Aviation emissions policy statement and briefing note

GSF policy statement and briefing

September 2016
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Global Shippers’ Forum

The Global Shippers’ Forum (GSF) is the international body for global shippers established by over 20 national and regional shippers’ organisations worldwide. It fosters best practice and lobbies international policy makers across the globe. It believes that air freight is core to making supply chains operate efficiently and notes the challenge for industry to respond to the climate change challenge. GSF is also a member of the Global Air Cargo Advisory Group.

Further information on the value of air cargo to the global economy is available on a separate briefing note available on the GSF website.

www.globalshippersforum.com

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Aviation is not just about passenger travel but also about freight as it is an essential mode of transport for many shippers. The Global Shippers' Forum (GSF) is closely following the negotiations at the International Civil Aviation Organization (ICAO) to establish a Global Market-Based Measure (GMBM) to reduce aviation carbon emissions. Following the omission of aviation from the Paris Agreement, the sector is under more pressure than ever to conclude a deal on how to tackle CO\textsubscript{2} emissions.

This year, ICAO's Committee on Aviation and Environmental Protection (CAEP) has already agreed CO\textsubscript{2} standards for new aircraft, which will ensure greater fuel-efficiency. In addition to new plane efficiency measures, there is likely to be a move to use more biofuels, as well as objectives around better operational measures to improve fuel efficiency. However, there will still be significant carbon emission reductions to be made. Governments and policy stakeholders will be looking to the sector to agree its MBM this September at the 39th ICAO Assembly in Montreal after six years of international talks. The European Commission has temporarily postponed enforcement of including international aviation within its Emissions Trading Scheme until ICAO has reached agreement.

During negotiations, carbon offsetting has emerged as the GMBM that is likely to be adopted. This policy statement and briefing note examines ICAO's carbon agenda and its progress to setting a GMBM whilst also presenting how the air cargo industry is seeking to decarbonise. It also provides more details on GSF's views from a shipper perspective, summarised below.

- Aviation is a key enabler of economic growth and social development but the sector must make a contribution to tackling global warming
- Taking a global rather than regional approach is key and ICAO should continue to retain responsibility for reducing global aviation emissions
- The ICAO carbon certification standard for new aircraft clearly demonstrates the aviation industry's intent to reduce carbon emissions and this is welcomed
- Focusing on efficiency improvements and greater use of biofuels should help to reduce carbon emissions without causing major price increases for shippers
- Offsetting is the most politically attractive option for a GMBM. However, GSF is concerned that offsetting costs could be passed on to shippers and is calling for a GMBM that shares the cost burden between operators and customers
- An impact assessment should also be carried out in advance of any final agreement, to ensure the wider economic, social and environmental impacts are fully understood
Aviation is a key enabler of economic growth and social development but needs to develop in a sustainable manner. The sector currently represents two per cent of global carbon emissions¹, however its projected growth means emissions are expected to increase significantly in the coming decades.

Within the sector, air freight is an essential mode of transport for many industries, including high end manufacturing, engineering, pharmaceuticals and retailing. It can take a month to take goods from Europe to the Far East by ship, but just a day by air. There are also time-sensitive goods such as medicines and documents which cannot travel any other way.

In this policy statement and briefing note, GSF examines how the aviation is tackling carbon emissions at a global level through the International Civil Aviation Organization (ICAO) and the role industry is playing including the air cargo sector. It also sets out shippers' views on ICAO's proposed policy approach and their stake in the policy debate in recognition of the fact that shippers, as users of air freight, create the demand for international air freight services.

“Air transport is an essential component of our global society, a powerful driver of economic, social and cultural development and the safest and most efficient mode of mass transportation ever created.”

ICAO President Dr Olumuyiwa Benard Aliu, 2014

“The benefits of air travel should be available to all, but they should be provided as efficiently and cleanly as possible. The aviation industry should innovate new forms of clean energy. Airlines should take steps to offset emissions. I urge ICAO to stand at the forefront of pushing for dynamic progress.”

38th ICAO Assembly 2013, Ban Ki Moon, Secretary General, United Nations

“The aspirational goal of carbon-neutral growth beyond 2020, as expressed by countries under the International Civil Aviation Organization, is a promising start and a contribution to climate science, which requires the world to reach carbon neutrality as soon as possible in the second half of this century. To achieve this in aviation, every measure from operational improvements to technological developments to market-based measures and alternative fuels are needed.”

Christiana Figueres, Executive Secretary UNFCCC, Aviation Climate Solutions ATAG September 2015

Facts and figures

● Aviation supports 49 million tonnes of cargo annually

● From fresh fish to diamonds, aviation underpins nearly every aspect of modern life, carrying 35 per cent of all goods by value, and supporting 3.5 per cent of global GDP

● Air traffic will double by 2030

● Aircraft produced today are about 80 per cent more fuel efficient per passenger km than in the 1960s

● Projected increase in emissions of up to 4 per cent each year

¹ 1.3 per cent international aviation, 0.7% domestic aviation
Carbon (CO$_2$) emissions grew from approximately 185 megatonnes in 1990 to 448 Mt in 2010.

World air freight traffic, expressed in terms of revenue tonne-kilometres (RTKs), is expected to grow at an average annual growth rate of 5.2 per cent from 2010 to 2030, and at 4.6 per cent between 2030 and 2040.

**Cargo traffic forecast**

![Cargo traffic forecast chart](image)

Key: ■ Domestic   ■ International

*Source: ICAO Environmental Report 2013*
Impact of Paris 2015

The United Nations Framework Convention on Climate Change (UNFCCC) met during December 2015 in Paris (COP21) to finally agree a global deal for reducing carbon emissions to replace the Kyoto Protocol. At COP21, over 190 nations participated in the talks with 150 world leaders attending the opening day. The objective was to agree action that will prevent global temperatures raising by more than 2°C by the end of the century. As a sign of commitment 175 countries ratified the Paris agreement at a signing ceremony in New York in April 2016.

Aviation as an international sector is, like maritime transport, coming under increasing scrutiny on its efforts to reduce greenhouse gas (ghg) emissions. International aviation and maritime emissions are not covered under the existing Kyoto Protocol, due to the difficulty in allocating these emissions to specific countries. Prior to COP21, the UNFCCC negotiated on whether to set emission reduction targets for international aviation and shipping. At one stage provision was made in the negotiating text which covered finance for both ICAO and the International Maritime Organization (IMO) to develop a levy scheme to provide financial support for an adaptation scheme (Green Climate Fund).

ICAO has previously said that the international aviation sector should not be singled out as a source of revenue for all other sectors as it is likely to result in a shortage of resources to facilitate mitigation actions by aviation itself. The ICAO 37th Assembly strongly recommended that, where revenues are generated from Market-Based Mechanisms (MBMs), they should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions.

Immediately before COP21, ICAO adopted a formal declaration stating that it would ensure continuous leadership on environmental issues relating to international civil aviation, including ghg emissions. Commenting on UNFCCC’s proposal to incorporate aviation as a contributor to the Green Climate Fund, Dr Olumuyiwa Benard Aliu, ICAO Council President said “this is an unfair approach and one which is ultimately counter-productive given the historic and exemplary environmental performance of our sector and the significant socio-economic benefits it brings to states and regions all over the world.

During the two-week talks, further draft texts made reference to aviation and shipping needing to urgently address ghg emissions, however the final text removed any mention of the sectors. This has disappointed many policymakers and environmentalists, but there is no doubt that COP21 has added pressure to both IMO and ICAO to make more progress on carbon reduction.

During UNFCCC, there was a special transport day where stakeholders provided updates on how the different modes are engaged in climate change and carbon reduction. Additionally, side events were held by the aviation sector.

GSF view

The GSF strongly supports ICAO’s position that aviation should not be singled out as a source of revenue that will ultimately be paid by shippers with potential damaging impacts for the global economy. In formulating an offsetting GMBM approach GSF believes shippers should be fully consulted on the potential impacts to ensure that such arrangements are not damaging to international trade.

The responsibility for reducing global aviation emissions should remain with ICAO. However the absence of aviation (and maritime) in the final text for COP21 means that the sector will be under even closer scrutiny to reduce emissions.
In 1997, the Kyoto Protocol called for developed countries to pursue limitation or reduction of ghg emissions from ‘aviation bunker fuel’ (international aviation) working through ICAO.

ICAO has set a global aspirational goal of improving fuel efficiency by two per cent annually and stabilising carbon emissions at 2020 levels, though it is recognised that this is unlikely to deliver the level of reduction necessary.

ICAO also has a comprehensive strategy to progress technology, operations and alternative fuels to reduce emissions in the first place. The priority is to focus on operational and fuel efficiency measures first and then consider how an MBM could be applied to cover remaining emissions from aviation. ICAO has been considering the role of MBMs since 2001. It is under a global obligation to develop a GMBM by 2016. Initially, the GMBMs on the table were:

- mandatory offsetting
- mandatory offsetting with additional revenues
- a global emissions trading scheme

A global levy, although attractive because of its simplicity, was ruled out as it would require a level of pricing which could impact the growth of the sector, contrary to the Chicago Convention. See annex 1 for further information about ICAO’s structure and approach to developing a GMBM.

At the 38th ICAO Assembly, it was agreed that all three options were technically feasible and have the capacity to achieve ICAO’s environmental goals. The approach would deliver a global solution and prevent a patchwork of state and regional MBMs entering into force, whilst complementing a broader package of measures including technical, operational and infrastructure actions. However, during 2015, mandatory offsetting emerged as the most likely GMBM to be introduced. See annex 2 for ICAO’s guiding principles for designing and implementing GMBMs for international aviation.

At the 39th Assembly in late September, it is hoped a global agreement can be made by ICAO’s 191 member states on the GMBM.
Global Market-Based Measures

### Aviation GMBM in brief

<table>
<thead>
<tr>
<th>Objective</th>
<th>Meet ICAO’s aspirational goal of carbon neutral growth (CNG) in 2020</th>
</tr>
</thead>
</table>
| Scope     | • CO₂ emissions only  
            • International  
            • Every international flight is covered once to avoid double counting |
| Baseline  | International aviation emissions in 2020 |
| Approach  | One common approach across global sector |
| MRV       | Monitoring, Reporting and Verification of emissions to annually compare with baseline |
| Units     | Emission units must correspond to actual emission reductions |
| Registry  | Track compliance of every MBM participant |
| Enforcement | States to agree to relevant Assembly Resolution and set enforcement for operators |

### Costs of a GMBM

- ICAO analysis predicts impact on total global aviation sector revenue to be -0.7-1.4 per cent per annum during 2020-2035
- ICAO figures concern the aviation sector as a whole. There is no separate estimate of the cost impact on the air cargo market
- Year-on-year costs are likely to be very small at the beginning of the scheme, but could grow over time as emissions grow and, potentially, the carbon price increases
- Danger of competitive distortions as costs could impact operators unequally in the same market/on the same route

### Global offsetting

Greenhouse gases can be offset through the reduction, removal or avoidance of emissions. An offset ‘cancels out’ or ‘neutralises’ emissions from one sector through the reduction of emissions in a different sector or location. The standard measurement used is one tonne of CO₂, or CO₂ equivalent, known as an ‘emissions unit’ and would generally be created outside the international aviation sector such as in the power, agriculture and waste sectors. The units can be bought, sold or traded.

A global mandatory offsetting scheme for international aviation would require participants to acquire emissions units to offset carbon above an agreed target (expected to be exceeded). Emissions units would need to conform to agreed eligibility criteria to ensure adequacy of emissions reductions.

<table>
<thead>
<tr>
<th>Year</th>
<th>Phase</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>Monitoring, reporting and verification</td>
<td></td>
</tr>
<tr>
<td>2021-23</td>
<td>Pilot phase</td>
<td>100% sectoral share</td>
</tr>
<tr>
<td>2024</td>
<td>Purchase offsets for pilot phase</td>
<td></td>
</tr>
<tr>
<td>2024-26</td>
<td>Voluntary phase</td>
<td></td>
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<tr>
<td>2026</td>
<td>Purchase offsets for voluntary phase</td>
<td></td>
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<tr>
<td>2027-29</td>
<td>Mandatory phase</td>
<td></td>
</tr>
<tr>
<td>2030</td>
<td>Purchase offsets for 2027-2029</td>
<td></td>
</tr>
<tr>
<td>2030-32</td>
<td>Mandatory phase</td>
<td>80% sectoral share/20% operator share</td>
</tr>
<tr>
<td>2032</td>
<td><strong>Review whether phase should be continued beyond 2035</strong></td>
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<tr>
<td>2033</td>
<td>Purchase offsets for 2030-2032</td>
<td></td>
</tr>
<tr>
<td>2033-2035</td>
<td>Mandatory phase</td>
<td>30% sectoral share/70% operator share</td>
</tr>
<tr>
<td>2035</td>
<td><strong>Scheduled end</strong></td>
<td></td>
</tr>
<tr>
<td>2036</td>
<td>Purchase offsets for 2033-2035</td>
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ICAO released a final draft text of a Resolution in August 2016 to be put before the 39th Assembly. The new text moves away from an original position that the GMBM would be mandatory from 2021 with a phased approach starting with high income/high activity airlines first. This has now been replaced by an initial voluntary approach from 2021 whereby states will be encouraged to join the GMBM followed by a mandatory phase in 2027. Environmentalists have accused ICAO of watering down the global deal.

The key objective of the 39th Assembly will be to obtain sufficient voluntary commitment to the MBM so that the global deal is credible. So far US, Canada, China, Mexico, Indonesia and Marshall Islands have pledged to join the voluntary phase as well as the 44 member states of the European Civil Aviation Conference (ECAC).

The sectoral approach means that every airline operator will be required to offset the same percentage of emissions that go above the baseline. This is considered a simple approach rather than individual operators offsetting emissions based on their own performance as there were concerns this would unfairly target faster growing airlines. This could have been a deal breaker at ICAO. As the GMBM progresses there will be combination of sectoral share and operator share to reflect individual operator performance.

Least Developed Countries (LDCs), Small Island Developing States (SIDS), Land-locked Developing Countries (LLDCs) are exempt but are free to voluntarily join. There are also exemptions for small airlines.

Assuming the global deal is agreed, the technical elements will be determined from October after the 39th Assembly including the Motoring, Reporting and Verification (MRV) system and Emission Unit Criteria (EUC).

**GSF view**

GSF supports the accurate measurement and recording of fuel usage through the proposed MRV provisions. GSF believes transparency of CO₂ emissions is essential so that shippers can identify their aviation supply chain carbon footprint. This is a particular concern to shippers who have made scope 3 commitments under the GHG Protocol to report their transport and supply chain emissions.

Offsetting is the most politically attractive option during MBM discussions at ICAO. GSF would support the focus of industry on addressing carbon emissions via operational and fuel efficiency measures first and then using offsetting to address the remaining emissions. Carbon offsets are simple mechanisms to allow organisations to pay another body to develop a carbon-reduction activity or project, to compensate for their emissions. However, with airline margins tight and the economy only just in recovery, there is a concern that the fund for costs of offsetting will be passed on to customers. GSF calls for a GMBM that shares the cost burden between operators and customers, and for an impact assessment to be carried out in advance of any final agreement, to insure the wider economic, social and environmental impacts are fully understood.

**Airline view**

Offsetting is the airline industry’s preferred option, as it is the simplest to implement and administer and could be used by all countries. Many airlines have already launched their own programmes with voluntary schemes for passengers to purchase carbon offsets. Offsetting would bring benefits to developing countries too.

An Emissions Trading Scheme (ETS) was considered overly complicated due to the complexities of a global marketplace. Under pressure, the European Union (EU) has halted the inclusion of international flights in its own regional ETS to allow negotiations to take place at ICAO. Industry also believes that green taxes are not a viable solution because they are deemed to drain the sector of financial resources needed for investment into research and development.

The Air Transport Action Group (ATAG), a not-for-profit association representing all sectors of air transport industry with over 50 members worldwide, is supportive of ICAO’s work but believes that a global MBM should:

- maximise environmental integrity and be cost-effective
- minimise competitive distortion
- be easy to implement and administrate
- should not be used to raise general revenue or suppress demand for air travel
ICAO carbon reduction actions

ICAO has agreed on a comprehensive strategy to progress technology, operations and alternative fuels to reduce emissions.

- Investing in new technology (including sustainable aviation biofuels)
  - Each generation of aircraft is around 20 per cent more fuel efficient. Sustainable alternative aviation fuels are already being used on a small scale in commercial flights, and could have the potential to cut emissions by up to 80 per cent compared to traditional jet fuel. To date, 1,700 commercial flights from 22 airlines have used sustainable fuels. Drop-in fuels will be most viable in the short to medium term.

- Flying using more efficient operations
  - A move towards a lighter and more efficient fleet and using air traffic control techniques to save emissions, eg adding wingtip devices to an aircraft can reduce fuel use by 4 per cent

- Building and using efficient infrastructure
  - Reforming air traffic management systems can shorten flying times and save carbon through ICAO's Global Air Navigation Plan

GSF view

Focusing on efficiency improvements and greater use of biofuels is a positive development as they will contribute to reductions in CO\textsubscript{2} without causing major price increases for shippers (although biofuels do tend to be more expensive than conventional fuels, usage in aviation is likely to be capped at a low percentage and should not entail major cost rises).

CO\textsubscript{2} emissions from new aircraft: ICAO certification standard

ICAO has developed and agreed a certification standard for CO\textsubscript{2} emissions from aircraft through the Committee on Aviation Environmental Protection (CAEP) which aircraft manufacturers will need to adhere to. The standard will set limits for CO\textsubscript{2} emissions from aircraft in relation to their size and weight and integrate fuel efficient technologies into aircraft design and development. It will be a prime measure to reduce CO\textsubscript{2} emissions through technology. The system is based on three elements associated with aircraft technology and design.

- Cruise point fuel burn performance
- Aircraft size
- Aircraft weight

GSF view

The ICAO carbon certification standard for new aircraft clearly demonstrates the aviation industry’s intent to reduce emissions. It will ensure that manufacturers will design aircraft as fuel-efficiently as possible. This is vital if airlines are to reduce emissions as part of the overall industry objective to achieve carbon neutral growth from 2020.

Additional ICAO activities

ICAO Climate Finance Partnerships
To facilitate financing for mitigation saving actions, ICAO has established two partnerships – one with the European Commission (EC) and the other with the Global Environment Facility and UN Development Programme.

ICAO CO\textsubscript{2} Emissions Calculator
ICAO has introduced a CO\textsubscript{2} Emissions Calculator to allow passengers to estimate the emissions attributed to their air travel. It is simple to use and requires only a limited amount of information from the user. The methodology applies the best publicly available industry data to account for various factors such as aircraft types, route specific data, passenger load factors and cargo carried.

ICAO Fuel Savings Estimation Tool (IFSET)
The tool assists Member States with estimating fuel savings and CO\textsubscript{2} emissions reduction from operational improvements. It is consistent with the models approved by CAEP and aligned with the Global Air Navigation Plan.
The aviation sector has recognised the need to address the global challenge of climate change and, under IATA, has established ambitious targets to reduce carbon emissions from aviation.

- A cap on aviation carbon emissions from 2020 (carbon-neutral growth)
- An average improvement in fuel efficiency of 1.5 per cent from 2009 to 2020
- A reduction in carbon emissions of 50 per cent by 2050, relative to 2005 levels

IATA’s position is that the aviation industry is confident that technology, operations and infrastructure will provide long-term solutions for aviation’s sustainable growth. However, IATA recognises that some form of GMBM may be needed to fill any remaining emissions gap. Any GMBM applied to aviation must be global in scope, preserve fair competition, and take account of different types and levels of operator activity.

IATA has also warned that a GMBM should not be an excuse for revenue generation or for avoiding incentivising investments in new technologies and sustainable low-carbon alternative fuels. In 2013, IATA endorsed a resolution on the implementation of the Aviation Carbon Neutral Growth Strategy, to shape recommendations on a GMBM.

A global carbon offsetting scheme is IATA’s stated preference because, compared with the other options, it is considered to be simple to implement, cost-effective and ensures a level playing field.

**IATA air cargo carbon reporting**

IATA has introduced Recommended Practice 1678 (RP 1678) for a carbon emissions measurement methodology to encourage consistent reporting for freight transport. It was developed by IATA’s Air Cargo Carbon Footprint (ACCF) working group including DB Schenker, DHL Global Forwarding and Kuehne+Nagel. The methodology measures carbon emissions generated by air cargo at shipment level. It can be downloaded from www.iata.org/whatwedo/cargo/sustainability. IATA is now seeking endorsement from ICAO for the methodology.

A standardised approach is expected to help shippers to assess their Scope 3 emissions (e.g., indirect emissions from transport providers carrying goods). Many freight forwarders are already expected to provide CO₂ efficiency metrics alongside operational metrics when tendering for work from shippers. A consistent approach to CO₂ reporting from aviation will help to fulfill this growing demand, however there are significant challenges plus concerns over administrative burden for providing such data. IATA’s work to bring airlines, freight forwarders and shippers together to build on the methodology aims to help this process.

Meanwhile, the Global Logistics Emissions Council (overseen by the Smart Freight Centre) has published a framework for logistics emissions accounting based on existing methodologies which includes IATA RP 1678.
IATA Fuel Reporting and Emissions Database (FRED)

In 2009, FRED was developed as an online reporting tool to allow members to submit detailed fuel data and access:

- fuel efficiency blind rankings – allows an airline to compare its fuel efficiency with the efficiency of competitors
- fuel efficiency comparisons with industry averages – compares airline fuel efficiency with the average fuel consumption of the industry
- automated CO₂ emissions reports.

To demonstrate to governments and other stakeholders that the industry is undertaking aggressive actions to achieve its targets, IATA tracks and monitors industry emissions. This became a mandatory requirement in 2010 which 95 per cent of airlines adhere to.

It is anticipated that air cargo reporting could be incorporated into FRED in future.

Air Transport Action Group (ATAG)

ATAG is a not-for-profit association representing all sectors of the air transport industry and has over 50 members worldwide. They include: Airports Council International, Airbus, ATR, Boeing, Bombardier, Civil Air Navigation Services Organisation (CANSO), CFM International, Embraer, GE, Honeywell Aerospace, International Air Transport Association (IATA), Pratt & Whitney, Rolls-Royce and Safran.

At the global New York Climate Change Summit in September 2014, the aviation sector joined other business and government groups to announce a commitment on climate action between ICAO and the aviation industry represented by ATAG.

In September 2015, ATAG published an overarching document *Aviation Climate Solutions*, featuring a collection of 100 case studies of aviation’s climate action taking place across the world. The purpose of the document is to demonstrate to the world that the industry is committed to collaborative solutions. It can be downloaded from http://aviationbenefits.org/environmental-efficiency/aviation-climate-solutions/

GSF view

*The initiatives summarised above indicate the importance of reducing carbon emissions within the aviation sector. This objective is also shared by shippers who wish to be able to improve the environmental performance of moving goods along the supply chain. In particular, GSF welcomes the development of an air cargo reporting methodology from IATA.*
Annex 1 – ICAO structure and approach to a MBM

ICAO was created in 1944 as a UN specialised agency upon the signing of the Chicago Convention. It works with 191 Member States and global aviation organisations to develop international Standards and Recommended Practices (SARPs) which states reference when developing their legally-enforceable national civil aviation regulations.

ICAO has set a global aspirational goal of improving fuel efficiency by two per cent annually and stabilising carbon emissions at 2020 levels, though it is recognised that this is unlikely to deliver the level of reduction necessary. ICAO has been considering the role of MBMs since 2001. It is under a global obligation to develop a global MBM by 2016. Current MBMs on the table are:

- mandatory offsetting
- mandatory offsetting with additional revenues
- a global emissions trading scheme

A global levy although attractive because of its simplicity was ruled out as it would require a level of pricing which could impact the growth of the sector, contrary to the Chicago Convention.

ICAO also has a comprehensive strategy to progress technology, operations and alternative fuels to reduce emissions in the first place.

At the 37th ICAO Assembly in 2010, the following commitments were made.

1. Adoption of guiding principles for the design and implementation of MBMs
2. Decision to explore the feasibility of a global MBM scheme, develop a framework for MBMs and to review the de minimis threshold for MBMs, taking into account the specific circumstances of states and potential impacts on the aviation industry and markets
3. Develop a global CO$_2$ certification standard for aircraft
4. Facilitate development and deployment of sustainable alternative fuels
5. Voluntary submissions of action plans from states to ICAO
6. Voluntary annual reporting of international aviation carbon emissions by states

ICAO’s Council established an Environment Advisory Group (EAG) composing of 17 Council representatives as well as industry to oversee the development of a global MBM and to make recommendations to Council. EAG is supported by ICAO’s Committee on Aviation Environmental Protection which develops policies and adopts standards to minimise the impact of aviation on the environment. Following activity on analysing MBMs and implementing emissions trading schemes which began as far back as 2001, a Global MBM Technical Task Force (GMTF) was formed in 2014.

The GMTF is mandated to develop recommendations for the monitoring, reporting and verification of international aviation emissions and for the quality of offset remits for use in a global market-based measure for international aviation.

The design of a global MBM is also being worked on by the EAG. A baseline for international aviation emissions in 2020 is due to be agreed. This level will represent the basis against which emissions in future years are compared. This is to allow ‘sustainable growth’ of aviation. In any year after 2020 when international aviation emissions exceed this baseline, this difference will be calculated and will represent the sector’s obligation for that year. This obligation will then be distributed among aircraft operators, and each operator will be responsible for addressing its share of this obligation. Credits will have to be generated outside the sector to avoid double counting of emissions.

Global Aviation Dialogues (GLADs) began in April 2015 to gather feedback from member states on the design and implementation of a global MBM. Five meetings took place in Cairo, Lima, Madrid, Nairobi and Singapore. Further GLADs took place in March 2016. Feedback to date has confirmed that an MBM must:

- keep environmental integrity
- be simple and cost effective
- differentiate without discriminating
- avoid excessive costs and administrative burdens

2 77 ICAO member states have already voluntarily submitted plans, representing 83 per cent of global traffic
3 There is a need to recognise differences between states and/or operators to reflect their circumstances and capabilities
The guiding principles for the design and implementation of Market-Based Measures (MBMs) for international aviation.

a) MBMs should support sustainable development of the international aviation sector

b) MBMs should support the mitigation of ghg emissions from international aviation

c) MBMs should contribute towards achieving global aspirational goals

d) MBMs should be transparent and administratively simple

e) MBMs should be cost-effective

f) MBMs should not be duplicative and international aviation CO₂ emissions should be accounted for only once

g) MBMs should minimise carbon leakage and market distortions

h) MBMs should ensure the fair treatment of the international aviation sector in relation to other sectors

i) MBMs should recognise past and future achievements and investments in aviation fuel efficiency and in other measures to reduce aviation emissions

j) MBMs should not impose inappropriate economic burden on international aviation

k) MBMs should facilitate appropriate access to all carbon markets

l) MBMs should be assessed in relation to various measures on the basis of performance measured in terms of CO₂ emissions reductions or avoidance where appropriate

m) MBMs should include de minimis provisions

n) Where revenues are generated from MBMs, it is strongly recommended that those funds should be applied in the first instance to mitigating environmental impacts of aircraft engine emissions, including mitigation and adaptation, as well as to support and assist developing states

o) Where emissions reductions are achieved through MBMs, they should be identified in the emissions reporting of states