



Implementing an ICAO Market-Based Measure to Limit Carbon Pollution

By Pamela Campos and Annie Petsonk



On October 4, 2013, the 191-nation General Assembly of the International Civil Aviation Organization (ICAO) adopted a proposed resolution revising ICAO's environmental policies, including addressing climate change.¹ The resolution's

menu for reducing climate pollution includes a decision by ICAO to develop a global market-based measure (MBM) to keep net carbon emissions from international aviation at the same level starting in 2020.² The resolution directs ICAO's 36-member Council, with the support of member states, to finalize options for the MBM, and notes industry's proposal for an option that would include offsetting.³ The technical and legal work needed to implement the MBM is to be presented to the Assembly for decision at its next triennial meeting in 2016. While sharp differences remain among some ICAO parties over aspects of the resolution,⁴ its adoption means that ICAO will now begin crafting the world's first global sectoral cap on carbon pollution.

For more than a decade, parts of the aviation industry and some governments opposed mandatory steps to limit warming pollution. As the urgency for solutions increases and the reality of governmental action becomes tangible, stakeholders that previously resisted action now seek to design a program that affords industry the opportunity to grow without increasing net emissions or distorting markets. Indeed, industry is now demanding that ICAO adopt a global MBM.⁵ This, in turn, has opened a path for states to do so.

As nations begin the three-year task of system design, this article examines how the United States might implement an ICAO cap. Enacting new legislation is one option. But the value of early action, as well as current domestic politics, counsels exploring the use of already-available authorities granted by Congress to the Federal Aviation Administration (FAA) and the Department of Transportation (DOT). DOT and FAA have broad organic statutes that have already been used to implement ICAO standards and that provide authority for requiring compliance with standards implementing an MBM. By conditioning approval and renewal of air carrier certificates and other licenses on compliance with an ICAO MBM, the United States can efficiently and quickly implement an ICAO MBM without congressional action.⁶

A Note on Context

ICAO member states have wrangled over whether and how to address aviation's carbon pollution since 1997, when the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC)⁷ referred the issue to ICAO.⁸ After a decade with no clear action at ICAO,⁹ the European Union in 2008 enacted legislation amending its emissions trading system (EU-ETS) to include the emissions of all flights landing at or taking off from EU airports.¹⁰ Many airlines objected. A few fought it (unsuccessfully) in court,¹¹ and later took their fight to the U.S. Congress, which in 2012 enacted legislation authorizing the secretary of transportation to prohibit U.S. airlines from participating in the EU-ETS and directing the secretary to hold the carriers harmless from such a prohibition.¹² But a larger grouping, recognizing that the science of climate change was sound and that regulation was inevitable, opted to take a proactive stance on the design of a global system rather than simply battling piecemeal programs. Instead, they began to develop proposals for how ICAO might better address aviation's burgeoning carbon pollution.¹³

ICAO's Role: International Aviation Standards

International obligations under the Convention on International Civil Aviation, better known as the Chicago Convention,¹⁴ are articulated as "standards" that outline the obligations of State Parties, airports, airlines, air traffic controllers, and others. These standards, developed under the supervision of the ICAO Council, cover topics ranging from aeronautical charts to transport of dangerous goods. They are the key mechanism for achieving the Convention's underlying purpose: providing for "safe and orderly" international air transport. Critically, the Convention is designed to enable development and implementation of standards *without amending the Convention and without the need for ratification of amendments by State Parties*.¹⁵ The Convention's structure thus offers a fundamentally different approach to legal implementation than do a number of environmental treaties, e.g., the UNFCCC.

Standards are adopted by a two-thirds vote of the Council, which must then notify member states of the standards.¹⁶ While State Parties are not *required* to comply with the standards, they are obligated to "undertake[] to secur[e] the highest practicable degree of uniformity" consistent with those standards and practices,¹⁷ and must

notify ICAO if they do not comply.¹⁸ In practice, there is very broad compliance with ICAO standards.

The United States, a party to the Chicago Convention, is a charter member of ICAO and has long participated in the development and implementation of ICAO standards. Congress has directed both DOT and FAA to “act consistently with obligations of the United States Government under . . . international agreement[s]” when invoking their statutory authorities.¹⁹ The U.S. Court of Appeals for the District of Columbia Circuit (the D.C. Circuit) has recognized that at least some of ICAO’s standards are self-executing.²⁰ The institutional and legal machinery for establishment of ICAO standards thus allows the United States to implement them without returning to Congress each time a new standard is adopted. Instead, U.S. agencies negotiate the details of a standard and implement that standard under a variety of existing domestic authorities using the approval granted when the United States ratified the Convention.

DOT’s and FAA’s Authority to Implement ICAO Standards

FAA, DOT, and their predecessor agencies have been implementing ICAO standards since at least 1952.²¹ While both agencies and the Environmental Protection Agency (EPA) often use issue-specific statutory authority in doing so, DOT and FAA also implement ICAO standards *relying solely on their organic authority*.²²

DOT and FAA both have expansive organic statutes enabling regulation of aviation for the public’s benefit. DOT is obligated to ensure that those engaged in commercial aviation act “in the public interest and consistent with public convenience and necessity.”²³ FAA, meanwhile, is tasked with “promot[ing] the safe flight of civil aircraft in air commerce.”²⁴ These obligations are broad in nature and rooted in a long history of public utility regulation wherein administrative agencies are established to promote both public and commercial interests by regulating in the public interest.

Both agencies have promulgated numerous regulations to comply with ICAO standards using only their organic authority. For example, FAA’s flight deck doors security standards refer only to FAA’s general authority to provide for the safety of aviation,²⁵ as do FAA’s pilot certification regulations to establish second-in-command pilot type rating/qualification procedures.²⁶ To provide conformity with Annex 14 to the Chicago Convention, FAA has proposed regulations requiring safety management systems at airports, citing FAA general statutory authority.²⁷ In addition, to establish conformity to ICAO standards relating to Annex 1 (Personnel Licensing), Annex 6 (Operation of Aircraft), and Annex 8 (Airworthiness of Aircraft), FAA and DOT

under their general authorities have established guidelines requiring audits of foreign airlines conducting code-share service with U.S. airlines.²⁸

In other instances, when promulgating regulations that implement ICAO standards, DOT has referred to both its general authority and congressional mandates to participate in international negotiations on a particular subject. For example, DOT’s hazardous materials transport regulations²⁹ implement rules consistent with ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air.³⁰ They are implemented under both DOT’s general authority and the specific authority granted by Congress in 49 U.S.C. § 5120 authorizing DOT to participate in the development of international standards for hazardous materials.

Implementing an ICAO-Developed MBM Under Current U.S. Law

As the United States proceeds with standards to limit carbon pollution from cars, trucks, power plants, and industrial sources, implementation of an ICAO standard establishing an MBM for reducing carbon pollution from aviation constitutes a critical step for protecting the safety and competitiveness of civil aviation. DOT and FAA can ensure that goal is met by requiring compliance with such a standard as a condition of receiving or maintaining air carrier certification because such compliance is necessary to protect the public interest and ensure the safety of civil aviation.

Authorizing Action: The Public Interest and Safety Determinations

Air carriers operating in the United States must hold an air carrier certificate from DOT and an air operating certificate from FAA.³¹ The secretary of transportation is authorized to include in an air carrier certificate those terms he “finds may be required in the public interest.”³² When considering whether to grant an air operating certificate, the FAA administrator is required to consider “the duty of an air carrier to provide service with the highest possible degree of safety in the public interest.”³³ An air carrier that intentionally violates DOT or FAA regulations is in violation of the terms of its certificate of public convenience and necessity and risks suspension or revocation of its operating authority.³⁴ Central to implementation of an ICAO MBM for greenhouse gases (GHGs) would be a determination by DOT that action to limit GHG emissions from aircraft is in the public interest, or by FAA that such action is required to ensure the safety of aviation.

In its 2012 legislation on the EU-ETS, Congress directed DOT and FAA to use their authorities to pursue, through negotiations, a worldwide approach to addressing the environmental impact of carbon pollution from aviation.³⁵ On June 18, 2013, the president of the United States and other leaders called on ICAO to agree “at the Assembly in September 2013 on an ambitious package related to both

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market-based and non-market based measures to address rising aviation emissions.”³⁶ One week later, the president, in a landmark speech, made clear that addressing climate change was critical to protecting our national interests.³⁷

Congress’ mandate that DOT and FAA engage in negotiations at ICAO and the president’s emphasis on climate change are much needed. Our nation’s recent experiences with fire, drought, flood, and storm surge demonstrate painfully the risks posed by climate change. These include the risks that climate change presents for aviation safety. Higher temperatures reduce air density, reducing lift and contributing to flight cancellations or more restricted payloads, especially at high-altitude airports.³⁸ Intense heat can cause runways to buckle.³⁹ Increased precipitation and sea level rise can submerge runways, disrupting air travel or forcing temporary airport closures.⁴⁰ More intense tropical storms damage or temporarily close airports.⁴¹ Increased wildfires in drought-susceptible regions reduce visibility and can close airports.⁴² In far northern locations, such as Alaska, where air transport use is disproportionately high, warming temperatures have a deleterious impact on airstrips built on permafrost and undermine runway foundations.⁴³ All of these risks create significant safety concerns for civil aviation.

The U.S. government has confirmed these impacts: in 2009, EPA issued findings concluding that greenhouse gases endanger public health and welfare.⁴⁴ In addition, federal agencies conducting required cost-benefit analyses must incorporate assessments of the damages associated with carbon pollution.⁴⁵

Consideration of environmental impacts in “public interest” determinations for aviation is not new. In 1969, the D.C. Circuit held that “questions of environmental impact are proper ‘public interest’ questions in [DOT’s] certification inquiry.”⁴⁶ The court reasoned that issuing a certificate “which would substantially increase the . . . degree of air pollution . . . would be contrary to the spirit and the letter of the Federal Aviation Act.”⁴⁷ Notably, the existence of “certain other governmental departments [that] have been given the explicit authority to consider the various aspects of environmental impact specifically” does not limit DOT’s authority to consider such impacts in its certification decisions.⁴⁸

In addition, participation in an ICAO MBM is consistent with nonsafety factors that DOT must consider when making public interest determinations.⁴⁹ For instance, an MBM could lead to better coordination among air carriers because they would have an incentive to maximize the efficiency of their operations. Reducing warming pollution from aircraft would also promote adaptation in response to the needs of commerce and the national defense because the United States could demonstrate that its actions to reduce carbon pollution help to address economic and security concerns. Participation in an ICAO MBM standard could strengthen the competitiveness of U.S. airlines, enabling them to pair

improvements in fleetwide fuel efficiency with the flexibility of cost-management tools like offsetting.

Together, these factors—congressional direction, presidential statements, formal agency findings, cost-benefit considerations, safety concerns, and security and competitiveness benefits—provide strong support for a conclusion that participation in an MBM established by ICAO is in the public interest and a critical step to protect the safety of aviation.

Implementation, Compliance, and Enforcement of an ICAO MBM

The shape of regulations requiring compliance with an ICAO standard will necessarily depend on the details of such a standard (or standards). However, experience in the United States establishing MBMs for other air pollutants demonstrates that key elements must include, at a minimum, an emissions cap, reporting requirements, a registry, accountability for compliance, and mechanisms for transparency. DOT and FAA already have authority for some of these elements, while ICAO partnership with private organizations, already a frequent occurrence, could enable others.

Both DOT and FAA have authority to take actions “necessary to carry out this part [49 U.S.C. §§ 40101 et seq.], including conducting investigations, prescribing regulations, standards, and procedures, and issuing orders.”⁵⁰ DOT has authority to collect transportation information that “the Secretary decides will contribute to the improvement of the transportation system of the United States.”⁵¹ FAA already has extensive recordkeeping regulations that could be extended to address MBM compliance.⁵² Both DOT and FAA may amend, suspend, or revoke air carrier and/or operating certificates in the event of noncompliance with U.S. regulations.⁵³ Violation of FAA regulations also risks criminal liability, even for recordkeeping and reporting violations.⁵⁴ These authorities provide a foundation for reporting and accountability.

Other elements necessary to implement an MBM, such as registries, offset providers, and third-party verification entities, could be certified by ICAO. If, as frequently occurs with other ICAO standards, a set of MBM standards is designed to give State Parties flexibility to implement standards directly or designate private sector actors to do so, then the agencies can promulgate regulations that allow airlines to utilize private sector institutions to facilitate their participation in the MBM, provided the regulations provide for strong transparency and compliance requirements to ensure quality, performance, and a level playing field.

Private entities routinely provide services required by ICAO standards. For example, medical examinations and flight crew training can be provided by nongovernmental organizations that meet ICAO standards.⁵⁵ Meteorological services can be and are provided by private-sector services.⁵⁶ Annex 9’s requirements for provisions of facilities to exchange funds at border

crossings can be met by public or private-sector agencies.⁵⁷ Required search and rescue services⁵⁸ and aeronautical information services⁵⁹ can be provided by private entities. Even mission-critical services such as air-traffic control can be and are provided by private entities.⁶⁰ With this foundation, it is not difficult to imagine certain services, such as registries or verification, being provided by private entities that meet ICAO standards, subject to strong integrity safeguards.

Implementation of any environmental regulation must provide adequate credibility and accountability in order for stakeholders and the public to have confidence that policy goals of pollution reduction are achieved. DOT and FAA would need to ensure that regulations implementing an ICAO standard provide the necessary transparency and accountability. The federal government has no lack of models for doing so, but ICAO, DOT, and FAA would need to build from a currently shaky foundation to do so. Much of FAA's and DOT's data are protected from public records statutes, and access to ICAO data and functions is often cripplingly expensive or completely lacking. Involvement of other U.S. agencies, particularly EPA, could enhance the credibility of the undertaking. EPA has significant expertise in market-based program design and has existing partnerships with FAA, DOT, and ICAO in the development of emissions standards for aircraft and, domestically, for cars and trucks.

Conclusion

The ICAO Assembly's adoption in October 2013 of a resolution launching a three-year process to finalize a market-based mechanism limiting carbon pollution from international aviation is a significant step forward after more than a decade of inaction. DOT's and FAA's existing statutory authority provides these agencies with the legal authority necessary to implement such a system in the United States.

Endnotes

1. Int'l Civil Aviation Org., *Report of the Executive Committee on Agenda Item 17 (Section on Climate Change)* (Oct. 3, 2013) [hereinafter *Executive Committee Report*], http://www.icao.int/Meetings/a38/Documents/WP/wp430_en.pdf.

2. *Id.*

3. *Id.* While various commentators have suggested different approaches to address the issue of international civil aviation's climate pollution, see, e.g., B. Havel & G. Sanchez, *Toward an International Aviation Emissions Agreement*, 36 HARV. ENVTL. L. REV. 352 (2012), world leaders in June 2013 called on ICAO to agree "at the Assembly in September 2013 on an ambitious package related to both market-based and non-market based measures to address rising aviation emissions." Press Release, White House, G-8 Leaders Communique (Lough Erne, June 18, 2013), <http://www.whitehouse.gov/the-press-office/2013/06/18/g-8-leaders-communicue>.

4. At the conclusion of the Assembly's contentious debate on the resolution, a number of states, while agreeing to the resolution's adoption, formally expressed reservations on various aspects of the resolution.

5. See Press Release, Int'l Air Transp. Ass'n, Historic Agreement on Carbon-Neutral Growth (June 3, 2013), <http://www.iata.org/pressroom/pr/Pages/2013-06-03-05.aspx>; *Executive Committee Report*, *supra* note 1. Environmental nongovernmental organizations also support a global MBM. See *id.*

6. The Environmental Protection Agency (EPA) also has statutory authority to limit aviation carbon pollution, including an obligation to establish a carbon dioxide emissions standard under Section 231 of the Clean Air Act, 42 U.S.C. § 7571, and various other Clean Air Act authorities that address stratospheric impacts and data collection needs.

7. United Nations Framework Convention on Climate Change, 1771 UNTS 107, S. Treaty Doc No. 102-38.

8. See Kyoto Protocol on Climate Change to the UN Framework Convention on Climate Change, art. 2.2.

9. For a detailed history of the issue in the UNFCCC and ICAO, see T. JOHNSON ET AL., A NEW FLIGHT PLAN: GETTING CLIMATE MEASURES FOR AVIATION OFF THE GROUND: BACKGROUND REPORT FOR THE CONFERENCE HELD IN BRUSSELS, 7 FEB. 2012 (2012), http://www.edf.org/sites/default/files/A_New_Flight_plan_report_Feb2012.pdf.

10. See Directive 2008/101/EC (inclusion of aviation activities in the greenhouse gas emissions allowance trading system established by Directive 2003/87/EC).

11. Case C-366/10, ATA et al. v. Sec'y of State for Energy & Climate Change, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62010CJ0366:EN:HTML> (Dec. 21, 2011) (judgment of the court (Grand Chamber)), http://ec.europa.eu/clima/news/docs/2011100601_case_c366_10_en.pdf (Oct. 6, 2011) (opinion of Advocate General Kokott).

12. European Union Emissions Trading Scheme Prohibition Act of 2011, Pub. L. No. 112-200, 126 Stat. 1477. Presumably, to hold U.S. airlines harmless, the secretary would impose compensating charges on European carriers, using his authority under 49 U.S.C. § 41310 and related measures, originally codified as the International Air Transportation Fair Competitive Practices Act (IATFPCA) of 1974.

13. See, e.g., Press Release, Int'l Air Transp. Ass'n, Press Release No. 40 (Sept. 22, 2009), <http://www.iata.org/pressroom/pr/Pages/2009-09-22-01.aspx>; and see Executive Committee, *Addressing CO2 Emissions from Aviation* (Int'l Civil Aviation Org. Working Paper A38-WP/68 Revision No. 2, 2013), http://www.icao.int/Meetings/a38/Documents/WP/wp068_rev2_en.pdf.

14. Convention on International Civil Aviation [hereinafter Chicago Convention], 15 U.N.T.S. 295, T.I.A.S. No. 1591 (ratified by the U.S. Aug. 9, 1946).

15. "One of the Convention's most enlightened features is ICAO's ability continually to devise and update SARPs, thereby keeping the treaty, within certain constraints, reflective of best practices in technical and safety matters." B. Havel & G. Sanchez, *Do We Need a New Chicago Convention?*, 11 ISSUES IN AVIATION L. & POL'Y 7 (2011).

16. Chicago Convention, art. 90.
17. *Id.* art. 37.
18. *Id.* art. 38. A majority of parties can disapprove the standards. *Id.* art. 90.
19. 49 U.S.C. § 40105(b).
20. *See* *British Caledonian Airways v. Bond*, 665 F.2d 1153, 1160–61 (D.C. Cir. 1981).
21. 17 Fed. Reg. 7,962–02 (Aug. 27, 1952).
22. FAA enforces emissions standards for aircraft after EPA has established such standards domestically under 42 U.S.C. § 7571.
23. 49 U.S.C. § 40101(a).
24. *Id.* § 44701.
25. Flightdeck Door Monitoring and Crew Discreet Alerting Systems, 72 Fed. Reg. 45,629 (Aug. 15, 2007) (codified at 14 C.F.R. §§ 121.313, 121.582, 121.584) (implemented to meet Annex 6, Part 1, Chapter 13, Provision 13.2 and authorized under FAA's authority to “promote the safe flight of civil aircraft,” 49 U.S.C. § 44701).
26. Second-in-Command Pilot Type Rating, 70 Fed. Reg. 45,624 (Aug. 4, 2005) (codified at 14 C.F.R. §§ 61.5, 61.55) (U.S. authority: DOT and FAA general authority, airman certificate authority, compliance with international agreements, 49 U.S.C. § 40105).
27. Safety Management System for Certificated Airports, 75 Fed. Reg. 62,008 (Oct. 7, 2010) (*citing* FAA's general authority, 49 U.S.C. §§ 106, 44701, 44702, 447113; FAA authority to require and amend certificates for airports, § 44709; and DOT authority to set standards for navigational aids, 49 U.S.C. § 44719).
28. OFFICE OF SEC'Y, DEP'T OF TRANSP. & FED. AVIATION ADMIN., CODE-SHARE SAFETY PROGRAM GUIDELINES (2006), http://www.faa.gov/air_traffic/international_aviation/media/code_share_guidelines.pdf.
29. *See, e.g.*, Hazardous Materials: Fuel Cell Cartridges and Systems Transported on Board Passenger Aircraft in Carry-On Baggage, 73 Fed. Reg. 23,362 (Apr. 30, 2008) (codified at 14 C.F.R. § 171.7).
30. *See* INT'L CIVIL AVIATION ORG., TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR, 2007–2008 EDITION § 8.1.1.2(f) (2008).
31. 49 U.S.C. § 41101(a)(1) (DOT); *id.* § 44711(a)(4) (FAA).
32. *Id.* § 41109(a)(2)(A).
33. *Id.* § 44702(b)(1)(A).
34. 14 C.F.R. § 201.7.
35. *See* European Union Emissions Trading Scheme Prohibition Act of 2011, Pub. L. No. 112-200, 126 Stat. 1477. For proposals on such a worldwide approach, *see, e.g.*, Havel & Sanchez, *supra* note 3, at 352; A. Tsai & A. Petsonk, *Tracking the Skies: An Airline-Based System for Limiting Greenhouse Gas Emissions from International Civil Aviation*, 6 ENVTL. LAW. 763 (June 2000), http://www.edf.org/documents/704_TrackingTheSkies.pdf.
36. G-8 Leaders Communique, *supra* note 3.
37. As a legal matter, his statement was a deliberate reference to the national interest determination required under Executive Order 13337 as a predicate to decisions about

international pipelines. He said:

But I do want to be clear: Allowing the Keystone pipeline to be built requires a finding that doing so would be in our nation's interest. And our national interest will be served only if this project does not significantly exacerbate the problem of carbon pollution. The net effects of the pipeline's impact on our climate will be absolutely critical to determining whether this project is allowed to go forward. It's relevant.

President Barack Obama, Remarks on Climate Change at Georgetown University, Washington, DC (June 25, 2013), <http://www.whitehouse.gov/the-press-office/2013/06/25/remarks-president-climate-change>.

38. NAT'L RESEARCH COUNCIL, POTENTIAL IMPACTS OF CLIMATE CHANGE ON U.S. TRANSPORTATION 88 (2008) [hereinafter NRC IMPACTS]; *see also* NAT'L RESEARCH COUNCIL, ADAPTING TO THE IMPACTS OF CLIMATE CHANGE 48 (2011) [hereinafter NRC ADAPTATION].

39. NRC IMPACTS, *supra* note 38, at 88.

40. *Id.* at 91–92, NRC ADAPTATION, *supra* note 38, at 83.

41. NRC IMPACTS, *supra* note 38, at 92. Hurricane Katrina significantly damaged Louis Armstrong New Orleans International Airport (\$15.2 million in damages, 17 days of closure) and Gulfport-Biloxi International Airport (\$44 million in damages, 12 days of closure); some smaller airports were closed for over a month. *Id.* at 110.

42. *Id.* at Annex 3-1.

43. *Id.* at 88; NRC ADAPTATION, *supra* note 38, at 99.

44. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).

45. *See* Executive Order 12,866 (Sept. 30, 1993) (requiring assessment of costs and benefits of regulations); Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12,866, Interagency Working Group on Social Cost of Carbon, May 2013, http://www.whitehouse.gov/sites/default/files/omb/infores/social_cost_of_carbon_for_ria_2013_update.pdf.

46. *Palisades Citizens Ass'n v. Civil Aeronautics Bd.*, 420 F.2d 188, 192 (D.C. Cir. 1969).

47. *Id.*

48. *Id.*

49. The list, enumerated at 49 U.S.C. § 40101(a), is nonexclusive (“ . . . the Secretary of Transportation shall consider the following matters, *among others*, as being in the public interest and consistent with public convenience and necessity . . .”).

50. 49 U.S.C. § 40113(a).

51. *Id.* § 329(a).

52. *Id.* § 41709 and implementing regulations.

53. *Id.* § 44709(b)(1)(A).

54. *Id.* § 46310(a).

55. Chicago Convention, Annex 1, art. 1.2.4.4 (medical exams), Annex 2 (Flight Crew training).

56. *Id.*, Annex 3, art. 2.1.4.

57. *Id.*, Annex 9, art. 6.5.

58. *Id.*, Annex 12, arts. 2.3.5, 2.5.

59. *Id.*, Annex 15, art. 3.1.1(c).

60. *Id.*, Annex 11. Air traffic control in Canada is handled by NAV Canada, a privatized entity.