November 2008 Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community ¶ 17, 2009 O.J. (L 8) 3 (EC), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:008:0003:0003:EN:PDF> [hereinafter EU Directive]. The Directive explicitly mentions only other countries' policies limiting emissions from flights to the EU, but indicates that the EU should seek "optimal interaction" with other countries' policies and "avoid double regulation." This leaves ample room to exempt any emissions covered by another country's regulatory scheme from the ETS.
- 7 42 U.S.C. 7401
- 8 Clean Air Act, 42 U.S.C. §§ 7401-7671q (Westlaw 2010) [hereinafter CAA]. §231(a)(2)(A)
- 9 CAA § 231(a)(2)(B)(i); § 232.
- 10 49 U.S.C. 44714
- 11 CAA §231(a)(2)(B)(ii).
- 12 CAA §231(b).
- 13 Environmental Protection Agency, *Control of Pollution from Aircraft and Aircraft Engines*, (38 Fed. Reg. 19088, 1973).
- 14 Arnold W. Reitze, *Air Pollution Control Law: Compliance and Enforcement* (Washington: Environmental Law Institute, 2001), p. 316.
- 15 Ibid.
- 16 *Massachusetts v. EPA*, 549 U.S. 497, 528–29 (2007).
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- 19 Compare David McCollum and others, "Greenhouse Gas Emissions from Aviation and Marine Transportation: Mitigation Potential and Policies" (Washington: Pew Center on Global Climate Change Solutions White Paper Series, 2009), available at <http://www.c2es.org/docUploads/aviation-and-marine-report-2009.pdf> (estimating 2005 domestic aviation GHG emissions of 180 million metric tons of CO<sub>2</sub>-equivalent or 250 tons when U.S. carriers' international emissions are included) with Environmental Protection Agency, *Regulator Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions Final Rule (GHG Reporting): Final Report*, (2009), available at [http://www.epa.gov/climatechange/emissions/downloads09/GHG\\_RIA.pdf](http://www.epa.gov/climatechange/emissions/downloads09/GHG_RIA.pdf) (estimating GHG emissions from U.S. petroleum refineries of 204.7 tons in 2006)
- 20 See State of California and others, "Petition for Rule Making Seeking the Regulation of Greenhouse Gas Emissions from Aircraft" (2007), available at [http://ag.ca.gov/cms\\_attachments/press/pdfs/n1501\\_aircraft\\_petition\\_final.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n1501_aircraft_petition_final.pdf) [hereinafter *State Petition*]; see also *Friends of the Earth and others, "Petition for Rulemaking Under the Clean Air Act to Reduce the Emission of Air Pollutants from Aircraft that Contribute to Global Climate Change" (2007)*, available at [http://docs.nrdc.org/globalwarming/files/glo\\_07123101a.pdf](http://docs.nrdc.org/globalwarming/files/glo_07123101a.pdf) [hereinafter *Environmental Petition*]. The petitioners also sought EPA regulation of GHG emissions from maritime and "non-road" mobile sources.
- 21 Specifically, the plaintiffs claim that the agency must issue endangerment and "cause/contribute" findings for aircraft GHG emissions. The plaintiffs and the agency agree that such findings would compel the agency to regulate those emissions. See Complaint for Declaratory and Injunctive Relief at 28-30, *Center for Biological Diversity et al v. EPA*, No. 10-985 (D.C. Cir. Jun. 11, 2010).
- 22 *CBD v. EPA*, Order Filed March 21, 2012 ( *Case 1:10-cv-00985-FJS Document 43*, D.C. D.C.), text available at <http://www.shb.com/newsletters/ECU/Etc/CBDvEPA.pdf>
- 23 Mark Drajem, "EPA won't curb greenhouse gases from ships, off-road trucks," Bloomberg News, June 18, 2012.
- 24 CAA §231.
- 25 Note that Section 202 of the Clean Air Act, which grants authority to regulate motor vehicle emissions, specifically restricts the agency's reach to new vehicles and engines. Section 231 contains no similar restriction. See CAA §202. The legislative history of the 1970 CAA also supports this reading of congressional intent. See 116 Cong. Rec. 691210 (1970) (Statement of Sen. Muskie discussing the reasons for regulating emissions from jet engines and identifying methods of regulation for both new and existing jet engines), 116 Cong. Rec. 700610 (1970) (Representative Skubitz describing the effect of aviation emissions standard as driving retrofits of new and existing aviation engines), 116 Cong. Rec. 700922 (1970) (Senator Cooper describing the intent of the CAA as to regulate both new and existing aviation engines).

- 26 Ibid.
- 27 A counterargument is that the statute could have explicitly given the agency authority to regulate vehicles as well as engines, as it does for motor vehicles, but does not for aircraft. Parts of the legislative history indicate intent to give broad authority over aircraft, but this is not conclusive. See 116 Cong. Rec. 701218 (1970), 42386. Opponents of regulation could litigate this question, though industry may have no wish to do so as victory would only serve to limit their compliance options.
- 28 See ANPR at 44470-71
- 29 CAA §231.
- 30 Convention on International Civil Aviation (Chicago Convention), Dec. 4, 1944, T.I.A.S. 1591, 15 U.N.T.S. 295.
- 31 See International Air Transport Association, “IATA Disappointed with CJEU Opinion—Urges Global Solution through ICAO,” Press release, October 6, 2011, available at <http://www.iata.org/pressroom/pr/pages/2011-10-06-01.aspx> (“While the Advocate General of the CJEU believes that Europe is within its rights to move forward with this extra-territorial measure, that opinion is not shared in the international community. Many governments are rightly concerned about the infringements on sovereignty and the Chicago Convention that Europe’s plans pose.”).
- 32 Environmental Protection Agency, *Control of Air Pollution from Aircraft and Aircraft Engines; Emission Standards and Test Procedures* (70 Fed. Reg. 69664, 69667, 2005) (stating that “if a nation sets tighter standards than ICAO, air carriers not based in that nation (foreign-flag carriers) would only be required to comply with the ICAO standards.”)
- 33 See Nathan Richardson, “Aviation, Carbon, and EPA” (Resources for the Future, 2012) (discussing academic and government views on both sides).
- 34 See Pamela Karten Bookman, “Solving the Extraterritoriality Problem: Lessons From the Honest Services Statute,” *Virginia Law Rev.* 92 (2006): 749, 751. (“Extraterritoriality doctrine creates a presumption against the application of domestic statutes to conduct committed abroad. It presumes that Congress intends to regulate only domestic conduct unless it specifies otherwise. The presumption is triggered when two criteria are met: (1) the alleged conduct is committed abroad and (2) the statute regulating that conduct does not specify whether it is intended to apply domestically or abroad.”)
- 35 See ANPR at 44472.
- 36 Ibid.
- 37 See Nathan Richardson, “Playing Without Aces: Offsets and the Limits of Flexibility Under Clean Air Act Climate Policy” (Washington: Resources for the Future Discussion Paper 11-49, 2011), available at <http://www.rff.org/Publications/Pages/PublicationDetails.aspx?PublicationID=21699>; see also generally Gregory Wannier and others, “Prevailing View on Compliance Flexibility under §111 of the Clean Air Act” (Washington: Resources for the Future Discussion Paper, 2011), available at <http://www.rff.org/RFF/Documents/RFF-DP-11-29.pdf>.
- 38 This simple syllogism is complicated by the fact that scholars believe that stationary source standards (Section 111) can permit trading in part because the statute specifically requires “performance standards” to “reflect” the “best system of emission reduction.” Trading, the argument goes, is the “best system.” Section 231 does not refer to a “best system” or have any equivalent language, making this logic unavailable for Section 231. As noted above, however, Section 231 does not limit EPA as to the basis it chooses for aviation emissions regulations. As such, EPA appears to have the ability to base standards on the “best system” or any other principle, granting it the ability to implement at least the same flexibility mechanisms as it can apply to stationary sources.
- 39 See, e.g., EPA, *40 CFR Parts 51, 72, 75, and 96 Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone; Rule (NOx SIP Call)*, (63 Fed. Reg. 57356, 57359, 1998) (requiring states to submit new implementation plans that would reduce NOx emissions and explicitly specifying cap and trade as a compliance option).
- 40 See EPA, *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*, (75 Fed. Reg. 25324, 25329, 2010) (creating nationwide regulatory program under which automakers must meet a specified fleet average emissions level).
- 41 Other notable examples include the Cross-State Air Pollution Rule and the heavy-duty engine performance banking and trading program.
- 42 *National Association Of Clean Air Agencies v. EPA*, 489 F.3d 1221 at 1225, 1229-1232 (2007).
- 43 CAA §231. *Whitman v. American Trucking Associations*, 531 U.S. 457, 464 (2001).
- 44 CAA §109(b).
- 45 CAA §111(a).
- 46 \$30 billion commitment made for “fast start finance” as part of the Copenhagen accord. For additional formation and to monitor the progress towards meeting these commitments, see [www.faststartfinance.org](http://www.faststartfinance.org) or Clifford Polycarp, “Have Countries Delivered on Fast-Start Climate Finance,” *World Resources Institute*, May 20, 2011, available at <http://www.wri.org/stories/2011/05/have-countries-delivered-fast-start-climate-finance>.
- 47 Michael Keen, Ian Parry, and Jon Strand, “Market-Based Instruments for International Aviation and Shipping as a Source of Climate Finance” (Washington: World Bank and International Monetary Fund, 2012).
- 48 The power to raise revenue is restricted to Congress (and specifically the House, at least initially) under the Constitution, Art 1 Sec 7 Cl 1.
- 49 EPA has argued that this and other factors make it difficult or impossible for the agency to raise revenue via allowance auctions; see ANPR at 44411.
- 50 Inimai M. Chettiar and Jason A. Schwartz, “The Road Ahead: EPA’s Options and Obligations For Regulating Greenhouse Gases, Institute For Policy Integrity” (New York University School of Law, 2009), p. 26, available at <http://policyintegrity.org/files/publications/TheRoadAhead.pdf>.
- 51 See Miscellaneous Receipts Act, 31 U.S.C. § 3302(b) (2006).

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