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Why Airlines Should Be Afraid: The Potential Impact of Cap and Trade and Other Carbon Emissions Reduction Proposals on the Airline Industry

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WHY AIRLINES SHOULD BE AFRAID: THE POTENTIAL IMPACT OF CAP AND TRADE AND OTHER CARBON EMISSIONS REDUCTION PROPOSALS ON THE AIRLINE INDUSTRY

TATE L. HEMINGSON*

I. INTRODUCTION

PRESIDENT OBAMA made climate change one of the pillars of his presidential campaign and has continued to press for action on this issue, calling for the institution of a federal emissions trading scheme in the form of a cap and trade program designed to control greenhouse gas (GHG) emissions.[1] In 2009 the House passed a bill creating a cap and trade system to control carbon emissions and other GHG emissions[2] and a similar bill was introduced in the Senate.[3] Both of these bills would include jet fuel as a source of regulated carbon emissions, thus

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[1] *See New Energy for America*, BARACKOBAMA.COM, http://www.barackobama.com/issues/newenergy/index.php (last visited Sept. 9, 2010) (proposing a new energy policy focused on using clean, renewable energy and fighting climate change); *Energy & Environment*, THE WHITE HOUSE, http://www.whitehouse.gov/issues/energy-and-environment (last visited Sept. 9, 2010) ("After decades of inaction, we will finally close the carbon pollution loophole by limiting the amount of carbon polluters are allowed to pump into the atmosphere."). Six gases are classified as GHGs that contribute to climate change: "carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydroflourocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)." Endangerment and Cause or Contribute Findings for Greenhouse Gases Under § 202(a) of the Clean Air Act (CAA), 74 Fed. Reg. 66,496, 66,497 (Dec. 15, 2009) [hereinafter EPA Endangerment Finding] (determining that "the body of scientific evidence compellingly supports th[e] finding" that these six gases are associated with climate change).

[2] American Clean Energy and Security Act (ACES Act), H.R. 2454, 111th Cong. (2009); John M. Broder, *House Passes Bill to Address Threat of Climate Change*, N.Y. TIMES, June 26, 2009, at A1.

[3] Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009); Darren Samuelsohn & Ben Geman, *Boxer-Kerry Draft Mirrors House Bill, with Some*

both would have an indirect effect on the U.S. commercial airline industry.[4] Although these bills were abandoned in July 2010 for limited measures addressing energy efficiency and the oil spill in the Gulf of Mexico, they nonetheless have spurred a great deal of support and criticism, along with calls for different forms of action, including a carbon tax.[5] In addition, the Environmental Protection Agency (EPA) appears ready to wield its new power to regulate carbon emissions if Congress fails to take legislative action in the near future.[6]

What impact will all of these new proposals have on the commercial aviation industry? Although the airline industry is only a modest producer of carbon and other GHGs, accounting for a little over two percent of carbon emissions,[7] it falls within the "transportation" sector of polluters, which is responsible for about one-third of GHG and carbon emissions.[8] Additionally, carbon emissions from airlines continue to increase, though not as fast as the transportation sector as a whole.[9] Consequently, the commercial airline industry must be attentive to the developments surrounding this recent wave of potential legislation so that it can be aware of the possible effects any new climate change regulations may have. The regulation's potential to sig-

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Exceptions, GREENWIRE (Sept. 29, 2009), http://www.eenews.net/public/Greenwire/2009/09/29/1.

[4] H.R. 2454 § 312 (amending the CAA by adding § 700(13)(B), (C)); S. 1733 § 102 (amending the CAA by adding § 700(13)(B), (C)).

[5] *See* Carl Hulse & David M. Herszenhorn, *Democrats Call Off Climate Bill Effort*, N.Y. TIMES, July 22, 2010, at A15; discussion *infra* Part II.D.

[6] *See* EPA Endangerment Finding, *supra* note 1, at 66,496–99 (finding that six GHGs, including CO_2, are "air pollution" under § 202(a) of the CAA and thus fall under the regulatory power of the EPA); John M. Broder, *Greenhouse Gases Imperil Health, E.P.A. Announces*, N.Y. TIMES, Dec. 7, 2009, at A18.

[7] ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2007, at 2-23, 2-24 tbl. 2.15 (2009), *available at* http://www.epa.gov/climatechange/emissions/downloads09/GHG2007entire_report-508.pdf (noting that "[t]hese figures include direct emissions from fossil fuel combustion, as well as HFC emissions from mobile air conditioners and refrigerated transport allocated to these vehicle types").

[8] *Id.* at ES-8, ES-9 tbl. ES-3. Emissions from domestic commercial aircraft account for about eight percent of transportation emissions. *Id.* at 2-23.

[9] From 1990 to 2007, CO_2 emissions "from the domestic operation of commercial aircraft increased by 13 percent (18.2 Tg CO_2 eq.)," while CO_2 emissions for the transportation sector increased twenty-seven percent, and emissions from medium- and heavy-duty trucks increased seventy-nine percent for the same period. *Id.* at 3-14, 3-16 (noting that "[t]he operational efficiency of commercial aircraft improved substantially because of a growing percentage of seats occupied per flight, improvements in the fuel efficiency of new aircraft, and the accelerated retirement of older, less fuel efficient aircraft").

nificantly increase fossil fuel prices should also be of great concern to the aviation industry, considering the ruinous effect the cost of fuel has recently had on the industry.[10]

This comment examines the various emissions-reduction plans currently being proposed in the United States to determine what form they may take and what impact they may have on the U.S. commercial airline industry. Part II briefly discusses the scientific findings supporting climate change before turning to the fundamental policy options available for addressing climate change. This section examines the key aspects of the three main forms of emissions regulation: command-and-control type regulation, a carbon tax, and cap and trade. Part III expands the analysis of the most popular form of emissions regulation, cap and trade, by looking more closely at existing and proposed cap and trade programs. This discussion begins with analysis of the emissions trading system currently implemented in Europe. From there, the discussion turns to existing U.S. cap and trade systems, with a particular focus on the details of the cap and trade programs currently pending before the 111th Congress. Next, Part IV analyzes the various methods and proposals for reducing carbon emissions with a particular eye toward the effect each would have on the commercial airline industry in terms of regulation, compliance, and cost. This discussion includes industry responses to the proposed regulations and considers what program best suits the distinctive needs of the aviation industry. Finally, the discussion concludes that the current proposals will act as an impediment to aviation. Therefore, any climate change proposals must take a global, sectoral approach to the aviation industry. This entails recognizing and adapting emissions-reduction programs to aviation's unique position as a global industry whose long-term goals are already in line with climate change goals of emissions reduction.

II. POLICY OPTIONS FOR REDUCING CARBON EMISSIONS

A. CLIMATE CHANGE SCIENCE AND POLICY

Although some still debate the reality of climate change,[11] there is general scientific consensus that climate change is

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[10] *See* Caroline Brothers, *Airlines Face 'Desperate' Situation, Official Says*, N.Y. TIMES, June 3, 2008, at C4.

[11] *E.g.*, *About*, GLOBALWARMING.ORG, http://www.globalwarming.org/about/ (last visited Sept. 9, 2010) ("[A]n informal and ad-hoc group focused on dispel-

caused by the precipitous rise in human-created GHGs.[12] Worldwide, governments, businesses, and citizens acknowledge the need to address climate change now to mitigate the future social and economic damages.[13] Specifically, in 1992, the United Nations (U.N.) gathered for the Framework Convention on Climate Change (UNFCCC) to develop an international plan for addressing the dangerous effects of climate change.[14] In 1997, the UNFCCC finalized the Kyoto Protocol, which became effective in 2005.[15] Under the Kyoto Protocol, the thirty-eight developed nations agreed to reduce their carbon and other GHG emissions over time through "the use of market-based trading mechanisms."[16] Although the United States is not a party to the protocol because of disagreements over potential negative economic impacts and the exclusion of developing countries such as China and India from emissions-reduction standards, the United States was instrumental in establishing the cap and trade program used in the Kyoto Protocol.[17] In December of 2009, the UNFCCC held another conference in Copenhagen, Denmark, to address climate change and to reach a global agreement on reducing GHG emissions.[18] The conference, however, resulted in a short accord that only amounted to a "statement on intention, not a binding pledge to begin taking

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ling the myths of global warming by exposing flawed economic, scientific, and risk analysis.").

[12] *See, e.g.*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, SUMMARY FOR POLICYMAKERS 5 (2007), *available at* http://www.ipcc-wg1.unibe.ch/publications/wg1-ar4/ar4-wg1-spm.pdf [hereinafter IPCC] ("Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level."); John C. Dernbach & Seema Kakade, *Climate Change Law: An Introduction*, 29 ENERGY L.J. 1, 3–5 (2008) (discussing the findings of the IPCC).

[13] *See* Dernbach & Kakade, *supra* note 12, at 8 (noting governmental and non-governmental reports on the possible consequences of climate change); Jody Freeman & Andrew Guzman, *Climate Change and U.S. Interests*, 109 COLUM. L. REV. 1531, 1544–47 (2009) (discussing the likely scientific impact of global warming and the economic costs this will have on the United States).

[14] Kyoto Protocol to the United Nations Framework Convention on Climate Change art. 3, Dec. 10, 1997, 37 I.L.M. 22 (1998) [hereinafter Kyoto Protocol]; Dernbach & Kakade, *supra* note 12, at 9–10.

[15] Dernbach & Kakade, *supra* note 12, at 10.

[16] *Id.* at 10; *see also* Cameron Ferrey & Steven Ferrey, *Past is Prologue: Recent Carbon Regulation Disputes in Europe Shape the U.S. Carbon Future*, 16 MO. ENVTL. L. & POL'Y REV. 650, 659–60 (2009).

[17] Dernbach & Kakade, *supra* note 12, at 10–12.

[18] Andrew C. Revkin & John M. Broder, *A Grudging Accord in Climate Talks*, N.Y. TIMES, Dec. 19, 2009, at A1.

action on global warming" and did not include any specific targets for GHG reductions.[19] Nevertheless, climate change has become one of the prominent issues facing world governments and society today.

B. Fundamental Policy Options

Policy options for combating climate change by reducing GHG emissions can take four basic forms: (1) controlling the source of GHG emissions directly; (2) indirectly reducing GHGs through energy efficiency and conservation; (3) directly storing carbon long term where it cannot enter into the atmosphere; and (4) adapting to the consequences of climate change that are already occurring and cannot be stopped.[20] While any effective climate change policy must involve options from all four categories, this comment focuses on the policies connected with controlling GHG emissions at their source, since much of the recent debate on national climate policy has focused on these issues.[21]

Direct control policy options for GHG and carbon emissions reduction fall into two basic categories: "proscriptive instruments and economic instruments."[22] Proscriptive instruments, often called "command-and-control" regulations, usually involve creating standards (either performance or technology based) to control GHG emissions.[23] Technology-based standards may take the form of fuel economy or efficiency standards while performance-based standards can come as direct limits on the allowable amount of carbon over a fixed period of time.[24] Direct regulation of carbon emissions by the EPA, as discussed further below, would be an example of a performance-based proscriptive instrument.[25] These types of instruments can often be costly to implement because they require extensive monitoring and regulation to ensure their effectiveness at reducing emissions.[26]

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[19] *Id.* On January 31, 2010, a number of nations submitted their individual goals to the UNFCCC for reducing emissions as part of the agreement reached at the Copenhagen climate talks. John M. Broder, *Countries Submit Emission Goals*, N.Y. Times, Feb. 1, 2010, at A10.

[20] Dernbach & Kakade, *supra* note 12, at 8–9.

[21] *See id.* at 9.

[22] Brian C. Murray & Heather Hosterman, *Climate Change, Cap-and-Trade and the Outlook for U.S. Policy*, 34 N.C. J. Int'l L. & Com. Reg. 699, 704 (2009).

[23] *Id.* at 704–05.

[24] *Id.*

[25] *See* discussion *infra* Part II.C.

[26] Murray & Hosterman, *supra* note 22, at 705.

Alternatively, economic instruments, in the words of one commentator, "place a monetary value on carbon, creating a financial incentive for technology to change to low carbon solutions . . . ."[27] These market-based approaches have received the most attention lately and appear either as a direct tax on carbon or as part of a carbon emissions trading scheme, better known as cap and trade.[28] Another approach, called by some a "sectoral hybrid," combines the market-based cap and trade system with command-and-control efficiency standards to provide a more comprehensive approach for emissions reduction.[29] All of these approaches are used in some form throughout the world and have likewise been proposed for use in the United States as it attempts to delineate a unified, federal climate policy.[30] Therefore, it is necessary to examine each method to determine which one the airline industry might face and what the consequences of each approach might be.

C. COMMAND-AND-CONTROL: EPA REGULATION

The possibility of command-and-control regulation of the aviation industry in the form of fuel-efficiency standards is quite possible. On December 15, 2009, the EPA released a finding concluding that GHGs, including CO_2, are a danger to public health and safety and therefore fall under the EPA's regulatory power under the Clean Air Act (CAA).[31] This finding could lead to specific command-and-control regulations that could have a significant impact on consumers, businesses, and industries through higher costs and prices associated with compliance.[32] Additionally, the finding could allow the EPA to create broader emissions regulations under section 231 of the CAA,

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[27] *Id.*

[28] *See* Dernbach & Kakade, *supra* note 12, at 29–30; Kevin Doran & Alaine Ginnochio, *United States Climate Policy: Using Market-Based Strategies to Achieve Greenhouse Gas Emission Reductions*, 3 ENVTL. & ENERGY L. & POL'Y J. 31, 38–41 (2008); Murray & Hosterman, *supra* note 22, at 705.

[29] Dernbach & Kakade, *supra* note 12, at 30.

[30] *See generally* Murray & Hosterman, *supra* note 22 (discussing existing carbon regulation programs and the forms of future U.S. policy on emissions regulation).

[31] EPA Endangerment Finding, *supra* note 1, at 66,497; *see also* Raymond B. Ludwiszewski & Charles H. Haake, *Climate Change: A Heat Wave of New Federal Regulation and Legislation*, 56 FED. LAW. 32, 32–34 (June 2009) (discussing the background leading up to the EPA's endangerment finding).

[32] *See* Ludwiszewski & Haake, *supra* note 31, at 35–37 (discussing the types of regulations that could result from the endangerment finding); Broder, *supra* note 6, at A18.

which currently grants the EPA power to create standards for regulating air pollutants from aircraft emissions.[33]

While President Obama has made clear that he prefers congressional legislation in the form of market-based regulation, he is holding the EPA's regulatory power as a goad for lawmakers to act.[34] Lawmakers and industries, however, have directly challenged the EPA's endangerment finding, and whether or not the EPA will be able to implement regulations is still an open question.[35] Nevertheless, EPA regulation in the form of fuel-efficiency standards imposed on new engines seems a possibility in the near future.[36]

D. THE ELUSIVE CARBON TAX

Proponents of a carbon tax, which include many economists, academics, and scientists, argue that it provides the simplest, surest, and most effective method for reducing carbon emissions.[37] Essentially, a carbon tax features an "upstream" approach by placing a flat, fixed price on a limited number of large-scale sources of CO_2 emissions, such as mines, coal plants, and oil and gas facilities.[38] The tax would increase over time to allow emitters to adjust to increased compliance costs and to

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[33] Clean Air Act § 231, 42 U.S.C. § 7571 (2006). *See generally* Daniel H. Conrad, Note, *Into the Wild Green Yonder: Applying the Clean Air Act to Regulate Emissions of Greenhouse Gases from Aircraft*, 34 N.C. J. INT'L L. & COM. REG. 919, 922–23 (2009) (discussing the history of the finding, analyzing the possible regulations that the EPA could enforce on the aviation industry, and concluding that there is authority for the EPA to regulate aviation emissions through fuel economy standards); Clinton J. Woods, Note, *Ground Control to EPA: The Regulation of Aviation Greenhouse Gas Emissions under the Clean Air Act*, NEW VOICES IN PUB. POL'Y, Spring 2009, at 1–14 (discussing the events leading up to the endangerment finding and the resulting policy options available to the EPA to regulate aviation emissions).

[34] *See* Broder, *supra* note 6.

[35] John M. Broder, *Senators Want to Bar E.P.A. Greenhouse Gas Limits*, N.Y. TIMES, Jan. 21, 2010, at A14 (reporting that Senator Lisa Murkowski introduced legislation "to use the Congressional Review Act to strip the agency of the power to limit emissions of [GHGs] under the [CAA]").

[36] Conrad, *supra* note 33, at 948–49.

[37] *See, e.g.*, JAMES HANSEN, STORMS OF MY GRANDCHILDREN 209–18 (2009) (calling for a carbon "fee"); Reuven S. Avi-Yonah & David M. Uhlmann, *Combating Global Climate Change: Why a Carbon Tax Is a Better Response to Global Warming than Cap and Trade*, 28 STAN. ENVTL. L.J. 3, 6–7 (2009) (arguing that a carbon tax is a more "efficient and effective market-based approach" than cap and trade); *Supporters*, CARBON TAX CTR., http://www.carbontax.org/who-supports/ (last visited Sept. 9, 2010) (listing supporters of a carbon tax).

[38] HANSEN, *supra* note 37, at 210 (preferring the term "fee" to tax); *What's a Carbon Tax?*, CARBON TAX CTR., http://www.carbontax.org/introduction/#what (last visited Sept. 9, 2010).

spur movement away from carbon-intensive energy sources.[39] As designed, a carbon tax reduces emissions simply by raising the price of fossil fuels, which would in turn motivate users of fossil fuels to seek out and develop lower carbon solutions.[40] Eventually, the low-carbon alternatives would cost less than their carbon-intensive counterparts and become the mainstream form of energy production.[41] All this is accomplished without the need for a complex administrative structure such as would be required for EPA regulation and, to a certain degree, for a cap and trade program.[42]

To reduce the impact on the economy and the tax burden on consumers, advocates of a carbon tax stress that it should be revenue neutral.[43] This means that the government would not retain the revenue collected from the tax, but instead would disburse the revenue to taxpayers either in the form of a reduction in payroll taxes[44] or as a per-capita, equal-dividend distribution.[45] Advocates also argue that the tax is effectively progressive in that it taxes the more affluent since they tend to use more carbon-emitting energy sources than the poor.[46]

The carbon tax is not a new idea, however. Internationally, Denmark, Finland, Sweden, Germany, New Zealand, and the United Kingdom have implemented some form of direct carbon tax to varying degrees of success.[47] France is also attempting to establish a carbon tax; however, France's proposal faced some difficulties after the country's constitutional court found that the tax contained too many wholesale exemptions for large industries, including aviation, to make it an effective mechanism for reducing GHG emissions.[48] Domestically, proposals by the Clinton administration for a broad energy tax aimed at large carbon producers failed due to a lack of bipartisan support and

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[39] HANSEN, *supra* note 37, at 209–10.

[40] *Id.* at 210.

[41] *Id.* at 211; Murray & Hosterman, *supra* note 22, at 705–06.

[42] HANSEN, *supra* note 37, at 209–10.

[43] *What's a Carbon Tax?*, *supra* note 38.

[44] John M. Broder, *House Bill for a Carbon Tax to Cut Emissions Faces a Steep Climb*, N.Y. TIMES, Mar. 7, 2009, at A13 (noting that Al Gore also supports a carbon tax coupled with a reduction of payroll taxes).

[45] HANSEN, *supra* note 37, at 209–10; *What's a Carbon Tax?*, *supra* note 38.

[46] *What's a Carbon Tax?*, *supra* note 38.

[47] *See Where Carbon Is Taxed*, CARBON TAX CTR., http://www.carbontax.org/progress/where-carbon-is-taxed/ (last visited Sept. 9, 2010).

[48] James Kanter, *Council in France Blocks a Carbon Tax as Weak on Polluters*, N.Y. TIMES, Dec. 30, 2009, at B4.

opposition from the business community.[49] Additionally, in 2007 two carbon tax bills were introduced in the House,[50] and in 2009, Representative John B. Larson, author of one of the 2007 bills, introduced yet another to no avail.[51]

The problems encountered by the failed House and the Clinton-era bills demonstrate one of the biggest problems confronting a carbon tax: a lack of political will. In the United States lawmakers are loathe to utter the word "tax."[52] Largely for this reason they have given carbon tax proposals a wide berth.[53] As the recent French attempt at a carbon tax also shows, passing a measure that appeases various business interests with strong lobbying power means that the bill may require so many exemptions as to render it useless for reducing emissions.[54] Because of these issues surrounding a carbon tax, numerous industries and several prominent environmental groups favor a cap and trade program.[55] They argue that cap and trade offers more flexibility regarding methods of compliance while still maintaining the same environmental goals.[56]

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[49] *See* Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, 10 VT. J. ENVTL. L. 1, 6–10; Murray & Hosterman, *supra* note 22, at 706.

[50] Save Our Climate Act of 2007, H.R. 2069, 110th Cong. § 3(a) (2007); America's Energy Security Trust Fund Act of 2007, H.R. 3416, 110th Cong. § 2(a) (2007); *see also* Milne, *supra* note 49, at 19–20 (discussing the 2007 House bills).

[51] America's Energy Security Trust Fund Act of 2007, H.R. 1337, 111th Cong. § 4691(a) (2007); Broder, *supra* note 44.

[52] Kenneth P. Green et al., *Climate Change: Caps vs. Taxes*, ENVTL. POL'Y OUTLOOK, June 2007, at 4, *available at* http://www.aei.org/docLib/20070601_EPOg.pdf ("[T]here is a broad consensus in favor of a carbon tax everywhere except on Capitol Hill, where the 'T word' is anathema.").

[53] Broder, *supra* note 44.

[54] For example, the U.S. Climate Action Partnership (USCAP) is a "non partisan coalition" calling for "strong national legislation" to reduce GHGs and supporting cap and trade over a carbon tax. U.S. CLIMATE ACTION P'SHIP, ISSUE OVERVIEW: CAP AND TRADE VERSUS CARBON TAX (March 2009), *available at* http://www.us-cap.org/policy-statements/ (follow "Cap and Trade vs. Carbon Tax" hyperlink). USCAP members include such industry-leaders as Alcoa, ConocoPhillips, the Dow Chemical Company, Ford, General Electric, General Motors, Johnson & Johnson, PepsiCo, Rio Tinto, Shell, Siemens Corporation, and environmental groups such as the Environmental Defense Fund (EDF), the Natural Resources Defense Council (NRDC), the Nature Conservancy, and the Pew Center on Global Climate Change. *Id.*

[55] U.S. CLIMATE ACTION P'SHIP, *supra* note 54; PEW CTR. ON GLOBAL CLIMATE CHANGE, CLIMATE POLICY MEMO #1: CAP AND TRADE V TAXES (2009), *available at* http://www.pewclimate.org/docUploads/Policy-Memo-1-CapTradevTax-09%2007%2001.pdf.

[56] *See, e.g.*, U.S. CLIMATE ACTION P'SHIP, *supra* note 54.

E. CAP AND TRADE IN THEORY

This second market-based approach, cap and trade, has come to the forefront of the emissions regulation debate thanks primarily to two major congressional bills that feature the approach.[57] These bills came as several regional cap and trade programs were coming on-line or were in the planning stages across the United States.[58] Additionally, the European Union (EU) has implemented a cap and trade system under the guidelines established by the Kyoto Protocol.[59] Because of the prominence and growth of cap and trade as a favored method for reducing emissions of carbon and other GHGs, it is necessary to examine first the fundamental structure and elements of a cap and trade program in theory. Following this discussion, Part IV turns to analyzing existing systems and the proposed congressional legislation to determine what form a federal cap and trade program might take.

1. Emissions Trading

Cap and trade shares the same basic goal as a carbon tax: to control and reduce carbon emissions from certain sources by increasing the cost of using carbon-rich fossils fuels and, in turn, encouraging alternative low-carbon solutions.[60] The mechanisms of cap and trade, however, differ greatly from a carbon tax. The Pew Center for Global Climate Change, a non-profit, non-partisan organization that analyzes climate change issues, describes the fundamentals of a cap and trade program as follows:

> In a cap-and-trade program, the government determines which facilities or emissions are covered by the program and sets an

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[57] American Clean Energy and Security Act (ACES Act), H.R. 2454, 111th Cong. (2009); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009).

[58] Programs include the Regional Greenhouse Gas Initiative (RGGI) in the Northeast, the Western Climate Initiative, and the Midwest Greenhouse Gas Reduction Accord. PEW CTR. ON GLOBAL CLIMATE CHANGE, CLIMATE CHANGE 101: CAP AND TRADE 7–8 (2009) [hereinafter CLIMATE CHANGE 101], *available at* http://www.pewclimate.org/docUploads/Climate101-CapTrade-Jan09.pdf.

[59] *See* A. DENNY ELLERMAN & PAUL L. JOSKOW, THE EUROPEAN UNION'S EMISSIONS TRADING SYSTEM IN PERSPECTIVE (Pew Ctr. on Global Climate Change 2008), *available at* http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf.

[60] CLIMATE CHANGE 101, *supra* note 58, at 1; Murray & Hosterman, *supra* note 22, at 707–08; *Cap and Trade: Essentials*, ENVTL. PROT. AGENCY, http://www.epa.gov/captrade/documents/ctessentials.pdf (last visited Sept. 9, 2010).

> overall emission target, or "cap," for covered entities. This cap is the sum of all allowed emissions from all included facilities. Once the cap has been set and covered entities specified, tradable emissions allowances (rights to emit) are distributed (either auctioned, or freely allocated, or some combination of these). Each allowance authorizes the release of a specified amount of [GHG] emissions, generally one ton of carbon dioxide equivalent (CO_2e). The total number of allowances is equivalent to the overall emissions cap (e.g., if a cap of one million tons of emissions is set, one million one-ton allowances will be issued). Covered entities must submit allowances equivalent to the level of emissions for which they are responsible at the end of each of the program's compliance periods.[61]

Much of cap and trade's attractiveness comes in the flexibility inherent in the allowance-trading feature.[62] Because emitters will face different compliance costs, allowance trading lets these emitters structure their compliance strategies according to their most cost-effective individual situations, while still retaining the end environmental goals of carbon reduction.[63] For example, emitters for whom it would be too costly to reduce emissions can purchase allowances from emitters whose emissions-reductions costs are lower and thus have a surplus of allowances.[64] This structure "giv[es] firms a financial incentive to control emissions and the flexibility to determine how and when emissions will be reduced."[65] Proponents argue that this system provides further incentives to innovate low-carbon solutions because emitters will seek to reduce their emissions and, in turn, have more allowances to sell on the market.[66]

2. *Key Aspects of a Cap and Trade Program*

There are several key questions that need to be asked about a cap and trade program in deciding on its exact form: (1) what emissions will be capped; (2) whose emissions will be capped; (3) how stringent should the caps be; (4) what "safety valves," if any, should be built into the system to stem volatility; and (5) how should the allowances be distributed?[67] As for which emissions to cap, most of the current cap and trade proposals focus

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[61] CLIMATE CHANGE 101, *supra* note 58, at 1.

[62] *See id.* at 1–3.

[63] *Id.* at 1; *Cap and Trade: Essentials*, *supra* note 60.

[64] Murray & Hosterman, *supra* note 22, at 708.

[65] CLIMATE CHANGE 101, *supra* note 58, at 1.

[66] *Id.* at 3.

[67] *Id.*

primarily on carbon emissions as the target GHG, though earlier U.S. cap and trade programs have focused on acid rain-causing sulfur dioxide (SO_2) and ozone-causing nitrous oxide (NOx).[68]

Regarding the second question of whom to cap, there are basically three choices: upstream emitters, downstream emitters, or a combination of the two.[69] An upstream program, like a carbon tax, focuses on the ports of entry where carbon first enters into the market.[70] This allows for broad coverage of carbon emissions from a smaller number of emitters.[71] Downstream programs, on the other hand, cover direct emitters of carbon, such as power plants, manufacturers, and vehicles.[72] Downstream programs have the advantage of "put[ing] the compliance obligation (and hence costs) directly on entities that can reduce GHG emissions by, for example, improving process efficiency, changing processes, or substituting material and fuel inputs."[73] This differs from upstream programs, which rely on emissions-reduction incentives in the form of cost increases passed down by the fossil fuel suppliers.[74] A hybrid approach involving both upstream and downstream regulation is also a possibility, but it comes with its own unique problems.[75]

The third question—how stringent should the cap be—basically deals with what forms of cost-containment measures should be available to mitigate compliance costs.[76] Policy options for stringency include a gradual introduction of caps, perhaps in some sectors earlier than others, with the stringency increasing over time as firms become accustomed to the caps and allowance-trading market.[77] Other cost-containment measures come in the form of safety valves and offsets.[78] Safety valves allow

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[68] *See Cap and Trade: Acid Rain Program Basics*, ENVTL. PROT. AGENCY, http://www.epa.gov/captrade/documents/arbasics.pdf (last visited Sept. 9, 2010); *Cap and Trade: Multi-State NOx Programs*, ENVTL. PROT. AGENCY, http://www.epa.gov/captrade/documents/nox.pdf (last visited Sept. 9, 2010).

[69] PEW CTR. ON GLOBAL CLIMATE CHANGE, CONGRESSIONAL POLICY BRIEF: SCOPE OF A GREENHOUSE GAS CAP-AND-TRADE PROGRAM 6–9 (2008) [hereinafter POLICY BRIEF], *available at* http://www.pewclimate.org/docUploads/Scope.pdf.

[70] *Id.* at 6.

[71] CLIMATE CHANGE 101, *supra* note 58, at 4.

[72] *Id.*

[73] POLICY BRIEF, *supra* note 69, at 8.

[74] *Id.*

[75] *See id.* at 8–9.

[76] *See* CLIMATE CHANGE 101, *supra* note 58, at 3.

[77] POLICY BRIEF, *supra* note 69, at 9.

[78] CLIMATE CHANGE 101, *supra* note 58, at 5; Murray & Hosterman, *supra* note 22, at 711–12.

changes to the program during periods of unexpected market volatility and include capping carbon prices, "increasing the availability of offset credits, changing the timing of program compliance, or expanding the use of 'borrowing' allowances."[79] This lets emitters essentially take "loans" of allowances from regulators in times of need.[80] Offsets occur when "'uncapped' or unregulated sectors of the economy, such as agriculture, forestry, landfills, and livestock . . . voluntarily reduce their emissions (or increase carbon storage) to offset the emissions of another entity covered by the cap."[81] Capped entities can then purchase the offsets to increase their allowances and reduce their compliance costs.[82] Offset projects, however, need to have verified and measurable effects to maintain the integrity of the carbon reduction goals.[83]

How allowances should be distributed—allocation or auction—is primarily a question of initial start-up cost and long-term program cost.[84] Free allocation of allowances has the benefit of reducing the initial cost of compliance, especially for emitters who are placed at a competitive disadvantage by the cap.[85] On the other hand, the revenue created from allowance auctions can be used to encourage firms to move to low-carbon technologies through direct funding, incentives, or as offsets for the cost of higher compliance and energy costs.[86] Naturally, both free distributions and auctions come with their own particular concerns, benefits, and drawbacks.[87]

In examining a cap and trade program with the above questions in mind, there are also five factors that an emissions trading system should meet to be successful. First, the emissions cap must remain at a level sufficient "to create market demand for

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79 CLIMATE CHANGE 101, *supra* note 58, at 5.

80 *Id.*

81 Murray & Hosterman, *supra* note 22, at 711–12.

82 *Id.*

83 *Id.* at 711–15 (discussing "critical issues in ensuring the environmental integrity of the offset policy"); Maria Savasta-Kennedy, *The Newest Hybrid: Notes Toward Standardized Certification of Carbon Offsets*, 34 N.C. J. INT'L L. & COM. REG. 851 (2009) (discussing carbon offsets as fundamental to cap and trade programs and the need for government oversight and regulation of these new assets); Thomas P. Healy, Comment, *Clearing the Air: Pursuing a Course to Define the Federal Government's Role in the Voluntary Carbon Offset Market*, 61 ADMIN. L. REV. 871 (discussing the regulatory tools necessary to oversee a carbon offset market).

84 CLIMATE CHANGE 101, *supra* note 58, at 5.

85 *Id.* at 5–7.

86 *Id.* 6–7.

87 *See id.* at 5–6.

allowances, maintain a carbon price, and to meet environmental targets."[88] Second, compliance must be guaranteed in order to maintain the value of the emissions allowances on the market.[89] Third, there must be flexibility "to allow companies to choose the cheapest reduction methods and therefore lower the total overall cost of reducing [carbon] emissions."[90] Fourth, regulatory certainty over a long-term period is required to assure that firms will be able to "incorporate the accurate costs of [carbon] emissions into the future cost of production."[91] Finally, the program must have transparency "to foster public and private trust in the market."[92]

III. CAP AND TRADE: EXISTING AND PROPOSED PROGRAMS

Throughout the world, there are a number of existing and proposed cap and trade programs that are based on the fundamental principles outlined above. A brief examination of the structure of several of these systems and the issues they have encountered will shed light on areas of concern for the aviation industry.

A. INTERNATIONAL CAP AND TRADE: THE EU EMISSIONS TRADING SYSTEM

The Kyoto Protocol calls for thirty-eight developed nations to reduce their GHG emissions under a basic cap and trade system.[93] In 2005, the EU established the Emissions Trading System (EU ETS) based on the standards set by the Kyoto Protocol, even though the program operates independently of the Kyoto Protocol.[94] The EU ETS differs from classic cap and trade programs in two important ways: (1) it covers only carbon emissions, not all GHGs; and (2) it covers only emissions from

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[88] Jonathan Donehower, Comment, *Analyzing Carbon Emissions Trading: A Potential Cost Efficient Mechanism to Reduce Carbon Emissions*, 38 ENVTL. L. 177, 182 (2008).

[89] *Id.*

[90] *Id.*

[91] *Id.* at 183.

[92] *Id.*

[93] Kyoto Protocol, *supra* note 14, art. 3; *see also* Ferrey & Ferrey, *supra* note 16, at 659–66 (describing the aspects of the Kyoto Protocol cap and trade program).

[94] ELLERMAN & JOSKOW, *supra* note 59, at 1–6; U.S. CLIMATE ACTION P'SHIP, ISSUE OVERVIEW: EUROPE'S EMISSIONS TRADING SYSTEM (March 2009), http://www.us-cap.org/policy-statements/ (follow "Europe's Emissions Trading System" hyperlink).

specified sources, such as the power and industrial sectors.[95] The EU ETS was designed to be implemented in three phases, which allowed the European Commission, who oversees the EU ETS, to adjust the program during the initial "learning" phase that ran from 2005 to 2007.[96] The second phase, running from 2008 to 2012, coincides with the deadlines set by the Kyoto Protocol for meeting mandatory emissions-reduction goals but still only covers about forty-six percent of carbon emissions.[97] The third phase, starting in 2013, expands the scope of the emissions regulated to include more industries and cover a higher percentage of carbon emissions.[98]

While the Kyoto Protocol program does not include emissions from aviation,[99] the third phase of the EU ETS is scheduled to bring aviation emissions into the regulatory framework beginning January 1, 2012.[100] In 2009, the European Commission released a list of airlines, including almost 1,000 from the United States, which will be subject to the EU ETS.[101] Under the program, eighty-five percent of allowances will be distributed freely and the rest auctioned.[102] The cap, however, will not be a "hard cap" meaning that airlines can purchase additional allowances from the pool available on the market, if necessary.[103] Purchasing extra allowances, of course, would increase costs for the air-

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95 ELLERMAN & JOSKOW, *supra* note 59, at 3. For the most part, the EU ETS focuses on downstream compliance. POLICY BRIEF, *supra* note 69, at 8.

96 ELLERMAN & JOSKOW, *supra* note 59, at 2–3.

97 U.S. CLIMATE ACTION P'SHIP, *supra* note 94.

98 *Id.* The European Commission reached decisions about the scope of its emissions trading program post-2013 in April, 2009. *Emission Trading System (EU ETS): EU ETS Post 2012*, EUROPA.EU, http://ec.europa.eu/environment/climat/emission/ets_post2012_en.htm (last visited Sept. 9, 2010) (describing and providing hyperlinks to the legislation passed by the European Commission in April, 2009).

99 *See* Kyoto Protocol, *supra* note 14, art. 2, ¶ 2 (stating that the responsibility for reducing GHGs from aviation fuels falls on the parties working in conjunction with the ICAO).

100 Council Directive 2009/29, Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 O.J. (L 140) 84, 86 (EC); Paul Voosen, *Airlines Will Be First U.S. Industry to Confront Cap and Trade*, N.Y. TIMES (Aug. 12, 2009), http://www.nytimes.com/gwire/2009/08/12/12greenwire-airlines-will-be-first-us-industry-to-confront-77552.html?scp=4&sq=voosen&st=cse.

101 Commission Regulation 748/2009, Annex, 2009 O.J. (L 219) 1, 2 (EC).

102 Voosen, *supra* note 100.

103 *Id.*

lines and is one of the tools the cap and trade program uses to motivate companies to seek low-carbon solutions.[104]

With some estimating that this program will cost the airline industry nearly $50 billion in compliance costs between 2012 and 2020, the aviation industry has been critical of the EU's unilateral approach to emissions regulation on non-EU member airlines.[105] Rather, airlines and aviation industry groups, such as the Air Transport Association of America (ATA), are calling for a global, sector-based approach that would address carbon emissions regulation under the management of the International Civil Aviation Organization (ICAO), a U.N. agency charged with overseeing global aviation issues.[106] In fact, in late 2009 the ATA, along with Continental, American, and United Airlines, filed suit against the U.K. Secretary of State for Energy and Climate Change in an attempt to block the EU ETS program's inclusion of the aviation sector.[107]

Some of the other problems facing the EU ETS may have a direct impact on other emissions-trading schemes and on the proposed U.S. legislation.[108] For example, the decline of carbon allowances' prices following the climate summit in Copenhagen highlights a weakness in the market system: if prices on carbon allowances are too low, then there is no incentive to move to low-carbon solutions.[109] If these low prices remain, it could make a cap and trade system less attractive to congressional members who would be deciding whether to support any proposed U.S. climate change legislation.[110]

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104 *See* CLIMATE CHANGE 101, *supra* note 58, at 1, 3.

105 Ben Moshinsky, *U.S. Airlines, Industry Group Sue U.K. Over Emissions Plan*, BUS. WK. (Dec. 17, 2009), http://www.businessweek.com/globalbiz/content/dec2009/gb20091217_576581.htm; Voosen, *supra* note 100.

106 Moshinsky, *supra* note 105; Voosen, *supra* note 100; *see also* discussion *infra* Part IV.C.

107 Moshinsky, *supra* note 105.

108 *See* ELLERMAN & JOSKOW, *supra* note 59, at 24–45; Ferrey & Ferrey, *supra* note 16, at 677–89.

109 *See* Keith Johnson, *Carbon-Permit Slide Reflects Copenhagen Disappointment*, WALL ST. J., Dec. 22, 2009, at A4; James Kanter, *EU Carbon Trading System Brings Windfalls for Some, with Little Benefit to Climate*, N.Y. TIMES (Dec. 9, 2008), http://www.nytimes.com/2008/12/09/business/worldbusiness/09iht-windfall.4.18536167.html.

110 *See* Camille Ricketts, *Carbon Permits Take a Dive Post-Copenhagen–Could Drag Solar, Wind Down Too*, GREEN BEAT (Dec. 22, 2009), http://green.venturebeat.com/2009/12/22/carbon-permits-take-a-dive-post-copenhagen-could-take-solar-wind-down-too/.

B. THE U.S. CAP AND TRADE EXPERIENCE

Members of Congress need not look only to Europe for examples of cap and trade programs as the United States has almost twenty years of experience with cap and trade programs designed to reduce air pollutants.[111] Of the five programs, the EPA has administered three, including the largest and most successful program, known as the Acid Rain Trading Program, which was designed to reduce SO_2 emissions.[112] Although these programs are regionally focused, they have proven to be both cost-efficient and effective at reaching their environmental goals.[113]

In addition to the programs focused on reducing airborne pollutants, several regions have implemented cap and trade programs with the goal of reducing carbon emissions.[114] These programs have arisen mainly in response to the United States' decision not to join the Kyoto Protocol or to institute a federal cap and trade program to control carbon emissions.[115] The first and largest program, known as the Regional Greenhouse Gas Initiative (RGGI), covers ten Northeastern and Mid-Atlantic states and sets a mandatory cap on carbon emissions from power plants that will be incrementally reduced after 2015.[116] Five western states and several Canadian provinces have taken even more ambitious steps in formulating a cap and trade system that employs a multi-sector approach and covers all six GHGs, but several states still need to pass legislation before the program can begin.[117] In addition, a number of Midwestern states have taken a similar multi-sector approach that covers all GHGs and

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[111] David Harrison, Jr. et al., *Using Emissions Trading to Combat Climate Change: Programs and Key Issues*, *in* CLEAN AIR: LAW, POLICY, AND PRACTICE 155, 159 (ALI-ABA Course of Study 2008).

[112] *Id.* at 159–62; *Cap and Trade: Acid Rain Program Basics*, *supra* note 68.

[113] Harrison, Jr. et al., *supra* note 111, at 159–62.

[114] CLIMATE CHANGE 101, *supra* note 58, at 7–9; Ferrey & Ferrey, *supra* note 16, at 666–67.

[115] Ferrey & Ferrey, *supra* note 16, at 666.

[116] *Id.* at 666–68; *see also* Tseming Yang, *The Problem of Maintaining Emissions "Caps" in Carbon Trading Programs Without Federal Government Involvement: A Brief Examination of the Chicago Climate Exchange and the Northeast Regional Greenhouse Gas Initiative*, 17 FORDHAM ENVTL. L. REV. 271, 282–86 (2006); Michael W. Hall, Comment, *The Regional Greenhouse Gas Initiative and California Assembly Bill 1493: Filling the American Greenhouse Gas Regulation Void*, 41 U. RICH. L. REV. 567, 569–75 (2007); Rachel F. Harrison, Comment, *Carbon Allowances: A New Way of Seeing an Invisible Asset*, 61 SMU L. REV. 1915, 1925–34 (2009).

[117] Ferrey & Ferrey, *supra* note 16, at 673–76.

uses a cap and trade system to help achieve reduction goals.[118] California has also taken independent measures to place aggressive state-wide caps on GHG emissions from major producers.[119] However, due to the economic crisis in California, some have called for putting the program on hold until the economy and jobs recover because of the potential economic burden caused by compliance costs.[120]

C. PROPOSED LEGISLATION, 111TH CONGRESS

With concerns over the effectiveness of regional programs and the unpredictability associated with regional regulation of national industries, calls from industries, scholars, and environmental groups for federal action on climate change have been growing steadily since the new millennium.[121] During the 106th Congress (1999–2000), lawmakers introduced almost thirty legislative proposals addressing climate change.[122] This figure jumped to 235 bills, resolutions, and amendments introduced in the 110th Congress (2007–2008).[123] Of these, ten called for the creation of an economy-wide cap and trade program.[124] Further motivated by President Obama's desire to enact a federally-run cap and trade program, the 111th Congress has seen the introduction of a number of comprehensive climate change bills in both houses as well.[125] In particular, one sponsored by Con-

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[118] *Id.* at 675–76.

[119] *Id.* at 668–73.

[120] Opinion, *California Cap-and-Trade Revolt*, WALL ST. J., Jan. 11, 2010, at A18.

[121] *E.g.*, U.S. CLIMATE ACTION P'SHIP, A BLUEPRINT FOR LEGISLATIVE ACTION 2 (2009), (calling for "well-aligned national energy and climate policies that set out a new direction for the country"); Joseph Allen MacDougald, *Why Climate Law Must Be Federal: The Clash Between Commerce Clause Jurisprudence and State Greenhouse Gas Trading Systems*, 40 CONN. L. REV. 1431 (2008) (arguing that climate law must be federally based because of potential limitations to regional measures imposed by the dormant commerce clause); Yang, *supra* note 116, at 286.

[122] *106th Congress Proposals*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_congress/leg_proposals.cfm (last visited Sept. 9, 2010).

[123] *Legislation in the 110th Congress Related to Global Climate Change*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/federal/Congress/110 (last visited Sept. 9, 2010).

[124] *Economy-Wide Cap & Trade Proposals in the 110th Congress*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/docUploads/Chart-and-Graph-120108.pdf (last visited Sept. 9, 2010).

[125] *Climate Action in Congress*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_congress (last visited Sept. 9, 2010) (listing the key climate legislation pending in the 111th Congress).

gressmen Henry Waxman and Edward Markey passed a vote in the House in summer 2009.[126]

1. *The Waxman-Markey House Bill (House Bill 2454)*

The Waxman-Markey Bill, named the American Clean Energy and Security Act (ACES), passed the House of Representatives on June 26, 2009, by a vote of 219-212.[127] In general, the Bill offers a blend of proscriptive and economic measures, including creating higher energy efficiency standards, investing in clean energy technologies, and reducing carbon emissions through a cap and trade program.[128] The cap and trade program, or emissions-trading system, is based largely on the classic model discussed above and the Acid Rain Trading Program implemented by the EPA.[129] It features a limited-source approach that caps GHG emissions on "large U.S. sources like electric utilities and oil refiners."[130] About eighty percent of allowances will be "distributed without charge during the early years of the program to ease the transition to a clean energy economy."[131] The Bill also allows for the use of offsets and contains provisions to protect consumers and certain trades and industries, such as oil refineries, which would be more adversely affected by the caps because of their high CO_2 emissions and, as a result, would face higher compliance costs.[132]

While the Bill does not attempt to cap aviation emissions directly, it does hold producers of jet fuel responsible for the emissions resulting from their products.[133] This differs from the EU ETS program, which is scheduled to place a direct cap on air-

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[126] American Clean Energy and Security Act (ACES Act), H.R. 2454, 111th Cong. (2009).

[127] John M. Broder, *House Passes Bill to Address Threat of Climate Change*, N.Y. TIMES, June 26, 2009, at A1.

[128] Press Release, Comm. on Energy and Commerce, Summary: The American Clean Energy and Security Act (H.R. 2454), at 1, 3 (July 2009), *available at* http://energycommerce.house.gov/Press_111/20090724/hr2454_housesummary.pdf.

[129] *Id.* at 3.

[130] *Id.*

[131] *Id.* at 4.

[132] *Id.* at 3, 5–6.

[133] American Clean Energy and Security Act (ACES Act), H.R. 2454, 111th Cong. § 312 (2009) (amending the CAA by adding § 700(13)(B), (C) to define a "covered entity" as including producers of "petroleum-based" liquid fuel); *id.* § 351(a)(3) (amending the Commodity Exchange Act to include "jet fuel" as an "energy commodity" for the purpose of the act); Madhu Unnikrishnan & Robert Wall, *Washington Enters Fray on Aviation Cap-and-Trade Debate*, AVIATION WK. & SPACE TECH., Apr. 13, 2009, at 41.

lines' carbon emissions and consequently impose a direct cost on airlines.[134] Instead, the likely effect of the Waxman-Markey Bill is that producers will pass their cost increases down to the airlines in the form of higher fuel prices.[135] The aviation industry has raised concerns that these increased costs will amount to double taxation for international flights coming from or going to Europe, since these flights will be subject to both the increased fuel prices resulting from the U.S. cap and trade program and the costs of the direct carbon regulation under the EU ETS.[136] The Waxman-Markey Bill, however, does acknowledge these concerns and other unique issues faced by the aviation industry, specifically stating that:

> It is the sense of Congress that the United States should—(1) continue to actively promote, within the International Civil Aviation Organization, the development of a global framework for the regulation of greenhouse gas emissions from civil aircraft that recognizes the uniquely international nature of the industry and treats commercial aviation industries in all countries fairly; and (2) work with foreign governments towards a global agreement that reconciles foreign carbon emissions reduction programs to minimize duplicative requirements and avoids unnecessary complication for the aviation industry, while still achieving the environmental goals.[137]

Although this statement does not take any actual steps toward addressing this issue, it seems to leave the door open for future adjustments to the bill regarding the regulation of aircraft emissions and any conflicts that may arise regarding international flights.

Section 221 is also of importance to the airline industry as it amends Title VIII of the CAA and directs the EPA to establish emissions standards for new aircraft and aircraft engines.[138]

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[134] *See* discussion *supra*, Part III.A.

[135] Unnikrishnan & Wall, *supra* note 133.

[136] *Id.*

[137] H.R. 2454 § 276.

[138] *Id.* § 221. The section would amend § 821(c) of Title VIII of the Clean Air Act to read:

> In establishing standards applicable to emissions of greenhouse gases pursuant to this section and sections 202(a), 213(a)(4) and (5), and 231(a), the Administrator may establish provisions for averaging, banking, and trading of greenhouse gas emissions credits within or across classes or categories of motor vehicles and motor vehicle engines, nonroad vehicles and engines (including marine vessels), and aircraft and aircraft engines, to the extent the

Such a command-and-control provision, as discussed above, could have a direct effect on the airline industry by increasing compliance costs, depending on the stringency of the standards.

2. *The Kerry-Boxer Senate Bill (Senate Bill 1733)*

In September 2009, Senators John Kerry and Barbara Boxer introduced a companion bill to the Waxman-Markey Bill in the Senate called the Clean Energy Jobs & American Power Act.[139] The Kerry-Boxer Bill is far narrower in scope than the Waxman-Markey Bill, as it focuses primarily on a cap and trade system for reducing GHGs, thus leaving the clean energy issues to the Senate Energy and Natural Resources Committee, which oversees most energy issues.[140] The Kerry-Boxer Bill is, however, modeled largely after the relevant portions of the Waxman-Markey Bill.[141] Although the two differ in some respects, such as emissions-reduction goals, their approach toward aviation remains largely the same.[142] For example, both place the cost and burden of compliance within the cap and trade programs on the oil producers, who are then likely to pass the cost down in the

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Administrator determines appropriate and considering the factors appropriate in setting standards under those sections.

Id.

[139] Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009); Darren Samuelsohn, *Boxer, Kerry Set to Introduce Climate Bill in Senate*, N.Y. TIMES (Sept. 28, 2009), http://www.nytimes.com/cwire/2009/09/28/28climatewire-boxer-kerry-set-to-introduce-climate-bill-in-43844.html. The Bill passed through committee in November 2009. Press Release, U.S. S. Comm. Env't & Pub. Works, Boxer Statement on Committee Passage of S. 1733 – The Clean Energy Jobs and American Power Act (Nov. 5, 2009), *available at* http://epw.senate.gov/public/index.cfm?FuseAction=Majority.PressReleases&ContentRecord_id=c512ac4d-802a-23ad-4884-2b95a8405efe.

[140] PEW CTR. ON GLOBAL CLIMATE CHANGE, AT A GLANCE: CLEAN ENERGY JOBS AND AMERICAN POWER ACT (November 2009), http://www.pewclimate.org/docUploads/short-summary-kerry-boxer-epw-committee-11-05-09.pdf. A bill focused only on clean energy, which was introduced in the Senate by Senator Jeff Bingaman and passed out of committee on June 17, 2009, shares much in common with the relevant energy portions of the Waxman-Markey Bill. *See* The American Clean Energy Leadership Act of 2009 (ACELA), S.1462, 111th Cong. (2009); PEW CTR. ON GLOBAL CLIMATE CHANGE, ACELA SUMMARY AND COMPARISON TO THE ACES ACT (October 2009), *available at* http://www.pewclimate.org/docUploads/acela-summary-aces-act-comparison-oct2009.pdf.

[141] Samuelsohn, *supra* note 139.

[142] *See* PEW CTR. ON GLOBAL CLIMATE CHANGE, *supra* note 140 (summarizing the Bill and noting where it follows and where it departs from the Waxman-Markey House Bill).

form of higher prices.[143] Additionally, just like the Waxman-Markey Bill, the Kerry-Boxer Bill requires that the EPA set GHG emissions standards for new aircraft and aircraft engines.[144]

While the Waxman-Markey Bill passed the House by a narrow vote, the Kerry-Boxer Bill never made it to a vote.[145] In particular, some senators expressed concern over the lack of consensus about what form cap and trade should take amid growing uncertainty regarding the complexities of cap and trade.[146] Even the co-sponsor of the bill, Senator Kerry, along with Senators Joseph Lieberman and Lindsey Graham, submitted a letter to President Obama outlining a "basic framework for climate action" in order "to provide an assessment of where we see the debate heading in the United States Senate."[147] As this letter suggests, it is difficult to pin down the details of what a Senate cap and trade program might encompass.

3. Other Proposals: The Cantwell-Collins Bill (Senate Bill 2877)

Adding to the uncertainty, several proposals have been introduced in the Senate in addition to the two bills discussed above.[148] One in particular, the Carbon Limits and Energy for America's Renewal Act (CLEAR), introduced on December 11, 2009, by Senators Maria Cantwell and Susan Collins,[149] has attracted some attention as a feasible alternative to the cap and

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[143] S. 1733 § 102 (amending the CAA by adding § 700(13)(B), which defines a "covered entity" as including producers of "petroleum-based" liquid fuel); H.R. 2454, 111th Cong. § 312 (2009) (using the same definition as S. 1733 § 102).

[144] S. 1733 § 111 (amending § 821(c) of the CAA to require the EPA to set emissions standards for new aircraft and aircraft engines); H.R. 2454 § 221 (using the same language as S. 1733 § 111).

[145] *See, e.g.*, Susan Montoya Bryan, *Bingaman: Cap and Trade Bill Unlikely This Year*, ABC NEWS (Jan. 5, 2010), http://abcnews.go.com/Business/wireStory?id=9485513; Hulse & Herszenhorn, *supra* note 5.

[146] *E.g.*, Bryan, *supra* note 145; Lisa Lerer, *Jim Webb Bails on Cap-And-Trade*, POLITICO (Nov. 16, 2009), http://www.politico.com/news/stories/1109/29582.html; Camille Ricketts, *Dems Throw in the Towel on Climate Bill for 2009*, GREEN BEAT (Nov. 11, 2009), http://green.venturebeat.com/2009/11/11/dems-throw-in-the-towel-on-climate-bill-for-2009/.

[147] Letter from John Kerry, Joseph I. Lieberman, and Lindsey O. Graham, U.S. Senators, to Barack Obama, Pres. of the United States (Dec. 10, 2009), *available at* http://kerry.senate.gov/newsroom/pdf/Climate_Framework.pdf; *see also* Camille Ricketts, *Climate Bill Chaos: Your Guide to the Two Newest Proposals*, GREEN BEAT (Dec. 28, 2009), http://green.venturebeat.com/2009/12/28/climate-bill-chaos-your-guide-to-the-two-newest-proposals/.

[148] *See Climate Action in Congress*, *supra* note 125.

[149] Carbon Limits and Energy for America's Renewal Act (CLEAR Act), S. 2877, 111th Cong. (2009).

trade systems proposed in the Waxman-Markey and the Kerry-Boxer Bills.[150] But, just as the other bills, the Cantwell-Collins Bill is designed to reduce carbon emissions by raising the price of fossil fuels and encouraging the use of low-carbon energy sources.[151] Although the Cantwell-Collins Bill calls for an emissions trading system to reduce carbon emissions much like the other two bills, the system differs in several significant ways.[152]

First, the Bill takes an upstream approach to cap and trade, capping the carbon content of fossil fuels at the point of entry into the system, such as the wellhead, mine, or refinery.[153] This differs from the limited downstream approach taken by the Waxman-Markey and Kerry-Boxer Bills, which placed caps on large carbon emitters, including refineries, electricity producers, and large manufacturers.[154] Moreover, the Cantwell-Collins Bill does not allow for use of carbon offsets.[155]

Second, the Cantwell-Collins Bill takes a different approach in structuring how carbon shares are traded on the market.[156] For one, the bill would auction off all the allowances from the outset, rather than give away free allowances and gradually introduce auctioning, as the other two bills do.[157] Further, the Cantwell-Collins Bill allows only the regulated entities to participate in the auctioning and trading of carbon allowances, unlike the other proposals, which would create a secondary market for

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150 *E.g.*, Steve Hargreaves, *Fight Global Warming, Get $1,100 a Year*, CNN MONEY (Dec. 30, 2009), http://money.cnn.com/2009/12/23/news/economy/cap_and_dividend/; Jim Snyder, *Cantwell-Collins Bill Attracts Support from Some, Loses Others*, THE HILL (Dec. 14, 2009), http://thehill.com/homenews/senate/71995-cantwell-collins-climate-bill-attracts-new-support-but-may-lose-some?page=2.

151 Memorandum from the Office of Sen. Maria Cantwell on the CLEAR Act: A Cap & Refund Approach to Energy Independence and Climate Change Mitigation 1 (Dec. 10, 2009) [hereinafter Cantwell Memo], *available at* http://cantwell.senate.gov/issues/CLEAR%20Act%20Overview%20Memo.pdf.

152 *CLEAR Act Side-by-Side with Waxman-Markey, H.R. 2454*, OFFICE OF SEN. MARIA CANTWELL, http://cantwell.senate.gov/issues/CLEAR%20Act%20Side-by-Side%20with%20ACES.pdf (last visited Sept. 9, 2010) (comparing the major provisions of the Waxman-Markey Bill with the Cantwell-Collins Bill).

153 Cantwell Memo, *supra* note 151; *see also* Robert N. Stavins, *A Meaningful U.S. Cap-And-Trade System to Address Climate Change*, 32 HARV. ENVTL. L. REV. 293, 293 (2008) (proposing "an upstream, economy-wide CO2 cap-and-trade system" as the best method for a cost-effective climate change solution).

154 Press Release, Comm. on Energy and Commerce, *supra* note 128, at 3.

155 OFFICE OF SEN. MARIA CANTWELL, *supra* note 152, at 2.

156 *Id.* at 2–3.

157 *Id.*

trading allowances.[158] This avoids market manipulation and speculation and allows for more transparency in the auctioning system.[159]

One of the central features of the Cantwell-Collins Bill is that seventy-five percent of the revenue from the sale of allowances at auction would be returned directly to citizens in the form of non-taxable dividends, equaling about $1000 per individual.[160] These dividends could then be used to offset any increases in energy prices.[161] The other twenty-five percent of the revenue from allowances would go into a trust to fund climate and clean energy-related programs.[162] However, the Cantwell-Collins Bill and the other Senate bills are far from completion, and which one will pass and in what form, if any, still remains uncertain.[163]

IV. EMISSIONS REGULATION AND THE AVIATION INDUSTRY

A. PREDICTING THE FORM OF U.S. CLIMATE LEGISLATION

Considering the collapse of the Senate's efforts at comprehensive climate change legislation, it is impossible to predict what form such legislation will ultimately take. But, despite the lack of consensus regarding the ultimate shape of a cap and trade program,[164] it is likely that Congress will enact some form of federal legislation regulating carbon and other GHG emissions in the very near future.[165] The White House has maintained pressure on Congress to enact climate legislation.[166] Additionally, numerous businesses, industries, and environmen-

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158 *Id.*

159 Snyder, *supra* note 150.

160 OFFICE OF SEN. MARIA CANTWELL, *supra* note 152, at 2. The Waxman-Markey Bill does call for rebates to lower income families to be distributed through local utilities. Snyder, *supra* note 150.

161 Cantwell Memo, *supra* note 151, at 6.

162 *Id.* at 6–7.

163 *See* sources cited *supra* note 146.

164 *See* Bryan, *supra* note 145.

165 *E.g.*, Harrison, Jr. et al., *supra* note 111, at 165 ("The United States seems likely to develop a national cap-and-trade program for GHG emissions within the next several years, a program that might be accompanied by regional or state programs.").

166 President Barack Obama, Remarks by the President in State of the Union Address (Jan. 27, 2010) (transcript available at http://www.whitehouse.gov/the-press-office/remarks-president-state-union-address) (remarking that creating clean energy jobs "means passing a comprehensive energy and climate bill with incentives that will finally make clean energy the profitable kind of energy in America").

tal groups,[167] such as the U.S. Climate Action Partnership (USCAP), a coalition of industry leaders and environmental groups, are calling for "prompt enactment of national legislation in the United States to slow, stop and reverse the growth of [GHG] emissions over the shortest time reasonably achievable."[168] Of course, groups such as USCAP are composed of many industries that would be directly affected by any carbon regulation.[169] Thus, they have a keen interest in shaping national legislation to soften the impact on their respective interests.

Nevertheless, as these groups and others recognize, a federally mandated and regulated program is necessary to give clear guidance to businesses, to provide administrative consistency, and to prevent constitutional problems that may hinder regional programs.[170] Despite the pressing need for federal legislation, however, the economic downturn and high rate of unemployment threaten to undermine the success of climate change reform.[171] In fact, some even fear carbon regulation will only make problems worse and delay recovery.[172] Therefore,

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[167] *E.g.*, Letter from We Can Lead, Business Leaders in Support of Strong Energy and Climate Policy, to President Obama and Members of Congress (Jan. 21, 2010), *available at* http://wecanlead.org/jan2010.pdf (coalition of 150 companies calling for "strong policies and clear market signals that support the transition to a low-carbon economy and reward companies that innovate" because "today's uncertainty surrounding energy and climate regulation is hindering the large-scale actions that American businesses are poised to make"); *Business for Innovative Climate and Energy Policy (BICEP)*, CERES, http://www.ceres.org/bicep (last visited Sept. 9, 2010) (coalition of over 80 businesses whose "goal is to work directly with key allies in the business community and with members of Congress to pass meaningful energy and climate change legislation"); BUSINESS LEADERS FOR CLIMATE SOLUTIONS, http://www.climatesolutions.org/solutions/initiatives/blcs (last visited May 26, 2010) (coalition of nearly 600 businesses in the Northwest U.S. supporting strong climate and energy policies).

[168] *See* U.S. CLIMATE ACTION P'SHIP, *supra* note 121, at 1.

[169] *See supra* note 54.

[170] *See, e.g.*, MacDougald, *supra* note 121 (arguing that climate law must be federally based because of potential limitations to regional measures imposed by the dormant commerce clause); Robert B. McKinstry, Jr. et al., *The New Climate World: Achieving Economic Efficiency in a Federal System for Greenhouse Gas Control Through State Planning Combined with Federal Programs*, 34 N.C. J. INT'L L. & COM. REG. 767 (2009); Yang, *supra* note 116; Letter from We Can Lead, *supra* note 167 ("[T]oday's uncertainty surrounding energy and climate regulation is hindering the large-scale actions that American businesses are poised to make.").

[171] *E.g.*, Editorial, *The Case for Climate Bill*, N.Y. TIMES, Jan. 23, 2010, at WK9.

[172] *E.g.*, Editorial, *California Cap-and-Trade Revolt*, WALL ST. J., Jan. 11, 2010, at A18 (discussing a ballot initiative in California seeking to delay implementation of the state's cap and trade program scheduled to go into effect in 2012 because of the economic problems faced by the state); Tom Switzer, Editorial, *The Climate is Changing*, WALL ST. J. (Jan. 13, 2010), http://online.wsj.com/article/SB100014

even though Congress faces a steep uphill climb in passing climate change legislation, there is a strong possibility of some form of federal climate change regulation in the near future.

While determining the details of any climate change legislation would be futile, it is worthwhile to narrow down the choices for an emissions-reduction program based on the form the regulations take: cap and trade, carbon tax, or direct EPA regulation. Of these three forms, a carbon tax is unlikely to succeed due to the lack of political will to support a tax of any sort, even though a tax may be the most effective means for reducing emissions.[173] Direct EPA regulation of GHG emissions remains a possible alternative, especially if Congress fails to take action.[174] However, command-and-control regulation on this scale and scope faces strong resistance from industries and from within Congress.[175] Therefore, any legislation that passes will likely be either in the form of a hybrid cap and trade program similar to the Waxman-Markey Bill or the Cantwell-Collins Bill, whose simplicity may be a winning virtue.[176] Nevertheless, it is useful to take a brief look at both the potential impact of the specific forms of legislation or regulation on the aviation industry and the industry's responses to these proposals.

B. Potential Regulatory Impact: Industry Response

1. Cap and Trade Legislation

The form that any cap and trade legislation ultimately takes—whether upstream or downstream—is, for the most part, irrelevant because the bottom line for the aviation industry will be the same: the cost of fossil fuels will very likely rise.[177] This will effec-

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240527487036521045746516102174955 46.html (discussing political developments in Australia and their relation to a worldwide reconsideration of the costs of cap and trade).

[173] *See* discussion *supra* Part II.D.

[174] *See* Broder, *supra* note 35 (noting that House Majority leader Harry Reid prefers legislation to EPA regulation, but wants the agency to "retain the authority to act if Congress does not"); discussion *supra* Part II.C.

[175] *See* Broder, *supra* note 35 (discussing recent legislation seeking to strip the EPA of its power to regulate GHGs under the CAA); discussion *supra* Part II.C.

[176] *See* discussion *supra* Part III.C.

[177] As discussed above, this is one of the primary ways cap and trade programs reduce CO_2 emissions. *See, e.g.*, John M. Doyle, *Pricey Control*, Aviation Wk. & Space Tech., June 1, 2009, at 20 (citing Jim May, president and CEO of the Air Transport Association (ATA), as estimating Waxman-Markey Bill would increase the cost of aviation jet fuel by $1.40–1.70 per gallon); Daniel Whitten, *House Climate Bill Lifts Gas Price 77 Cents, API Says*, Bloomberg (June 8, 2009), http://www.

tively work as an additional tax on aviation fuel and on airlines in general.[178] Consequently, the aviation industry has come out strongly against economy-wide cap and trade proposals.[179] The industry's resistance to cap and trade, however, comes not simply from an opposition to being taxed,[180] but from the impact this extra cost will have on the industry.[181] More specifically, the ATA, whose membership includes the principal U.S. passenger and cargo airlines as well as airline manufacturers,[182] argues that the aviation industry is already "motivated by market forces to improve fuel and GHG efficiency" since fuel already represents "between 30 to 50 percent of total airline operating expenses."[183]

Airlines, in fact, have been motivated for years to reduce fuel-related costs by improving fuel efficiency and, in turn, reducing carbon and other GHG emissions.[184] Consequently, airlines ar-

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bloomberg.com/apps/news?pid=20601130&sid=a_559D1XN7l0&refer=environment (noting that the American Petroleum Institute (API) calculates the cost of jet fuel would rise by 83 cents under the Waxman-Markey Bill).

178 Unnikrishnan & Wall, *supra* note 133.

179 *E.g.*, James C. May, President of ATA, Opinion, *Aviation Woes*, WASH. TIMES (June 5, 2008), http://www.washingtontimes.com/news/2008/jun/05/aviation-woes/; Steve Sear, Delta Air Lines Vice President of Global Sales, (*Op-Ed.,*) *Cap-and-Trade Policy Could Hamper the Reduction of Airline Carbon Emissions*, BUS. TRAVEL NEWS (Aug. 17, 2009), http://www.btnonline.com/businesstravelnews/headlines/frontpage_display.jsp?vnu_content_id=1004003444; Unnikrishnan & Wall, *supra* note 133 (noting aviation's general opposition to a cap and trade program); Cargo Airline Association, *Climate Change Legislation: An Aviation Perspective, available at* http://globalwarming.house.gov/files/LTTR/ACES/CargoAirlineAssoc.pdf (last visited June 21, 2010) (voicing the Cargo Airline Association's opposition to a cap and trade program).

180 The aviation industry is already quite heavily taxed. *See Government Imposed Taxes/Fees on Commercial Air Travel*, AIR TRANSP. ASS'N, http://www.airlines.org/economics/taxes/pages/GovTaxesandFeesonAirlineTravel.aspx (last visited Sept. 9, 2010) (providing a list of all aviation related excise taxes and fees, including a 4.3 cent jet fuel tax, with comparison to past taxes and fees).

181 *See Climate Change Impacts on the Transportation Sector: The Airline's Climate Change Commitment: Hearing Before the S. Comm. on Commerce, Sci., and Transp.*, 110th Cong. 3–5 (2008) [hereinafter *Hearing*] (statement of John M. Meenan, Exec. Vice President and Chief Operating Officer, Air Transp. Ass'n of Am., Inc.); *Fact Sheet: Why One-Size-Fits-All Cap-and-Trade Legislation Does Not Fit Aviation*, AIR TRANSP. ASS'N, http://www.airlines.org/environmental+affairs/fact+sheets+and+links/ (last visited Sept. 9, 2010) (follow "Why One-Size-Fits-All Cap-and-Trade Legislation Does Not Fit Aviation" hyperlink).

182 *Membership*, AIR TRANSP. ASS'N, http://www.airlines.org/About/Membership/Pages/membership.aspx (last visited Sept. 9, 2010).

183 AIR TRANSP. ASS'N, *supra* note 181.

184 *Hearing*, *supra* note 181, at 3–6; *Fact Sheet: Commercial Aviation's Environmental Efforts*, AIR TRANSP. ASS'N, http://www.airlines.org/environmental+affairs/

gue that if Congress implements a cap and trade program, the resulting costs from the increased tax burden would "undermine the ultimate aim of [cap and trade]—to decrease carbon emissions—by making it difficult, if not impossible, for U.S. airlines to invest in the technology and alternative fuels that can reduce harmful [GHGs]."[185] Therefore, if Congress does succeed in passing cap and trade, airlines should ask Congress to reinvest some of the money generated by the program back into the aviation industry where it can be used to fund "development and deployment of more fuel-efficient aircraft and low carbon jet fuels," along with other related measures.[186]

While all cap and trade programs are similar in that industries share in fuel price increases, differences in how each program treats allowance allocation and trading can affect the program's impact on the airlines. Under cap and trade programs that directly cap airline emissions, such as the EU ETS, airlines could receive allowances and trade them on the market.[187] This would not be the case under programs that hold the fuel producers responsible for emissions, such as the Waxman-Markey and Kerry-Boxer Bills, because the airlines are not themselves capped, and the impact is only secondary in the form of fuel price increases.[188] Because airlines have already demonstrated their ability and the continued necessity to reduce fuel consumption and emissions,[189] airlines could potentially collect and trade excess allowances on the open market to help them meet the increased fuel costs and pursue more fuel efficient technologies with those funds.[190] However, this only works when the program allocates tradable allowances to airlines, which is not a feature in any of the current Congressional proposals.[191] Furthermore, under the upstream-focused Cantwell-Collins Bill, air-

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fact§heets+and+links/ (last visited Sept. 9, 2010) (follow "Commercial Aviation's Environmental Efforts" hyperlink).

185 Sear, *supra* note 179; AIR TRANSP. ASS'N, *supra* note 181.

186 AIR TRANSP. ASS'N, THE AIR TRANSPORT ASSOCIATION CLIMATE CHANGE COMMITMENT: A GLOBAL, SECTORAL APPROACH 1 (2009), *available at* http://www.airlines.org/government/issuebriefs/Climate-Change-Commitment-Global-Sectoral-Approach.htm (follow "Click here for PDF" hyperlink); *see also* Unnikrishnan & Wall, *supra* note 133.

187 *See* ELLERMAN & JOSKOW, *supra* note 59, at 1–2.

188 *See* Unnikrishnan & Wall, *supra* note 133.

189 *Hearing, supra* note 181, at 3–7.

190 *Aircraft Engine Emissions,* INT'L CIVIL AVIATION ORG., http://www.icao.int/icao/en/env/aee.htm (last visited Sept. 9, 2010); *see also* Conrad, *supra* note 33, at 947.

191 *Aircraft Engine Emissions, supra* note 190.

lines would most certainly be cut out of the allowance and trading program since the Bill restricts allowance trading only to first-emitters.[192] The aviation industry should consider these issues as it assesses the different cap and trade proposals.

Airlines that fly internationally have also voiced concerns that an American cap and trade system would combine with the EU ETS to impose a double taxation on airlines.[193] As discussed above, the Waxman-Markey Bill does acknowledge this potential problem, but it does nothing to actually resolve the problem.[194] Such questions would need to be addressed definitively and in further detail by any cap and trade program.

2. *Carbon Tax*

A direct carbon tax imposed on fossil fuels and aviation fuel in particular would impact the airline industry much like a cap and trade program by increasing fuel costs.[195] Likewise, this would have a negative effect on the industry by redirecting resources from the pursuit of low-carbon options to the increased cost associated with the tax.[196] Therefore, a carbon tax is not likely to receive much support from the aviation industry. Even so, at least one airline association, the Cargo Airline Association (Association), supports a revenue-neutral carbon tax as an alternative to a cap and trade program.[197]

Under the Association's carbon tax proposal, the direct tax on the use of aviation fuel would be offset by a decrease in existing excise taxes.[198] This would make the tax revenue-neutral in that it would "retain the same overall level of industry taxation" while simultaneously providing incentive for modernization and increases in fuel efficiency to reduce the burden of the increased fuel tax.[199] Moreover, the Association proposes that since the amount of revenue collected could be easily attributed to the airlines, all or at least a portion of these funds could go toward

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[192] *See supra* Part III.C.3.

[193] *See* Unnikrishnan & Wall, *supra* note 133.

[194] *See supra* Part III.C.1.

[195] *See* HANSEN, *supra* note 37, at 209–10.

[196] This would work much the same as cap and trade by undermining the industry's goals and ability to increase efficiency. *See* Sear, *supra* note 179.

[197] *Statement of Cargo Airline Association: Hearing on Trade Aspects of Climate Change Legislation Before the H. Comm. on Ways and Means*, 111th Cong. (2009) [hereinafter *Statement*] (statement of Steve Alterman, President of the Cargo Airline Ass'n).

[198] *Id.* at 2.

[199] *Id.*

"convert[ing] the nation's air traffic system into one based upon satellite technology rather than the existing reliance on decades-old ground-based radar."[200] Tax revenue could also fund research into more fuel-efficient aircraft and engines.[201]

A revenue-neutral tax for airlines that would not raise aviation taxes but simply redistribute them, as the Association proposes, might prove a more viable alternative than a cap and trade program.[202] A tax becomes a more viable alternative when coupled with a plan to put the tax revenue back into funding aviation technology, since, under a cap and trade program with a similar funding measure, it would be difficult to track precisely how much of the airlines' cost increase is due to the program. However, as discussed above, the current political unfeasibility of a carbon tax makes this solution unlikely.[203]

3. Command-and-Control Regulation

If the EPA decides to regulate aircraft engines under section 231 of the CAA as sources of carbon emissions, such regulation would, of course, have a direct impact on aviation.[204] However, because of the international nature of the aviation industry, direct EPA regulation would encounter several problems.[205] First, global regulation of airline emissions has generally fallen under the province of the ICAO. Even the Kyoto Protocol, which excludes aviation emissions, directs that parties to the treaty should work through the ICAO to reduce aviation-related GHGs.[206] Further, the United States has traditionally conformed its regulations issued under section 231 to those recommended by the ICAO, even lowering them in the 1980s to meet ICAO regulations.[207] In this respect, EPA regulations could face difficulties since ICAO's regulation guidelines do not currently address GHG emissions.[208] Nevertheless, non-international

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200 *Id.* at 2–3.

201 *Id.*; *see* AIR TRANSP. ASS'N, *supra* note 186.

202 *See Statement*, *supra* note 197, at 3–4.

203 *See supra* Part II.D.

204 *See* 42 U.S.C. § 7571(a)(2)(A) (2009) (providing the EPA Administrator with the power to "issue proposed emission 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").

205 Conrad, *supra* note 33, at 943–47.

206 Kyoto Protocol, *supra* note 14, art. 2, ¶ 2; Conrad, *supra* note 33, at 943–44.

207 Conrad, *supra* note 33, at 944.

208 *Id.*; *Aircraft Engine Emissions*, *supra* note 190.

steps to regulate GHGs, such as those mandated by the EU ETS to regulate aviation emissions,[209] could force the ICAO to act in creating international standards for GHG emissions.[210] Likewise, well-crafted, realistic EPA regulations could force the ICAO to adopt those standards as the new international targets for GHG emissions reduction.[211]

The aviation industry recognizes that predictable, uniform international standards are a crucial and necessary step to the effective and efficient regulation of aviation emissions on a national and international scale.[212] In fact, the ATA and the International Air Transport Association (IATA) have joined together "in adopting an ambitious set of targets to mitigate GHG emissions from [the aviation] industry under a global, sectoral approach."[213] Such targets include continuing fuel-efficiency improvements, creating a goal for carbon-neutral growth, and reducing CO_2 emissions fifty percent by 2050.[214] Appropriate EPA regulations in conjunction with ICAO standards could bolster the industry's existing commitment to increasing energy efficiency as driven by its desire to reduce fuel related-costs.[215]

C. The Global, Sectoral Approach

Because of aviation's unique global reach and its successful and continued efforts at increasing efficiency and reducing emissions, the industry does not fit well into a generalized, economy-wide emissions reduction program. In fact, whether such reduction programs come in the form of cap and trade or a carbon tax, their fundamental goal—to reduce carbon and other GHG emissions simply by making fossil fuels too expensive—is contradicted when applied without modification to the airline industry. These programs would drive up airlines' costs and severely inhibit an already anguished industry's attempts to reduce emissions by increasing efficiency. As an alternative, aviation groups such as the ATA and IATA have adopted a global,

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209 *See supra* Part III.A.

210 Conrad, *supra* note 33, at 944–45.

211 *See id.*

212 *See* Air Transp. Ass'n, *supra* note 186; Giovanni Bisignani, Editorial, *Aviation and Global Warming*, N.Y. Times (Sept. 20, 2007), http://www.nytimes.com/2007/09/20/opinion/20iht-edbisi.1.7583290.html.

213 Air Transp. Ass'n, *supra* note 186, at 1.

214 *Id.*

215 *See Hearing*, *supra* note 181, at 2–3, 11–12 (calling for "Congress to work to complement airline GHG initiatives").

sectoral approach to reducing GHG emissions and have asked Congress to join them.[216]

The ATA's global, sectoral approach calls for further efforts by airlines to "invest in new aircraft, fleet upgrades, operational improvements, sustainable alternative fuels and other innovations to achieve the bulk of the fuel- and GHG- efficiency improvements needed . . . ."[217] The plan requests assistance in achieving these goals from associated industries and governments.[218] In addition to seeking help with modernizing the air traffic control system and researching alternative fuels, the approach requires a comprehensive national energy policy that acknowledges the need for the global regulation of aviation emissions under the UNFCCC and the ICAO.[219]

More importantly, the success of the global, sectoral approach depends on "[e]nsuring that domestic climate change policy is not counterproductive to continued improvements within the industry."[220] As discussed above, climate legislation that blindly taxes airlines is not effective at reducing emissions.[221] Rather, legislation and policies should create markets where fuel prices are stable and where revenue collected from emissions regulation is reinvested in new technologies to help solve the climate change problem.[222] Finally, without a global approach to emissions regulation, airlines could "be subject to a patchwork of varying, unilateral programs throughout the world."[223]

An approach that recognizes the specific requirements and difficulties faced by a particular sector, such as the one the ATA has proposed, goes much further toward ensuring that climate change policies and legislation achieve their intended goals of emissions reduction.[224] Accordingly, those connected to the aviation industry and concerned for it should speak up and make certain that the interests of the U.S. commercial airline industry are heard and recognized.

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216 *See id.* at 1–13; AIR TRANSP. ASS'N, *supra* note 186, at 1–5.

217 AIR TRANSP. ASS'N, *supra* note 186, at 2.

218 *Id.*

219 *Id.* at 2–4. A recent study by the University of Oxford found that improving air traffic management could reduce emissions by 5% to 8%. *Flight Management Aids Aviation Emission Cuts*, BBC NEWS (Feb. 1, 2010), http://news.bbc.co.uk/2/hi/business/8487590.stm.

220 AIR TRANSP. ASS'N, *supra* note 186, at 3.

221 *See* discussion *supra* Part IV.B.1.

222 *See* AIR TRANSP. ASS'N, *supra* note 186, at 3–5.

223 *Id.*

224 *Id.* at 1–5.

V. CONCLUSION

Climate change policymakers and the aviation industry share the very same goals—to reduce emissions of GHGs, especially CO_2. What differ are the reasons and the means for achieving this goal: policymakers want to stop global warming by reducing emissions, and the aviation industry wants to reduce costs through increased fuel efficiency (which has the incidental effect of reducing emissions). By not considering and adequately addressing the unique set of challenges facing the aviation industry, current climate change legislation, especially cap and trade, faces the risk of hampering both its own and aviation's ability to reach their shared goal of reducing emissions.

Therefore, with the government's help in recognizing a need for a unified, sectoral approach founded on strong fiscal and legal policies that encourage specific goals rather than punish polluters arbitrarily, both the aviation industry and the U.S. government may soon find themselves closer to reaching their shared goal of emissions reduction.


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