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Aviation and Climate Change

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Aviation and Climate Change: Impact and Initiatives – A Recap of Global Consensus to Tackle the Aviation Emissions Problem

INSIDE THIS ISSUE:

While there are still individuals who doubt whether global climate change is real, and if so, whether it is caused or exacerbated by human activity, public awareness of the gravity of climate change is pervasive. In October 2016, the first global scheme to curb aviation emissions was agreed to in a landmark United Nations (UN) accord. At the 39th General Assembly of the International Civil Aviation Organization (ICAO), the Member States agreed to combat aircraft CO2 emissions. Known as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), this first-of-its-kind global market mechanism to deal with a single industry's carbon emissions growth will come into effect after 2020. Agreeing to CORSIA is an important first step for the aviation industry, aiming to curb CO2 emissions from its airlines and aviation operations. The aviation industry understands that implementing CORSIA is crucial to achieving emissions reductions.

This Newsletter continues our discussion of CORSIA and why States are being urged to volunteer in its initial voluntary phases.

Our Newsletter will also recap worldwide discussions on why there is a need for market-based measures (MBM) to address greenhouse gas (GHG) emissions in the aviation sector.

Applauding CORSIA – How far have aviation climate change negotiations and international commitments come?

Airlines and aircraft manufacturers have long faced pressure to reduce CO2 emissions and other GHGs from burning jet fuel, and the aviation industry strongly advocated a worldwide solution. In 2003, the EU determined the climate crisis to be an immediate threat and developed its own plan to take action through its EU ETS (Emissions Trading Scheme) – the first international cap-and-trade system for emissions as a means to limit or reduce carbon emissions within the EU. Companies subject to the cap-and-trade were allowed to release a certain amount of CO2 emissions (cap) and to trade allowances with other companies subject to the scheme to make up for excess emissions or to sell unused allowances (trade). Under the EU ETS, each allowance to emit CO2 is equivalent to 1 tonne of CO2.

The EU Parliament drafted a proposal to incorporate the international aviation industry into this existing ETS. The proposal drew controversy because all industries subject to the then existing EU ETS, unlike aviation, were static industries within the EU and subject to only EU control. Aviation, on the other hand, is an industry subject not only to international law but also to the control of governments worldwide, which were unwilling to yield to unilateral actions of the EU. The proposal was criticized by EU and non-EU countries for its potential for adverse economic impact, as well as by environmentalists for being weak. It was, however, agreed by governmental and industry players alike that aircraft emissions were dangerous to the environment, more so than other modes of transportation. Discussions to curb CO2 emissions therefore continued, and renewed focus was put upon the Kyoto Protocol's (discussed below) direction to ICAO that the agency is alone responsible for reducing international aviation-related emissions.

The EU ETS became law on October 13, 2003 under Directive 2003/87/EC and incorporated aviation under Directive 2008/101/EC dated November 19, 2008 (Aviation Directive). As more fully set forth below, while the EU ETS is in effect, it has temporarily excluded non-EU Member States aviation-related activities from compliance.

The UNFCCC, The Kyoto Protocol and ICAO's Role – A Brief Background

United Nations
Framework Convention on Climate Change

First adopted in 1992 at the "Earth Summit," the United Nations Framework Convention on Climate Change (UNFCCC), an international environmental treaty which came into force in 1994, was the first attempt to obtain international agreement to stabilize GHGs and address climate change. The UNFCCC is a voluntary, information-sharing framework through which countries share information on GHGs and related national policies. In 1997, at the UNFCCC's 3rd conference, the Kyoto Protocol was adopted. Kyoto was considered to be the most far-reaching agreement on the environment and sustainable development ever adopted – it gave legal bite to the UNFCCC's teeth. Under the UNFCCC, Conferences of the Parties (COPs) would meet to discuss how to achieve the aims of Kyoto and to set emission targets for developed countries, which are binding under international law. Currently, 192 countries have ratified the Kyoto Protocol (though the US is a signatory of the UNFCCC, it did not ratify Kyoto).

The parties to Kyoto agreed to work with ICAO to establish aspirational GHG reduction goals. The aviation industry, likewise, strongly advocated a worldwide solution through ICAO, the entity charged under Article 2(2) of the Kyoto Protocol with the responsibility for regulating international aircraft emissions.

Inclusion of Aviation in the EU ETS and the decision to "Stop the Clock"

The EU ETS had been operational since 2005, but starting under the 2008 EU Directive on the inclusion of aviation in the EU ETS, all flights (EU and non-EU) landing at or taking off from any airport within an EU Member State had to surrender emission allowances equal to the emissions created from an entire flight.

International airlines, led by those in the US and China, vigorously opposed the inclusion of aviation in the ETS and challenged its legality in the European Court of Justice (ECJ). The ECJ, in a 2011 decision (Directive 2008/101), found the scheme legal and that the EU had expressly provided for uniform application of its allowance trading scheme to all aircraft operators (strictly complying with the non-discrimination provisions of bilateral air service agreements with non-EU States). Following the ruling, in 2012, China, still against the inclusion of aviation into the EU ETS, began prohibiting its airlines from participating (objecting in part because carbon cost is calculated over the length of the entire journey, not just within EU airspace).

In November 2012, the US passed legislation essentially prohibiting any US aircraft operator from participating (EU-ETS Prohibition Act of 2012). Largely due to such direct international opposition, the EU announced it would **"stop the clock"** on its ETS and look to ICAO to address the aviation emission problem. In 2014, the EU Parliament voted to **"stop the clock"** until December 2016. As of July 2017, the clock remains stopped as the EU considers whether ICAO has achieved meaningful action.

ICAO's task to solve the aviation emissions problem through a global market-based mechanism

Without bemoaning the delays and procrastinations since the Kyoto Protocol of 1997, when the ICAO 38th Assembly convened in October 2013, a consensus agreement[1] to proceed with a roadmap towards a decision on a global MBM was reached. Known as an "agreement to agree," it mirrored the approach taken by the UNFCCC and the Kyoto Protocol. Essentially, there was consensus that an accord would be made during the next ICAO Assembly. The 39th Assembly, which was to take place in 2016, would be pivotal for the aviation industry. It was here that ICAO would develop a global MBM for international aviation and finalize years of Member States' discussions on climate change. Implementation of the scheme from 2020 would be part of a "basket of measures" that included "technologies, operational improvements and sustainable alternative fuels to achieve ICAO's global aspirational goals."[2]

The 38th Assembly agreement, in an action that was largely attributed to developing States (led by Russia, China and India), eliminated the inclusion of foreign aircraft operators in the EU ETS. Europe therefore limited the scope of its ETS to intra-EU flights only and accepted a reduced authority to regulate carbon emissions. While it accepted a limitation on its powers, the EU, along with the rest of the aviation industry and world leaders, anticipated the 39th Assembly in 2016.

CO2 Emissions Reduction Goals and the Aviation Industry – A first for any international transport sector

The aviation industry itself had undertaken efforts to address global warming. In 2008, the aviation industry set forth the world's first global transport sector climate action framework[3] after agreeing upon a set of ambitious goals to address concerns regarding global climate change. The three targets to mitigate CO2 emission from air transport were as follows:

1. Improve Average Annual Fuel Efficiency by 1.5% from 2009 to 2020;
2. Stabilize Net Aviation CO2 Emissions at 2020 Levels through Carbon-Neutral Growth; and
3. Reduce Aviation's Net CO2 Emissions to 50% of what they were in 2005 by 2050.[4]

The framework was based on these three goals and underpinned by four pillars of climate action (outlined below).

- Technology Innovation: Each generation of aircraft is around 20% more fuel efficient, and over the next decade airlines will invest $1.3 trillion in new planes. Sustainable alternative aviation fuels, already being used on a small scale in commercial flight, has the potential to cut emissions by up to 80% compared to traditional jet fuel.
- Operational Improvements: Fleets are designed to be lighter and more efficient and by using air traffic control techniques to save emissions (such as landing using a continuous descent into an airport, thus saving at least 150 kg of CO2 per flight or adding wingtip devices to aircraft to reduce fuel use by 4%).
- Infrastructure Efficiencies: By shortening flight time by even a minute, the savings would amount to at least 100kg of CO2 per flight and by reformed air traffic management systems in the US and EU, there would be significant emission cuts.
- Smart Economic Measures: Includes working with governments to design a global MBM that accounts for emissions only once and ensures passengers do not face multiple layers of taxation.[5]

(source: https://aviationbenefits.org/environmental-efficiency/our-climate-plan/)

These reduction goals were the first for *any* international transport sector. In attempting to reach these goals, ahead of ICAO standards, aviation sectors, from airlines to airports, to companies that rely heavily on aircraft for their operations have shown a commitment to reducing their carbon footprints. For example, efficiencies can be found by cutting the weight carried on board aircraft, establishing more efficient flight patterns, reducing taxiing on runways, using electrical powered vehicles on the ground to position aircraft, enhancing airports to reduce energy consumption and fossil fuel use in their buildings and operational activities, and development of an air traffic system that gives greater autonomy to individual flights without compromising safety. By recognizing that a shift from fossil fuels to renewable energy is a key part of the future, airlines have also begun investing with manufacturers to foster the development of biofuels.

Meanwhile, various nations, individually and in concert, have taken steps to address CO2 emissions within their borders

Key aviation markets, like China, the EU, and US considered implementing mechanisms for cutting CO2 emissions. China, the world's biggest emitter of climate changing GHG, in 2015, agreed to start the world's largest carbon trading scheme by 2017. Chinese President Xi Jinping met with then President Obama at the White House to announce they would establish an economy-wide mechanism for putting a price on CO2 emissions and encourage big emitters to develop alternative ways to generate energy. The US was not as successful in accomplishing a similar initiative and faced political challenges to implementing a cap-and-trade scheme. Despite this opposition, the US Environmental Protection Agency (EPA) sent out a positive signal that aviation CO2 emissions would be regulated in the US.

In July 2015, the EPA issued a draft finding that GHG emissions from commercial aircraft indeed contribute to the air pollution causing climate change and were, therefore, a danger to public health and welfare.[6] The endangerment finding included an Advanced Notice of Proposed Rulemaking (ANPRM) to notify the public that the EPA intended to adopt ICAO's prospective CO2 emission standards for the aviation industry in the US. Under the Clean Air Act,[7] such an endangerment finding requires, for the first time, that commercial airlines in the US be regulated according to their environmental impact.[8]

By 2016, the EPA finalized[9] its determination under the Clean Air Act that GHG emissions from certain aircraft engines (small piston-engine planes used for recreational purposes and military aircraft excluded) indeed contributed to the pollution "that causes climate change and endangers Americans' health and the environment."[10] The EPA findings for CO2, methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) noted each contributed to GHG pollution and that these represented the largest driver of "human-caused climate change."[11] The EPA's then Acting Assistant Administrator for Air and Radiation, Janet McCabe, further noted "addressing pollution from aircraft is an important element of the US efforts to address climate change … Aircraft are the third largest contributor to GHG emissions in the US transportation sector, and these emissions are expected to increase in the future… [the] EPA has already set GHG standards for cars and trucks and any future aircraft engine standards will also provide important climate and public health benefits."[12]

(source: https://www.epa.gov/newsreleases/epa-determines-aircraft-emissions-contribute-climate-change-endangering-public-health)

The EPA stopped short of issuing emission standards for aircraft engines with its final determination as it anticipated a decision on standards for the aviation industry from ICAO.

US aircraft regulation standards under the EPA and the international community under ICAO

The EPA and the FAA "traditionally work[ ] within the standard-setting process of ICAO's Committee on Aviation Environmental Protection (CAEP) to establish international emission standards and related requirements, which individual nations later adopt into

domestic law in fulfilment of their obligations under the Convention on International Civil Aviation (Chicago Convention)."[13] Pursuant to the Chicago Convention, Member States, like the US, comply with agreed upon ICAO standards. The EPA endangerment findings repeated plans to incorporate ICAO standards, but over six months into the Trump administration, there is still no word about adoption of ICAO standards from either President Trump or Scott Pruitt, the EPA Administrator. Based on the Trump administration's anti-regulation agenda, some uncertainty exists about what will happen in the aftermath of the aircraft emission endangerment.[14] Regardless of US law, aircraft manufacturers must comply with ICAO standards in order for their aircraft to operate internationally.[15]

Exclusion of aviation from the Paris Agreement

At the UNFCCC's COP21 (Conference of Parties) meeting, also known as the 2015 Paris Climate Conference, 195 States agreed to an ongoing process to make commitments to reduce GHG emissions. This accord is internationally recognized as the "Paris Agreement."[16] At the heart of the Paris Agreement was the statement of intent (for the first time in an international climate agreement) to hold global warming to below *2*°C and to pursue limitation of the temperature rise to 1.5°C.

The Paris Agreement was a non-binding, bottom-up approach that did not make INDCs (intended nationally determined contributions) from States (whether developed or developing) legally binding – they were simply "welcomed." This approach made it possible for most States to sign the climate agreement and to maximize the pledges.

Large emitters (such as the US, China and India) could make commitments more ambitious than they otherwise might have done and almost all 195 parties pledged non-binding targets or INDCs. Though the content of emissions reduction commitments were voluntary, the Paris Agreement underpinned NDCs (nationally determined contributions) with a set of procedural requirements – such as rules for submitting information on how a commitment was formulated and for monitoring, review and verification of performance. These rules applied equally to developed and developing countries.

Parties were encouraged to submit new NDCs by 2020, and to revise these NDCs every 5 years thereafter. There were also to be reviews of the targets under the Paris Agreement every 5 years, with the first review in 2018 (two years prior to the Paris Agreement taking effect).

The Paris Agreement was again brought to the forefront when President Trump announced his intention for the US to exit the landmark climate accord. Throughout the 2016 US election, the Paris Agreement was a contested topic; then candidate Trump said he would "ditch" it and favored the continued use of fossil fuels, such as coal. This campaign promise culminated in June 2017 when President Trump decided to withdraw from the climate agreement. The decision was condemned at home and abroad, and was viewed as a decision that would live in infamy.

"Withdrawal from the climate agreement is a betrayal of scientific fact, economic opportunity, and moral leadership," said US Senator Ed Markey.

"Future generations will look back on President Trump's decision as one of the worst policy moves made in the 21st century," said US Senate Minority Leader Chuck Schumer.[17]

"While the US decision is disheartening, we remain inspired by the growing momentum around the world to combat climate change and transition to clean growth economies," said Canadian Prime Minister Justin Trudeau.

"The decision made by US President Trump amounts to turning their backs on the wisdom of humanity," said Japanese Environment Minister Koichi Yamamoto. He added, "I'm very disappointed… I am angry." [18]

Pope Francis, who openly supports the Paris Agreement and is the author of Laudato Si' (a work dedicated to the environment) presented his book to President Trump when he visited the Vatican a week prior to President Trump's decision. When announcing the US's exit to the Paris Agreement, President Trump suggested that the US was treated unfairly under the Agreement by citing a slew of cherry-picked statistics and disputed accounts. The President challenged other nations to go back to the drawing board to renegotiate commitments under the Paris Agreement to make what he felt would be a "fair" deal, but world leaders made it clear in various statements they have no interest in renegotiating. Officials from many US states and cities, as well as business leaders, have coordinated plans to support the UN's climate change accord and fulfill the Paris Agreement. "America will honor and fulfill the Paris Agreement by leading from the bottom up – and there isn't anything Washington can do to stop us," said Michael Bloomberg, the former New York City major who now serves as the UN's special envoy on cities and climate change.[19]

Michael Bloomberg, left, with France's President Emmanuel Macron and Paris Mayor Anne Hidalgo (June 2017)

It is important to note that neither the Paris Agreement, nor the Decision Text which accompanied it, refers to aviation emissions. This is because, under Article 2(2) of the Kyoto Protocol to the UNFCCC, States pursuing a limitation or reduction of GHG emissions need to work through ICAO – the UN agency to whom the aviation emissions problem was left.

The 39th Assembly of ICAO: Regulation (from 2020) of Aviation Emissions – CORSIA, a process in motion

As mentioned earlier, during the 39th Assembly of ICAO in Montreal, on 6 October 2016, an agreement on CORSIA was reached. In global media headlines it was announced that a process was now set in motion to curb aviation emissions. CORSIA came weeks before the 2015 Paris Agreement to fight climate change entered into force on 4 November 2016. At the 39th Assembly, 191 Member States agreed to formulate rules for the global MBM system[20] in which airlines and other aviation operators would establish policies by 2020 to achieve carbon-neutral growth through carbon-offsetting (in lieu of a cap-and-trade system or a carbon emission tax).

During the nearly two-week long 39th ICAO Assembly, Member States agreed on the form, and, to some extent, on the operation of an MBM to deal with the aviation emissions problem. The decision that came out of the 39th Assembly was hailed as a global first – the world's first MBM for dealing with climate change from *any* industrial sector. Tasked with addressing aviation emissions since 1997 under the Kyoto Protocol, ICAO, during this 2016 Assembly, approved a global MBM that would limit and offset emissions from the aviation sector with the goal being carbon-neutral growth from 2020 onward.

CORSIA was outlined to be implemented in phases, as follows:

1. Pilot phase from 2021 to 2023 with voluntary participation from Member States to opt in
2. First phase from 2024 to 2026, also with voluntary participation
3. Second phase from 2027 to 2035, which will include most States except those least developed, small island states and countries with a small amount of international air traffic.

(source: https://www.icao.int/Meetings/CORSIAHQ17/Documents/2-1_Explanation_Resolution%20A39-3%20Part%201_V02.pdf)

Over 65 States announced their intention to participate in CORSIA from the outset of the pilot phase commencing 2021, including the US and China (the world's largest emitters) and all EU Member States. In an IATA (International Aviation Transportation Association) Press Release (dated October 6, 2016 – the day the historic agreement was reached), Alexandre de Juniac, IATA's Director General and CEO, said "Aviation is a catalytic driver of social development and economic prosperity – it is the business of freedom making our world a better place. This agreement ensures that the aviation industry's economic and social contributions are matched with cutting-edge efforts on sustainability. With CORSIA, aviation remains at the forefront of industries in combatting climate change."

CORSIA was formulated as a route-based approach; one that was designed to provide equal treatment of all aircraft operators on a given route.[21] In other words, there is no discrimination under CORSIA based on the nationality of the air operator or carrier. Additionally, CORSIA only applies to international flights.

Despite global consensus for CORSIA, there has been criticism. Some have raised concerns that the Agreement does not represent cutting-edge efforts on sustainability (CORSIA is not a mechanism for emission reductions but, rather, offsetting emissions), and critics contend that CORSIA offers little incentive for change because it lacks legal certainty and environmental safeguards.

By 2018, ICAO is expected to finalize the technical details, produce their standards, and formulate rules for enforcement of CORSIA. In anticipation of this, the European Commission (EC) in February 2017 released a proposal to amend the EU ETS. Titled, "Proposal for a Regulation of the European Parliament and of the Council amending Directive 2003/87/EC to continue current limitations of scope for aviation activities and to prepare to implement a global market-based measure [GMBM] from 2021,"[22] the proposal recommends continuing with the EU ETS for aviation, covering flights between airports in the EU, and to discuss further implementation of GMBMs in light of the progress achieved by the 39th ICAO Assembly and the Paris Agreement.

As stated in the EC's reasons for and objectives of the Proposal:

> To provide further momentum to international discussions on the remaining rules and governance necessary for the implementation of the GMBM it is proposed to continue the reduced scope application of the EU ETS (*i.e.*, to flights between aerodromes located within the EEA, as set out in Regulation No 421/2014) beyond 2016. Once there is more clarity about the nature and content of the legal instruments adopted by ICAO for the implementation of the GMBM as well as about the intentions of our international partners regarding the implementation of the GMBM, a further assessment and review the EU ETS for the post-2020 period will be carried out. This will also take due account of the necessary consistency with the economy wide commitment taken by the EU under the Paris Agreement and its agreed objective of reducing GHG emissions domestically by 40% by 2030 compared to 1990 levels.
>
> To provide legal certainty for compliance with the ETS in 2017, it is important that this proposal is agreed between the European Parliament and Council swiftly and ideally by the end of 2017.[23]

The EC's Proposal before Parliament and the EU Council, seeks to extend the deadline for their EU ETS to 30 April 2018. As stated in Article 5 and 9 of the Proposal:

> In the light of the resolution adopted at ICAO's 39th Assembly in October 2016 on the implementation of a global market-based measure from 2021 to offset international aviation emissions above 2020 levels, it is considered appropriate to continue the existing derogation pending further progress on the design elements and the implementation of the global market-based measure. In this regard, the adoption of Standards and Recommended Practices by ICAO to complement that Resolution and implement the global system is planned for 2018… It is essential to ensure legal certainty for aircraft operators and national authorities in view of the surrender deadline of 30 April 2018 specified in Directive 2003/87/EC.[24]

While the EU ETS scheme continues in its current form, Member States await approval in Parliament of the EC Proposal by the end of 2017, and they remain prepared for any possible amendments to the ETS that might come.

As of May 2017, 70 States, representing more than 87.7% of international aviation activity, announced their intention to participate voluntarily in CORSIA.[25] During the first half of 2017, a series of ICAO Regional Seminars were given worldwide to assess the readiness of Member States for CORSIA by sharing information on implementation. In total, 431 participants from 92 States and 16 International Organizations participated in the 2017 ICAO Regional Seminars.[26]

As part of ICAO's mission that "No Country Be Left Behind," these seminars gave States the opportunity to identify measures that would improve fuel efficiency and reduce emissions, and they allowed ICAO access to a means of achieving future aspirational goals of CO2 reduction.[27] It was noted that participating Member States will have the co-benefit of reducing emissions from aviation not only internationally but domestically as well. In the Summary and Closing Remarks of the May 2017 ICAO Seminar on CORSIA, held in Montreal, ICAO Secretary General Dr. Fang Liu, thanked participants for their input, highlighted developments under the UNFCCC and the Paris Agreement and stressed the need for more training and information on CORSIA requirements.[28] It was also anticipated at the Seminars that the ICAO Conference on Aviation Alternative Fuels will convene from 11-23 October 2017 in Mexico City, to develop further a policy framework for sustainable alternative fuels.[29]

No Gaps

Progress on developing CORSIA since the 2016 ICAO 39th Assembly has been "positive," says Michael Gill, Director Aviation Environment at IATA, but "for CORSIA to really work, it has to be applied on a global basis … If there are gaps in the scheme then it's not the global measure we pushed for, so we need to work now to ensure there are no gaps." [30]

Since the US's announced exit from the Paris Agreement, airlines have continued to affirm their commitment to CORSIA. The US remains committed to CORSIA but with it's withdrawal from the Paris Agreement, questions loom as to whether the US will seek also to retreat from the 2021 voluntary phase. Organizations such as the trade group Airlines for America, IATA, and carriers such as American Airlines and United Airlines, have reiterated their support for the deal. [31] But, the Trump administration has not decided whether it will remain committed.

In an email to reporters at Reuters, a US State Department spokeswoman said "that the aviation agreement [CORSIA] was under review, as well as regulatory policies agreed by the Obama administration" and there was no deadline for action. [32]

Also, in response to inquiries from the news organization Air Transport World, "a State Department spokesperson said the Paris Accord and CORSIA 'are separate international agreements with different implications' and Trump's Paris decision 'does not signal the US position on CORSIA. However, the US position on CORSIA is 'under review' and the review will likely last 'for some time,' … 'While this review is under way, the United States will continue to engage constructively on CORSIA's further development, informed by our airlines, who continue to support CORSIA, and our technical experts'." [33]

IATA director-general, Alexandre de Juniac insisted CORSIA can stay on course after the US pulled out of the Paris Agreement. [34] "We understand that our US members are strongly committed to maintain in CORSIA as it is … to avoid having a patchwork of different regulations, taxations, different financial systems … that would tremendously complexify operations and increase cost," he stated. [35] De Juniac however, admitted IATA was still "waiting for the next announcement" and perhaps "the next tweet." [36]

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[1] ICAO, "Report of the Executive Committee on Agenda Item 17, Section on Climate Change," Assembly – 38th Session, 24 September to 4 October 2015, available at http://www.icao.int/Meetings/a38/Documents/WP/wp430_en.pdf.

[2] www.greenaironline.com, "ICAO States reach agreement on roadmap towards a global MBM but Europe suffers defeat over EU ETS," 4 October 2013, available at http://www.greenaironline.com/news.php?viewStory=1762.

[3] Air Transport Action Group, "Climate Action Takes Flight," available at https://aviationbenefits.org/environmental-efficiency/our-climate-plan/.

[4] IATA, Fact Sheet: Climate Change, available at http://www.iata.org/policy/environment/Documents/iata-factsheet-climatechange.pdf

[5] Air Transport Action Group, "Climate Action Takes Flight," available at https://aviationbenefits.org/environmental-efficiency/our-climate-plan/.

[6] US Environmental Protection Agency, Federal Register, Vol. 80, No. 126, 1 July 2015, "Proposed Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution that May Reasonably Be Anticipated to Endanger Public Health and Welfare and Advanced Notice of Proposed Rulemaking; Proposed Rule," available at http://www.gpo.gov/fdsys/pkg/FR-2015-07-01/pdf/2015-15192.pdf.

[7] Clean Air Act, available at http://www.epw.senate.gov/envlaws/cleanair.pdf; *see also* US Environmental Protection Agency Summary of Clean Air Act, available at http://www2.epa.gov/laws-regulations/summary-clean-air-act.

[8] US Environmental Protection Agency, Regulatory Announcement, "EPA Takes First Steps to Address GHG Emissions from Aircraft Engines," June 2015, available at https://www.epa.gov/newsreleases/epa-takes-first-steps-address-greenhouse-gas-emissions-aircraft.

[9] US Environmental Protection Agency, Federal Register, Vol. 81, No. 157, 15 August 2016, "Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollutions that May Reasonably Be Anticipated to Endanger Public Health and Welfare; Final Rule," available at https://www.gpo.gov/fdsys/pkg/FR-2016-08-15/pdf/2016-18399.pdf.

[10] US Environmental Protection Agency, Headquarters News Release, "EPA Determines that Aircraft Emissions Contribute to Climate Change Endangering Public Health and the Environment," available at https://www.epa.gov/newsreleases/epa-determines-aircraft-emissions-contribute-climate-change-endangering-public-health.

[11] *Id.*

[12] *Id.*
[13] US Environmental Protection Agency, Federal Register, Vol. 81, No. 157, 15 August 2016, "Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollutions that May Reasonably Be Anticipated to Endanger Public Health and Welfare; Final Rule," available at https://www.gpo.gov/fdsys/pkg/FR-2016-08-15/pdf/2016-18399.pdf.
[14] Shanks, Brett A, "EPA's Endangerment Finding for Aircraft Emissions: How Should the Airline Industry Respond?," The Air & Space Lawyer, v. 30, no. 1, 2017.
[15] *Id.*
[16] United Nations, "Paris Agreement," Conference of the Parties Twenty-first session Paris, 30 November to 11 December 2015, available at https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf. The Paris Agreement contains 29 legally binding articles, binding commitments, but it does not contain legally binding obligations on any state to meet emissions reduction targets. The Paris Agreement is accompanied by a 20-page "*Decision Text,"* in which the COP adopted the Paris Agreement under the UNFCCC and opened for signature at the Agreement signing ceremony on 22 April at the UN headquarters in New York.
[17] "U.S. and global leaders react to Trump's exit from Paris Climate Change pact," available at http://www.politico.com/interactives/2017/trump-paris-climate-change-agreement-reaction/.
[18] "Trump dismays, angers allies by abandoning global climate pact," Reuters, 2 June 2017, available at http://www.reuters.com/article/us-usa-climatechange-trump-idUSKBN18R1J4.
[19] NPR, "Bloomberg Promises $15 Million to Help Make Up for U.S. Withdrawal from Climate Deal," available at http://www.npr.org/sections/thetwo-way/2017/06/02/531238185/bloomberg-promises-15-million-to-help-make-up-for-u-s-withdrawal-from-climate-de.
[20] MBMs, as a mitigation tool, involve controlling the amount of carbon emissions to reduce the rate and magnitude of global warming. The most effective mitigation requires putting a price on carbon. The question for the ICAO 39th Assembly was whether to rely on quality-based or price-based instruments. A quality-based instrument is an ETS (the most common being the cap-and-trade system adopted by the EU). A price-based instrument is a carbon tax which sets a price on carbon, and emitters choose how much to emit. An ETS sets a total quota for emissions; emitters – the market – work out the price. Most economists prefer a tax while most countries/states do not.
[21] ICAO, "What is CORSIA and how does it work?," available at http://www.icao.int/environmental-protection/Pages/A39_CORSIA_FAQ2.aspx.
[22] Available at http://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-54-F1-EN-MAIN-PART-1.PDF.
[23] *Id.*
[24] *Id.*
[25] ICAO, Online CORSIA Tutorial, available at https://www.icao.int/environmental-protection/Pages/market-based-measures.aspx.
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[27] ICAO, Seminar on CORSIA, Part 2, available at https://www.icao.int/Meetings/CORSIAHQ17/Documents/1-2_Introduction_CORSIA_Part%20II_V06_DATB.pdf.
[28] ICAO, Summary and Closing Remarks by the Secretary General of the International Civil Aviation Organization, Dr. Fang Liu, to the ICAO Seminar on CORSIA, 11 May 2017, available at https://www.icao.int/Meetings/CORSIAHQ17/Documents/1-2_Introduction_CORSIA_Part%20II_V06_DATB.pdf.
[29] ICAO Seminar on CORSIA, Opening Remarks by the President of the ICAO Council, Dr. Olumuyiwa Bernard Aliu, 10 May 2017, available at https://www.icao.int/Meetings/CORSIAHQ17/Documents/2017%20ICAO%20HQ%20Seminar%20-%20PRES%20Opening%20Remarks_V04.pdf.
[30] Flight Airline Business, 4 June 2017, "CORSIA looming large," available at http://www.iata.org/events/agm/2017/Documents/Flight-Airline-Business-4June2017.pdf.
[31] Reuters, "U.S. airlines affirm aviation emissions deal after Trump's Paris pullout," available at https://www.reuters.com/article/us-airlines-iata-climatechange-idUSKBN18X2WX?il=0.
[32] *Id.*
[33] ATW, "Trump administration reviewing ICAO aviation emissions agreement,"9 June 2017, available at http://atwonline.com/eco-aviation/trump-administration-reviewing-icao-aviation-emissions-agreement.
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Aviation and Climate Change – Law & Policy is a collaborative effort of the firms of Condon & Forsyth LLP and HodgkinsonJohnson Pty Ltd. to address and analyze current topics related to the issue of aviation and climate change. Each edition aims to familiarize the reader with important climate change issues facing the aviation industry, serving as a resource for comprehensive analysis of potential solutions.

For more information or questions about the topics presented in this Newsletter, please contact us.

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