

The EU Emissions Trading Scheme and Aviation



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“EMISSIONS TRADING IS THE MOST IMPORTANT INSTRUMENT OF THE EUROPEAN UNION TO MITIGATE CLIMATE CHANGE.”³

In an effort to address the growing impact of aircraft emissions on global warming, the European Parliament agreed on November 12, 2007, to incorporate the aviation industry into the existing European Union’s (“EU”) Emissions Trading Scheme (“ETS”).⁴ Though carbon dioxide emissions and excessive concentrations of man-made atmospheric greenhouse gases (“GHGs”) unquestionably have a deleterious effect on the environment and contribute to climate changes and global warming⁵, the EU’s Proposal to include the aviation industry in the EU ETS has sparked a global debate among the EU, other governments including the United States, the aviation industry and environmentalists. This paper sets forth the reported impact of aviation-related carbon dioxide emissions on the earth’s climate, the EU Proposal, and the global debate among the EU, the United States, the aviation industry and environmentalist groups.

The Problem

There has been increased recognition of the effect of carbon dioxide emissions on the earth’s atmosphere⁶ and an increased effort to address and curtail significant future damage to

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³ German MEP Peter Liese, *EU Parliament Discusses Extending Emissions Trade to Aviation*, Nov. 12, 2007 (http://news.xinhuanet.com/english/2007-11/13/content_7060747.htm).

⁴ European Parliament Post-Briefing, 12-15 November 2007, *Clear Skies Ahead: MEPs vote to Curb Airline Emissions by Including Them in European Trading Scheme*, Nov. 16, 2007 (http://www.europarl.europa.eu/news/expert/infopress_page/062-12900-316-11-46-910-20071109IPR12781-12-11-2007-2007-false/default_en.htm).

⁵ For example, the existence of coastal Alaskan villages is threatened by increasing tidal erosion caused by warming temperatures. Tomas Alex Tizon, *Alaska Town Mulls Move to Escape Climate Effects*, N.Y. Times, Jan. 9, 2008.

⁶ The Arctic Council, which represents Arctic-region countries, will submit a report on Greenland’s environmental trends, including the effects of global warming on the region, at the 2009 Climate Treaty talks at Copenhagen. Andrew C. Revkin, *In Greenland, Ice and Instability*, N.Y. Times, Jan. 8, 2008.

the earth and its environment.⁷ Indeed, many areas of the world are experiencing climactic changes believed to be caused by the blanket of GHGs surrounding the earth's atmosphere.⁸

In 1992, the United Nations Framework Convention on Climate Change ("UNFCCC") was adopted as the first attempt to obtain international agreement to "stabilize" GHGs and address climate change.⁹ An international treaty, the UNFCCC has been ratified by more than 192 countries and came into force in 1994.¹⁰ Under the UNFCCC, countries share information on GHGs and related national policies, propose and set up national programs seeking to reduce GHGs and study and prepare for climate change.¹¹ The UNFCCC, as the world's first step in seeking to curb emissions and impede climactic change, was a voluntary, information-sharing framework.¹² It did not take long for the world to give legal bite to the UNFCCC's teeth.

At the UNFCCC's third conference in December of 1997, the Kyoto Protocol was adopted. The Kyoto Protocol is "considered to be the most far-reaching agreement on environment and sustainable development ever adopted."¹³ The Protocol, which has been signed and ratified by 176 countries and one regional economic integration organization (but not the

⁷ To offset carbon dioxide emissions and to balance the emissions created by personal use of computers, travel by jets, *etc.*, United States' corporations and consumers spent in excess of \$54 million last year to purchase credits (*i.e.*, offsets – manmade "solutions" to excessive manmade emissions) in the form of, *inter alia*, tree planting, wind farms and solar plants. Louise Story, *F.T.C. Asks if Carbon-Offset Money Is Winding Up True Green*, N.Y. Times, Jan. 9, 2008. Continental Airlines passengers can keep track of the carbon impact of their trips while Delta Airlines sells offsets to its passengers at a cost of \$5.50 for domestic round-trips and \$11 for international round-trips. *Id.*

⁸ Revkin, *supra* note 6; *see also* Tizon, *supra* note 5.

⁹ United Nations Framework Convention on Climate Change, May 9, 1992, S. Treaty Doc. No. 102-38, 1771 U.N.T.S., 107 ("UNFCCC"), *Facing and Surveying the Problem* (http://unfccc.int/essential_background/feeling_the_heat/items/2914.php).

¹⁰ UNFCCC, *Essential Background* (http://unfccc.int/essential_background/items/2877.php).

¹¹ *Id.*

¹² As indicated in the Kyoto Protocol, the Montreal Protocol on Substances that Deplete the Ozone Layer, which was adopted in Montreal on September 16, 1987, is an international treaty developed to address depletion of the earth's ozone. *See* Kyoto Protocol to UNFCCC, Dec. 10, 1997, 37 I.L.M. 22 ("Kyoto Protocol"), *Negotiating the Protocol* (http://unfccc.int/kyoto_protocol/items/2830.php), Article 2.; *see also* Montreal Protocol on Substances that Deplete the Ozone Layer (<http://ozone.unep.org/pdfs/Montreal-Protocol2000.pdf>).

¹³ Kyoto Protocol, *supra* note 12.

United States), entered into force in February, 2005.¹⁴ Under the Kyoto Protocol, signatories are divided into two groups with different responsibilities. One group, called Annex I signatories, consists of developed nations that are legally bound to reduce GHGs (not only carbon dioxide but also methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride) between 2008 and 2012 with an overall reduction of five percent of 1990 levels.¹⁵ The other group of signatories, called non-Annex I signatories, consists of developing countries that are responsible for monitoring and reporting their emissions but are not required to legally reduce emissions.¹⁶

Each Annex I signatory is assigned an emissions reduction target via a quota of emissions allowances called Assigned Amount Units (“AAUs”). To reach its emissions reduction target and remain within its AAUs, each Annex I signatory can either reduce domestic emissions (the ultimate goal) or utilize three types of “flexible plans”: emissions trading, Joint Implementations (JIs) and Clean Development Mechanisms (CDMs).¹⁷ Penalties for non-compliance under the Kyoto Protocol include multiplying excess emissions by 1.3 and losing the privilege to engage in

¹⁴ The Kyoto Protocol “entered into force on 16 February 2005 - the ninetieth day after at least 55 Parties to the Convention, incorporating Annex I Parties which accounted in total for at least 55 % of the total carbon dioxide emissions for 1990 from that group - deposited their instruments of ratification, acceptance, approval or accession.” Kyoto Protocol, *Ratification* (http://unfccc.int/kyoto_protocol/background/status_of_ratification/items/2613.php).

¹⁵ Kyoto Protocol, *Negotiating the Protocol* (http://unfccc.int/kyoto_protocol/items/2830.php). Reductions vary by nation. *Id.*; see also European Commission, *The Kyoto Protocol* (<http://ec.europa.eu/environment/climat/kyoto.htm>). The EU is an example of an Annex I signatory while China, Brazil and India are examples of non-Annex I signatories. Kyoto Protocol, *Negotiating the Protocol* (http://unfccc.int/kyoto_protocol/items/2830.php).

¹⁶ European Commission, *The Kyoto Protocol* (<http://ec.europa.eu/environment/climat/kyoto.htm>).

¹⁷ An emissions trading scheme imposes an overall limitation on releasing emissions while at the same time allowing for trade of the right to release emissions by the companies included in the scheme. Joint Implementation refers to an Annex I signatory’s receipt of emissions credits for investing in an emissions reduction project in another Annex I signatory. Kyoto Protocol, *The Mechanisms under the Kyoto Protocol: Clean Development Mechanism, Joint Implementation and Emissions Trading* (http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php). Clean Development Mechanism refers to receipt by an Annex I signatory of emissions reduction credit for investing in an emissions reduction project in a developing country with no emissions reduction target of its own, *i.e.*, a non-Annex I signatory. *Id.*

emissions trading the next year.¹⁸ By ratifying the UNFCCC and the Kyoto Protocol, the world has recognized the need to reduce emissions and combat global warming and climate change. Until now, the aviation industry has escaped the global efforts of the UNFCCC and the Kyoto Protocol.¹⁹ However, the world has begun to recognize that the aviation industry contributes to the emissions problem and has begun to investigate solutions to aviation-related emissions.

Although aviation-related carbon dioxide emissions account for only about two percent of the total global carbon dioxide emissions,²⁰ aircraft carbon dioxide emissions have increased by eighty-seven percent since 1990.²¹ Aircraft emissions will continue to rise based on current projections of air passenger increases (from 228 million in 2005 to 465 million in 2030²²).

What are the scientific views as to how the earth's climate is affected by aviation-related carbon dioxide emissions? When aircraft fly they release many types of emissions, including carbon dioxide (which is released in large quantities and remains in the atmosphere for an extended time, resulting in its well-known and direct contribution to global warming); nitrous oxides (which result in harmful ozone production through sunlight, but which also beneficially reduce methane concentrations, another harmful greenhouse gas); water vapor (which is harmful as a contributor to the formation of condensation trails at high altitudes), sulphate particles (which reflect radiation) and soot particles (which absorb heat).²³ Of the emissions released by

¹⁸ Kyoto Protocol, *An Introduction to the Kyoto Protocol Compliance Mechanism* (http://unfccc.int/kyoto_protocol/compliance/items/2875.php).

¹⁹ Article 2.2 of the Kyoto Protocol directs Annex I signatories to work through the International Civil Aviation Organization ("ICAO") to control and reduce aviation greenhouse gas emissions. ICAO's efforts in this area are discussed *infra*. See Kyoto Protocol, *supra* note 12, Article 2.2.

²⁰ ICAO *Environmental Report 2007* (http://www.icao.int/icao/en/env/pubs/Env_Report_07.pdf).

²¹ Department for Env't, Food and Rural Affairs, Dep't for Transp., ("DEFRA") *Consultation on the Commission's Proposal to Include Aviation in the European Union Trading Scheme*, Mar. 2007, p. 3.

²² *Id.*

²³ Press Release, EU Env'tl. Comm'n, *Questions and Answers on Aviation and Climate Change*, Nov. 20, 2006 (<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/341&format=HTML&aged=0&language=EN&guiLanguage=en>).

aircraft, carbon dioxide and nitrous oxide are two GHGs specifically sought to be reduced through the Kyoto Protocol.²⁴

Generally, the earth is made habitable by sunlight - energy that reaches the earth from the sun.²⁵ About thirty percent of sunlight is “scattered” back into space.²⁶ The remainder of sunlight is trapped in the earth’s atmosphere as infrared radiation, a slow-moving energy which will eventually escape to outerspace, unless it is trapped by the blanket of GHGs in the earth’s atmosphere.²⁷ Thus, excessive amounts of GHGs, most particularly carbon dioxide, are perilous to the environment because they increase infrared heat retention by preventing heat from escaping to outerspace.²⁸ The excess infrared heat trapped in the atmosphere warms the earth, causing global warming and eventually climactic change.²⁹

Aircraft emissions have faced increasing scrutiny because they are believed to be more dangerous to the environment than emissions from other modes of transportation. In addition to other harmful gases, an aircraft produces carbon dioxide emissions eight times more than that of a train.³⁰ Specifically, an aircraft produces 191 grams of carbon dioxide per passenger while a train produces 43 grams of carbon dioxide per passenger.³¹ Furthermore, the consequential effect of aircraft carbon dioxide emissions on global warming is increased by two to four times more than other industries because aircraft leave condensation trails at high altitudes.³² The EU

²⁴ Annex A to the Kyoto Protocol lists the following GHGs: Carbon Dioxide, Methane, Nitrous Oxide, Hydrofluorocarbons, Perfluorocarbons and Sulphur hexafluoride. Kyoto Protocol, *supra*, note 12, Annex A.

²⁵ UNFCCC, *The Greenhouse Effect and the Carbon Cycle* (http://unfccc.int/essential_background/feeling_the_heat/items/2903.php).

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ Energy Info. Admin., *Greenhouse Gases, Climate Change and Energy*, Apr. 2, 2004 (<http://www.eia.doe.gov/oiaf/1605/ggccebro/chapter1.html>).

³⁰ *Carbon Emissions, Travel & Leisure*, Nov. 27, 2007.

³¹ *EU Parliament Discusses Extending Emissions Trade to Aviation*, Nov. 12, 2007 (<http://news.xinhuanet.com>). A car produces 143 grams of carbon dioxide per passenger. *Id.*

³² *Aviation and Emissions Trading*, Oct. 12, 2007 (<http://www.euractiv.com/en/transport/aviation-emissions-trading/article-139728>).

is, therefore, concerned about the effect of aircraft carbon dioxide emissions on the earth's climate particularly because it has been estimated that EU aircraft account for nearly one-half of the worldwide aviation industry's carbon dioxide emissions.³³

Thus, the world has expressed its concern about the effect of large concentrations of anthropogenic gases present in the earth's atmosphere and the contribution of those excess gases to global warming. As recognized by the Kyoto Protocol and the EU ETS, aviation contributes to this environmental problem and a solution needs to be facilitated to control and reduce aviation-related emissions to stabilize the earth's climate.

The EU Proposal

“The objective of this proposal is to address the growing climate change impact attributable to aviation by including aviation into an emissions trading scheme.”³⁴ The existing EU ETS, the largest emissions trading scheme of its kind covering 12,000 emissions-producing installations within the EU, was set up in 2005 pursuant to the Kyoto Protocol to help EU Member States achieve Kyoto Protocol targets.³⁵ The EU describes its ETS as a flexible, market-based, cap-and-trade system³⁶ founded on a cost-effective theory: as demand for the right to release emissions increases, the price attached to that right will continue to soar so that the purchasers of the right will find it much more financially attractive to invest in reducing emissions rather than to continue to purchase the right to release.

³³ *EU Strikes Aviation Emissions Deal*, Dec. 21, 2007 (http://www.edie.net/news/news_story.asp?id=13974).

³⁴ *Including Aviation in the EU Emissions Trading Scheme – Joint NGO Statement on Key Improvements*, June 2007 (“NGO”), p. 1.

³⁵ European Parliament Post-Briefing, 12-15 Nov. 2007 (“EP Post-Briefing”), *Clear Skies Ahead: MEPs vote to Curb Airline Emissions by Including Them in European Trading Scheme*, Nov. 13, 2007 (http://www.europarl.europa.eu/news/expert/infopress_page/062-12900-316-11-46-910-20071109IPR12781-12-11-2007-2007-false/default_en.htm).

³⁶ DEFRA, *supra* note 21, p.6.

The EU ETS is divided into several year spans called Phases.³⁷ For each Phase, Member States must draft a National Allocation Plan (“NAP”) setting the cap or total amount of GHG emissions that each Member State can release each year during each Phase and allocating the total amount of GHG emissions that each company in the Member State subject to the ETS can release each year during each particular Phase.³⁸ Each allowance is worth one tonne of carbon dioxide emissions.³⁹ At the end of the year, each company subject to the ETS must surrender a number of allowances equal to the amount of emissions released.⁴⁰ Companies releasing more than their allocated emissions can purchase allowances from other companies while companies releasing less than their allocated emissions can sell (auction) their excess allowances to other companies in need of additional allowances.⁴¹

Companies subject to the EU ETS face non-compliance penalties, including paying fines and compensating the following year by returning allowances equal to the overuse (in addition to accounting for that year’s emissions and allowances).⁴² Each Member State is required to monitor its companies and their emissions, ensuring that no company under the ETS releases emissions without a proper amount of allowances to do so, and to report emissions within its State to the designated authority.⁴³

³⁷ EP Post-Briefing, *supra* note 35.

³⁸ EP Post-Briefing, *supra* note 35.

³⁹ European Parliament and Council, *Directive 32003L0087* (“Directive”), Article 13, Oct. 13, 2003.

⁴⁰ EP Post-Briefing, *supra* note 35.

⁴¹ DEFRA, *supra* note 21, p.6. Companies under Phase I of the EU ETS have been allowed to use Kyoto Protocol credits (with some restrictions) to meet commitments under the EU scheme. *Id.*

⁴² Janelle Veno, *Flying the Unfriendly Skies: the European Union’s New Proposal to Include Aviation in Their Emissions Trading Scheme*, *Journal of Air Law and Commerce*, Vol. 27, 2007, p. 672.

⁴³ *Directive 32003L0087*, *supra* note 39, Article 21. If a company subject to the EU ETS has excess allowances, it can save or “bank” those allowances for use during the next year. Brown Rudnick Berlack Israels LLP, *Emissions Trading (including RGGI): Questions and Answers*, Apr. 2007. However, all Phase I allowances expired on December 31, 2007 and cannot be used during Phase II but Phase II allowances will be “bankable” for use after 2012. *Id.*

Phase I of the EU ETS recently ended on December 31, 2007.⁴⁴ During Phase I, ninety-five percent of allowances were allocated free of charge.⁴⁵ Because so many allowances were given away, the value of allowances available for trading crashed.⁴⁶ The Phase I fine for non-compliance was set at 40 Euros per tonne of carbon dioxide emitted over the limit.⁴⁷

Phase II of the EU ETS commenced on January 21, 2008 and runs until 2012, which happens to coincide with the time frame for reducing emissions under the Kyoto Protocol. During Phase II, ninety percent of the allowances will be given free of charge.⁴⁸ The Phase II fine for excess emissions is much greater than the Phase I fine and is set at 100 Euros per tonne of carbon dioxide released over the limit.⁴⁹ The biggest change to the EU ETS in Phase II is the incorporation of the aviation industry.

To incorporate aviation into the existing EU ETS, the European Commission drafted a Proposal which set forth two start dates for the aviation industry: intra-EU flights would be subject to the ETS by 2011 and international flights would be subject to the ETS by 2012.⁵⁰ The European Commission's Proposal also sought to reduce carbon dioxide emissions to one hundred percent of the levels released between 2004 and 2006.⁵¹ On November 12, 2007, the European Parliament agreed with the European Commission's recommendation to incorporate aviation into the existing EU ETS and expressed preliminary approval of the Proposal.⁵² However, the European Parliament altered the Proposal to require airlines flying within the EU and all airlines

⁴⁴ DEFRA, *supra* note 21, p. 6.

⁴⁵ Directive 32003L0087, *supra* note 39, Article 10.

⁴⁶ *EU Emissions Trading Scheme*, Dec. 20, 2007 (<http://www.euractiv.com/en/sustainability/eu-emissions-trading-scheme/article-133629>).

⁴⁷ Directive 32003L0087, *supra* note 39, Article 16.

⁴⁸ *Id.*, Article 10.

⁴⁹ *Id.*, Article 16.

⁵⁰ EP Post-Briefing, *supra* note 35.

⁵¹ *Id.*

⁵² *Id.*

flying to and from EU airports to submit to the EU ETS by one start date, 2011,⁵³ and to reduce aircraft carbon dioxide emissions to ninety percent of emissions released between 2004 and 2006.⁵⁴ The Proposal was altered once again in December 2007 when the Council of Ministers approved the recommendation to include aviation into the EU ETS but set a 2012 start date for all flights and a reduction in carbon dioxide emissions to one hundred percent of the average emissions released between 2004 and 2006.⁵⁵ Thus, under the current Proposal, all flights are treated equally; but the aviation industry is treated unlike other industries because airlines are only required to maintain present levels of emissions rather than reduce emissions to a percentage of 1990 levels.

Otherwise, the treatment of airlines under the EU ETS is substantially the same as other industries: (1) airlines would be allocated a substantial number of free allowances; (2) at the end of each year, airlines would be required to surrender allowances matching in number to the carbon dioxide emissions released that year; (3) airlines would also be allowed to buy and sell allowances across all other sectors of industry subject to the EU ETS and would be permitted to use Kyoto Protocol allowances⁵⁶ to meet EU ETS targets; (4) each aircraft operator would be responsible for monitoring and reporting its own carbon dioxide emissions; and (5) each airline would be responsible for verifying its reports through an independent reporter.⁵⁷ The biggest difference in the treatment of airlines compared with other industries subject to the EU ETS is in

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ Press Releases, Europa Rapid, *Environment: Commission Welcomes Council Agreement on Aviation ...*, Dec. 21, 2007 (“Commission Welcomes Council Agreement on Aviation”) (<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1988&format=HTML&aged=0&language=EN&guiLanguage=en>).

⁵⁶ A potential problem exists with integrating aviation into the EU ETS and the manner in which Kyoto Protocol and EU ETS interact. Kyoto Protocol allowances are applicable to signatories and thus, are applicable to domestic aviation emissions of signatories, including EU member states. However, the Kyoto Protocol allowances would not be applicable to international aviation emissions involving non-signatories. See DEFRA, *supra* note 21, pp. 20-21. Thus, international airlines of non-signatories may suffer a disadvantage in the number and “type” of allowances they can procure to comply. *Id.*

⁵⁷ DEFRA, *supra* note 21, p. 11.

the allocation of the allowances, which, for airlines, would be done through an EU harmonized method rather than by each Member State, so as to equalize the treatment of airlines across the EU.⁵⁸ One further difference between airlines and other industries under the EU ETS is that noncomplying airlines face losing the right to fly to or from EU airports in addition to paying a significant year-end fine.⁵⁹

Exceptions to the EU Proposal include military flights (but not diplomatic or government flights), visual flight rule and circular flights, testing, training and rescue flights, and flights with takeoff weights less than 5700 kilograms.⁶⁰ As of December 20, 2007, the Proposal includes increased aircraft weight exemptions,⁶¹ an additional exemption for airlines with little traffic from, to or within the EU (developing countries with few flights to Europe) and a special reserve of free credits to be allocated to start-up or unexpectedly fast-growing airlines.⁶²

In order to become law, the EU Proposal must be voted on and approved by the European Parliament and the Council of Ministers. The EU debate about the parameters of the Proposal is expected to continue because the European Parliament supports greater restraint on emissions and an earlier start date for the incorporation of the aviation industry within the EU ETS⁶³ while the Council favors less stringent parameters for aviation, as evidenced by the December 2007 alterations. In any event, final approval of the EU Proposal is expected by the end of 2008.

The EU asserts that it seeks to incorporate aviation into its existing ETS to “show world leadership on climate change and to help meet an internal goal to reduce greenhouse gas levels

⁵⁸ *EU Parliament Discusses Extending Emissions Trade to Aviation*, *supra* note 31.

⁵⁹ Veno, *supra* note 42, p. 677. The EU argues that it can legally require international aviation participation in its ETS under the 1944 Chicago Convention, which grants each Convention Member State the authority to control its own airspace. *Id.*

⁶⁰ DEFRA, *supra* note 21, p. 19.

⁶¹ The “low weight aircraft” exception was altered to exclude flights weighing less than 20,000 kilograms. See James Kanter, *EU Moves To Reduce Aircraft Emissions*, Nov. 13, 2007.

⁶² Commission Welcomes Council Agreement on Aviation, *supra* note 55.

⁶³ *EU Parliament Discusses Extending Emissions Trade to Aviation*, *supra* note 31.

by at least twenty percent compared with 1990.”⁶⁴ However, it is at least arguable that the pressure to achieve target emissions reductions under the Kyoto Protocol is the chief impetus behind the EU’s attempt to incorporate the aviation industry within the EU ETS. German MEP George Jarzembowski has admitted that incorporating aviation “may not be the most effective tool to combat aviation emissions, but it is among the most politically expedient.”⁶⁵ The EU Commission’s Head of Unit for Clean Air and Transport further admits that Europe has agreed to a twenty percent reduction in greenhouse gases by 2020 which “has to come from somewhere.”⁶⁶ It appears, therefore, that the EU has decided that incorporating the aviation industry into the existing EU ETS by the end of the EU ETS Phase II and the Kyoto Protocol emissions reduction period will ensure that the EU reaches its emissions reduction targets.

The United States’ Position

The United States government has expressed staunch disapproval and criticism of the EU Proposal. According to the Federal Aviation Administration (“FAA”), the EU Proposal “[d]oesn’t go along with what the world community agreed to, which is that you should undertake this on the basis of mutual agreement.”⁶⁷ The United States argues that aviation-related carbon dioxide emissions should be regulated as a single standard promulgated through the International Civil Aviation Organization (“ICAO”).⁶⁸

⁶⁴ Reuters, Update 2, *EU Body Adopts Strict Rules for Airline Emissions*, Nov. 13, 2007.

⁶⁵ Madhu Unnikrishnan, *Aviation Daily*, Dec. 20, 2007 (www.aviationweek.com). German MEP Jarzembowski concedes that the “Single European Sky could ... yield more direct benefits in mitigating greenhouse gases.” *Id.*

⁶⁶ *Aviation and Emissions Trading*, Oct. 12, 2007 (<http://www.euractiv.com/en/transport/aviation-emissions-trading/article-139728>).

⁶⁷ Carl Burlison, Dir. of the Office of Env’t and Energy at the FAA, *Plan to Cut Jet Pollution Is Approved In Europe*, *N.Y. Times*, Nov. 14, 2007.

⁶⁸ ICAO is the global entity responsible for harmonizing international aviation. See Kyoto Protocol, *supra* note 12, Article 2.2. Clearly, the United States favors single regulatory standards, as illustrated by the United State’s Environmental Protection Agency’s recent denial of California’s right (and the right of sixteen other states) to regulate vehicle emissions within its own state on the basis that regional plans are ineffective and emissions control should be governed by a single national standard. See John M. Broder and Felicity Barringer, *E.P.A. Says 17 States Can’t Set Greenhouse Gas Rules for Cars*, *N.Y. Times*, Dec. 20, 2007. California agrees with the EU’s position: the right of a country to regulate emissions in its own airspace is consistent with international law and the UNFCCC.

Underscoring the FAA's position is the Kyoto Protocol's specific direction that ICAO alone has the responsibility for reducing international aviation-related emissions.⁶⁹ The United States asserts that the unilateral implementation of the EU ETS requirements on the international aviation industry violates the Chicago Convention of 1944, which requires all signatory countries (including the EU Member States and the United States) to acquire ICAO's approval before placing any charges on airlines flying into their airports.⁷⁰ The "charge" under the EU ETS comes in the form of purchasing allowances in excess of permitted emissions or paying a fine for non-compliance with the EU ETS.⁷¹ Thus, according to the United States, the EU's implementation of its Proposal with respect to international aviation without first securing ICAO's permission to do so is unlawful.⁷²

In apparent agreement with the United States' position, ICAO passed a resolution at its most recent Assembly in 2007 requiring each member to obtain an agreement with all other countries operating within its airspace prior to incorporating other countries' airlines into an emissions trading scheme.⁷³ ICAO's recent resolution appeared to depart from its previous position expressing support for the development of an open ETS for international aviation at its 2001 and 2004 Assemblies⁷⁴, frustrating the signatories to the Kyoto Protocol, like the EU. ICAO has been harshly criticized because having been identified as the entity charged with

GLOBE-Net, *Can Airlines Actually Reduce Their Emissions?*

(http://www.greenbiz.com/news/reviews_third.cfm?NewsID=36561).

⁶⁹ IATA Welcomes UN Guidelines on Emissions Trading, Feb. 21, 2007

(<http://www.asiatraveltips.com/print07.cgi?file=212-EmissionsTrading.shtml>).

⁷⁰ Veno, *supra* note 42, p. 677.

⁷¹ *Id.*

⁷² Environment News Serv., *Aviation Industry Rejects Europe's Climate Emissions Trading System*, October 2, 2007 ("Environment News Serv.").

⁷³ European Fed'n for Transp. and Env't, *EU Emissions Trading Plan Set for Takeoff Despite Transatlantic Rift*, Sept. 28, 2007. EU members made a reservation (a legal objection) against the resolution on the grounds of "market-based measures." *Id.*

⁷⁴ Ruwantissa Abeyratne, *Emissions Trading – Recommendations of CAEP7 and the European Perspective*, Air & Space Law, Vol. XXXII/4-5, Sept. 2007, n. 10.

implementing a global solution to reducing aviation-related emissions, it has failed to structure or implement a plan.⁷⁵

Although the ICAO delegates failed to agree to implement a greenhouse gas emissions trading scheme at the 2007 Assembly, the delegates did agree to investigate an “aggressive plan of action” through a newly formed group of senior government officials.⁷⁶ This group will examine the possibility of voluntary emission reductions, “technological advances in both aircraft and ground-based equipment, more efficient operational measures, improvements in air traffic management, positive economic incentives, and market-based measures” as tools to reduce greenhouse gas emissions.⁷⁷

Together with a global solution set forth by ICAO, the United States supports improvement in air traffic control to better control increases in aviation-related carbon dioxide emissions⁷⁸ and notes that during the period between 2004 and 2006, when air traffic was on the rise, the United States actually reduced jet fuel usage and decreased harmful emissions by millions of tons through those means.⁷⁹ The United States seeks to further reduce emissions per flight via more direct flights and by requiring aircraft to fly at altitudes more efficient for aircraft engines.⁸⁰ To this end, the FAA has recently launched an investigation into whether scheduling exceeds capacity at JFK and Newark airports and has asked major carriers for their scheduling reports for the spring and summer of this year.⁸¹ According to Megan Walklet-Tighe of the United States’ State Department of Office of Transportation, the EU plan is objectionable

⁷⁵ Environment News Serv., *supra* note 71. The Kyoto Protocol, Article 22 provides that Annex I signatories should work through ICAO for GHG reductions. See Kyoto Protocol, *supra* note 12, Article 22.

⁷⁶ Environment News Serv., *supra* note 71.

⁷⁷ Environment News Serv., *supra* note 71.

⁷⁸ Reuters, *US Could Limit Flights at New York’s JFK*, Sept. 25, 2007.

⁷⁹ Andrzej Zwanecki, *Aviation Emissions Best Tackled Through Cooperation, Innovation*, Aug. 3, 2007 (<http://www.america.gov/st/washfile-english/2007/August/20070803112519saikceinawz0.2952082.html>)

⁸⁰ *US Could Limit Flights at New York’s JFK*, *supra* note 78.

⁸¹ *Id.*

because it “does not include measures with the greatest potential for immediate and cost-effective emissions reduction, such as improvements in air traffic management”⁸² – the measures with which the United States has already proved successful in reducing emissions.⁸³

Therefore, although the United States acknowledges the need to reduce global aviation-related carbon dioxide emissions, the United States favors a global approach through ICAO in conformance with the Chicago Convention and the Kyoto Protocol together with advances in technology and improvement in flight management to better address the global problem of aviation-related carbon dioxide emissions.

The Airline Industry’s Response

The airlines have been under pressure to reduce emissions of carbon dioxide and other greenhouse gases from burning jet fuel for some time. But while airlines understand the problem, they view the EU Proposal as an ineffective regional attempt to control a problem that requires a global solution.⁸⁴ As pointed out by the European Regions Airline Association Director-General, airlines contribute no more than two percent of global emissions, compared with the nineteen percent contribution by lighting.⁸⁵ Like the United States, the “aviation industry strongly advocates a worldwide solution through ICAO.”⁸⁶ Not only do U.S. airlines oppose the EU Proposal, but EU airlines generally oppose it as well.⁸⁷ According to IATA, “170

⁸² Zwaniecki, *supra* note 78.

⁸³ It is the U.S.’s view that not only does the EU ETS fail to address the measures proven successful by the United States, incorporation of aviation into the EU’s ETS threatens the “Open Skies” Agreement between the EU and U.S., pursuant to which every U.S. and EU airline is authorized to fly between every EU and U.S. city without restrictions on flights, aircraft and routes. United States Dep’t of State, *U.S.-EU Air Transport Agreement*, Apr. 30, 2007 (<http://www.america.gov/st/texttrans-english/2007/April/20070430153653eafas0.6607935.html>). The Agreement, which is to begin next month, is expected to reduce costs by \$7 billion and increase transatlantic travel by twenty-four percent. See GLOBE-Net, *supra* note 67.

⁸⁴ *IATA Welcomes UN Guidelines on Emissions Trading*, *supra* note 68.

⁸⁵ *Airlines Call For More Sensible Carbon-Cutting Scheme*, June 6, 2007 (www.euractive.com).

⁸⁶ The International Aviation Transportation Association (“IATA”) and the Air Transport Association (“ATA”) favor an emissions trading scheme through ICAO. *IATA Welcomes UN Guidelines on Emissions Trading*, *supra* note 68; Environment News Serv., *supra* note 71; Veno, *supra* note 42, pp.682-83.

⁸⁷ *IATA Welcomes UN Guidelines on Emissions Trading*, *supra* note 68; Environment News Serv., *supra* note 71.

countries oppose [the] proposal [which airlines estimate] will impose billions in extra costs on an industry that makes a global profit of just \$5.6 billion.”⁸⁸

It is not surprising that airlines are worried about the EU Proposal. The airlines have acknowledged that compliance with the EU Proposal will be accompanied by skyrocketing costs.⁸⁹ The airlines estimate that compliance with the EU ETS will (1) cost \$60-90 billion between 2008 and 2022, (2) lower profits by \$55 billion between 2008 and 2022, and (3) prevent “green” investments⁹⁰ by wiping out profits. Airlines further argue that it will not be feasible to pass one hundred percent of these costs to consumers because air travel is price sensitive; increased ticket prices will result in less ticket sales, thereby contributing to a further reduction in industry profits.⁹¹ Conversely, the EU Environmental Commission expects airlines to pass on one hundred percent of the cost of compliance to passengers, estimating that ticket prices may rise by as much as \$12 by 2020.⁹²

EU airlines, in particular, are worried about the EU Proposal’s effect on competition and the resulting financial losses specific to EU carriers in the event that non-European carriers fail to participate.⁹³ Therefore, EU airlines support the inclusion of all airlines under the EU ETS as

⁸⁸ Dan Milmo, *We’ll Fight You All the Way, Airlines Warn EU Over Carbon Trading Plans*, Nov. 19, 2007 (<http://www.guardian.co.uk/business/2007/nov/19/theairlineindustry.carbonemissions>).

⁸⁹ *Airlines Call For ‘More Sensible’ Carbon-Cutting Scheme*, *supra* note 84. The cost to the airline industry will be “double the cumulative profit of Europe’s airlines over the past decade.” *Id.*

⁹⁰ Zwaniecki, *supra* note 78.

⁹¹ *Airlines Call For ‘More Sensible’ Carbon-Cutting Scheme*, *supra* note 84.

⁹² *EU Proposes CO2 Emissions Quotas for Airlines*, Dec. 20, 2006

([http://www.eubusiness.com/news_live/1166619602.37/?searchterm="Quotas%20for%20Airlines"](http://www.eubusiness.com/news_live/1166619602.37/?searchterm=)). It has also been asserted that the aviation industry could profit up to 2.7 billion in Euros under the EU ETS by passing costs along to passengers. *Airlines Set for 2.7 Billion Euros EU Emissions Profits*, Dec. 18, 2006 (www.epolitix.com/EN/News/200612/961bb6ea-e094-43a8-9e5a-54a94a862412.htm).

⁹³ *Airlines Call For ‘More Sensible’ Carbon-Cutting Scheme*, *supra* note 84. The General Manager of International Issues at the Association of European Airlines states. “Please, EU do not expose us to retaliation from third countries ... [which would] surly kill the industry.” *Id.* However, British Airways expresses its support for intra-EU flights but not international flights. Veno, *supra* note 42, p. 684.

well as the equal treatment of all airlines⁹⁴ and the equal treatment of airlines and other industries already within the EU ETS.⁹⁵

Although Air France believes the EU ETS may be the “most environmentally sound way of reducing the impact of air transport on climate change,”⁹⁶ airlines generally support improvements in technology as a means to reduce aviation-related carbon dioxide emissions,⁹⁷ noting that newer aircraft burn seventeen to thirty percent less fuel than older aircraft.⁹⁸ Like the United States government, airlines recognize that aviation delays caused by clogged airspace result in increased emissions.⁹⁹ According to IATA, European skies are controlled by thirty-four different air traffic control agencies (unlike the one agency controlling United States’ skies), resulting in inefficiencies and delays and increased emissions.¹⁰⁰ IATA favors the EU’s proposed “Single European Sky” Program which could streamline EU air traffic control into one agency and is projected to produce \$4.5 billion in savings and reduce emissions by twelve percent.¹⁰¹

As a further example of industry action, Richard Branson of Virgin Atlantic Airways, recognizes the importance of improving technology and air traffic management. Mr. Branson has dedicated his profits from Virgin Atlantic Airways earned over the next ten years (approximately \$3 billion) to the development of non-fossil fuels.¹⁰² In addition, Virgin Atlantic has ordered several fuel-efficient Boeing 787 Dreamliner Aircraft and plans to “launch the

⁹⁴ European Aviation Indus., *Joint Statement on Emissions Trading Scheme*, Oct. 13, 2006.

⁹⁵ *Airlines Call For ‘More Sensible’ Carbon-Cutting Scheme*, *supra* note 84.

⁹⁶ *Id.*

⁹⁷ *2.75 Billion Air Passengers By 2011: IATA*, Oct. 24, 2007 (<http://www.iata.org/pressroom/pr/2007-24-10-01.htm>).

⁹⁸ Matthew L. Wald and James Kanter, *Plan to Cut Jet Pollution Is Approved In Europe*, N.Y. Times, Nov. 14, 2007.

⁹⁹ *Id.*

¹⁰⁰ *Aviation and Emissions Trading*, *supra* note 65. IATA favors the “Single European Sky.” *Id.*

¹⁰¹ Milmo, *supra* note 87.

¹⁰² *Global Vision Awards*, Travel and Leisure, Nov. 27, 2007.

world's first clean-fuel commercial flight" in 2008.¹⁰³ Mr. Branson is also developing fuel efficient flying patterns, which, however, depend upon the adoption and implementation of the proposed "Single European Sky" Program to be effective.¹⁰⁴

Thus, like the United States government, the airline industry supports not only a global solution through ICAO but also improvements in aviation technology and air traffic control as the means to attack the global problem of increasing aviation-related carbon dioxide emissions rather than compelling the aviation industry to submit to the EU ETS.

The Environmentalists' Response

If left unchecked, environmentalists warn that aviation could become the industry responsible for the majority of carbon dioxide emissions while other industries comply with emissions targets. Environmentalist groups support the EU's intent with respect to the EU Proposal (original and current proposals) but criticize it as too weak.¹⁰⁵ Their point is that it is estimated that reductions in aircraft carbon dioxide emissions under the EU Proposal would amount to only three percent – less than one year's growth of emissions from aviation.¹⁰⁶

Environmentalists attack the EU Proposal as an insufficient measure to reduce aviation-related carbon dioxide emissions for many other reasons. First, advances in fuel efficiency lessening carbon dioxide emissions cannot keep pace with the projected increases in flights.¹⁰⁷ Second, the current EU Proposal, as approved by the EU Parliament, would now exempt jets weighing less than 20,000 kilograms or 44,000 pounds, which encompasses most business

¹⁰³ *Id.*

¹⁰⁴ *Id.* Continental Airlines passengers can keep track of the carbon impact of their trips while Delta Airlines sells offsets to its passengers at a cost of \$5.50 for domestic round-trips and \$11 for international round-trips. Story, *supra* note 7.

¹⁰⁵ Environment News Serv., *supra* note 71.

¹⁰⁶ *Aviation and Emissions Trading*, *supra* note 65.

¹⁰⁷ James Kanter, *supra* note 60.

jets,¹⁰⁸ representing an ever-increasing sector of the industry. Third, the EU Ministers should require tougher quotas for the airline industry so that the industry can “play its part” in addressing global warming and provide for itself as a sustainable industry.¹⁰⁹

Environmentalists insist on a stronger cap on allowances and auctioning of one hundred percent of aviation-related carbon dioxide emission allowances.¹¹⁰ Further, instead of limiting a solution to carbon dioxide emissions, environmentalists insist that non-carbon dioxide pollutants should also be presently addressed and restricted.¹¹¹ Because non-carbon dioxide emissions, *i.e.*, nitrous oxide, have particular in-flight harmful effects, restrictions on the “other” emissions should focus not only on take-off and landing emissions but also in-flight emissions.¹¹² In any event, environmentalists call for the incorporation of all departing and landing flights into the EU ETS at the same start date, preferably 2010.¹¹³

Environmentalists express disappointment with ICAO and the supporters of ICAO’s position, including the United States. Friends of the Earth, an environmentalist group, labeled the 2007 ICAO Assembly as the “Coalition of the Unwilling ... led by the United States ... joined by Canada, China, Saudi Arabia and Brazil.”¹¹⁴ Joel Vieira of Transport and Environment asserts, “[a]fter a shameful decade of obstruction and inaction, ICAO must be stripped of its environmental responsibility.”¹¹⁵ Environmentalists call ICAO’s position a “failure ... because it

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ NGO, *supra* note 35, p. 3.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ Environment News Serv., *supra* note 71.

¹¹⁵ Stephanie Switzer, *US Says European Aviation Emissions Trading Scheme To End Up As WTO Dispute*, Oct. 11, 2007 (<http://www.worldtradelaw.net/community/index.php?q=node/267>).

chooses to ignore the very significant growth in greenhouse gas emissions by airlines and the clear need for taxes, emissions changes or emission trading schemes.”¹¹⁶

In addition to a stronger global emissions trading scheme, environmentalist groups favor improvements in air traffic control with more direct routing, cessation of the VAT exemption and imposition of a fuel tax¹¹⁷ as a more complete means of reducing the impact of aviation-related emissions on climate change and global warming.

The Future

At the end of 2012, Phase II of EU ETS and the Kyoto Protocol will expire. At the United Nations climate change conference held in Bali in December of 2007, attendees agreed to negotiate a post-Kyoto Protocol international “climate regime” among the parties to the UNFCCC.¹¹⁸ The EU has already begun drafting Phase III of its ETS.¹¹⁹ The EU’s post-2012 Phase III Proposal strives to “strengthen, expand and improve” the existing EU ETS and to reduce EU emissions by at least twenty percent of 1990 levels by 2020.¹²⁰ The structure of Phase III of the EU ETS will differ greatly from the structure of Phase I and II. Under the Post-2012 Proposal, the EU will have one EU-wide cap on emissions rather than twenty-seven national caps, dispensing with the requirement for each Member State to develop a NAP.¹²¹ Like the method of allocation of allowances for airlines under Phase II, allowances under Phase III

¹¹⁶ Environment News Serv., *supra* note 71. The aviation industry strongly opposes imposition of an emissions tax, (*Aviation and Emissions Trading, supra* note 65) which the EU would be unable to impose without altering existing agreements other countries. See Veno, *supra* note 42, p. 685.

¹¹⁷ NGO, *supra* note 34, p. 4.

¹¹⁸ Press Release, Europa Rapid, *Climate Change: EU Welcomes Agreement to Launch Formal Negotiations on a Global Climate Regime for Post 2012*, Dec. 15, 2007 (<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/588&format=HTML&aged=0%3Cuage=EN&guiLanguage=en>).

¹¹⁹ Press Release, Europa Rapid, *Questions and Answers on the Commission’s Proposal to Revise the EU Emissions Trading Scheme*, Jan. 23, 2008 (<http://europa.eu/rapid/pressReleaseActio.do?reference+MEMO/08/35&format=HTML>).

¹²⁰ *Id.*

¹²¹ *Id.*

will be allocated pursuant to an EU-wide harmonized method.¹²² Other changes include a marked increase in the number of allowances available for auction (due to a marked decrease in the number of allowances allocated for free), the introduction of two new industries (producers of aluminum and ammonia) and the introduction of two new gases (nitrous oxide and perfluorocarbons).

In the United States, Senators Lieberman and Warner introduced Senate Bill 2191 entitled “America’s Climate Security Act” to the Senate last fall.¹²³ Most important to the issue herein is the Amendment to the Act which was introduced by Senator Lautenberg in December 2007.¹²⁴ The Amendment seeks to “require the Environmental Protection Agency to commission a study by the National Academy of Sciences to gather data on aviation’s contribution to greenhouse gas emissions.”¹²⁵ The Act and the Amendment will be put before the entire Senate for a vote between February and this summer.¹²⁶ Unlike the action being taken in the EU, *i.e.*, promulgating a plan to control and reduce aviation emissions, the U.S. remains in the investigation phase of the problem.

Thus, the world is continuing to investigate and implement solutions to control and reduce excessive concentrations of GHGs in the atmosphere (including those produced by the aviation industry) to protect the environment and combat climate changes.

Conclusion

The entire world now seeks a solution for reducing carbon dioxide emissions, but a workable solution for aviation related emissions has yet to be agreed upon by all parties. It

¹²² *Id.*

¹²³ Madhu Unnikrishnan, *Lieberman-Warner Climate Bill To Include Aviation*, Aviation Daily, Feb. 1, 2008 (<http://www.aviationweek.com/aw/generic/story.jsp?id=news/LIEB02018.xml&headline=Lieberman-Warner%20Climate%20Bill%20To%20Include%20Aviation&channel=comm>).

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.*

appears that all parties agree that improvements in aviation technology and air traffic control are desired to reduce carbon dioxide emissions. It also appears that all parties agree that an emissions trading scheme is a desirable means to reduce aviation-related carbon dioxide emissions. However, the parties cannot agree on the promulgator of the plan. In the EU's view, ICAO, the entity charged with seeking a global solution for aircraft emissions, has done little thus far to structure or implement a plan and this inaction justifies the EU's position to take matters into its own hands – perhaps as a means to achieve an environmentally conscious end or simply as a means to achieve its legally binding emissions reduction targets under the Kyoto Protocol.

In any event, the global debate about the EU's intention to incorporate the aviation industry into its ETS will continue until one of two things happens: (1) the EU abandons the plan and waits for ICAO to act; or (2) the EU implements its plan and risks facing trade sanctions and charges of violating international law by the international aviation community.