



**GROUP ON INTERNATIONAL AVIATION AND CLIMATE CHANGE (GIACC)**  
**FOURTH MEETING**

**Montréal, 25 to 27 May 2009**

**Agenda Item 3: Report actions and policy elements developed by the Working Groups**

**REPORT OF THE MARKET-BASED MEASURES WORKING GROUP**

(Presented by the Chairman of the Working Group)

**1. INTRODUCTION**

1.1 The terms of reference and the membership of the Working Group are in Appendix A. The WG worked mainly through correspondence and teleconferences. Due to time and administrative constraints, this report is limited to the main issues related to the implementation of market-based measures (MBM), but it should be reviewed together with separate Information Papers, one on the work already done in ICAO on MBM, and others on current schemes to be put in place by States, or proposals and concepts from the Industry or individual members of the WG. This information is provided as submitted to the WG. Its review by the group is reported below under sections 4 and 5.

1.2 Some members of the working group were not in a position to participate to all teleconferences. Therefore the conclusions reported in section 5 may not reflect the positions of all working group members. Some significant differences of point of views could also not be resolved due to the short time available. They are mainly reported in section 4.7.

**2. MAIN ISSUES ARISING FROM WORK ALREADY DONE BY ICAO**

2.1 A summary of work already done by ICAO since 1998 on MBM, mainly by CAEP, the Council and the Assembly is contained in a separate Information Paper provided by Canada. Main issues arising from this work are presented below, which are recommended by the Working Group to be taken into account when future work is undertaken on this subject.

**2.2 Various types of economic instruments considered by ICAO**

2.2.1 It appears that the following economic regulatory instruments have been considered by ICAO as MBM:

- Carbon related taxation applied either on fuel or on passenger has been ruled out, as generating revenues for States without any benefit for the environment;
- Revenue neutral charges based on fuel efficiency has been ruled out as being impractical and having minimal effect on the environment;

- A carbon fuel charge or a carbon passenger charge would be acceptable provided the revenues are directed to mitigation of environmental impact of aviation;
- Voluntary MBM (meaning at the choice of each operator) were considered valid on a transitional basis towards a mandatory system, but with limited environmental benefits;
- Of the market-based measures ICAO examined, open emissions trading systems (ETS) have been recommended as the most cost-effective MBM for the environment (“open” meaning that aircraft operators have access to a carbon market where they can buy carbon credits for emissions reductions from other industry sectors). In fact, ICAO did not look at the cost effectiveness of all major options for market-based measures, i.e. the utility of an economy wide carbon tax or charge was not reviewed

### 2.3 Principles arising from ICAO Resolutions

2.3.1 Appendix L of ICAO Assembly resolution A36 provides key principles in use of market based measures for international aviation. There are significant issues in combining the principle of non discrimination between operators set forth in the Chicago convention and the principle of common but differentiated responsibilities (CBDR) and respective capabilities under the UNFCCC as well as the divided views on mutual agreement.

### 2.4 Applications of MBM by States or groups of States as envisaged by ICAO

2.4.1 For a fuel charge applied by a State, it could be applied on fuel suppliers or airlines, in which case it would be on fuel supplied in its territory, which would then correspond roughly to the flights departing from that State.

2.4.2 For a fuel charge or an ETS applied by a State or a group of States, it could also be applied on operators operating in that State or group of States. The issues raised are related to the geographical scope, i.e. both to the conditions for application to foreign operators and to which portion of the flight should be covered.

2.4.3 For a passenger charge applied by a State, it would apply to passengers traveling through airports of that State. Issues raised are related to the scope.

### 2.5 Role of ICAO or other international organizations in a sectoral approach

2.5.1 The main issues are related to the role of ICAO and/or other international organizations in developing and implementing a global sectoral approach. The feasibility for ICAO or other international organizations to administer a global scheme in the short and medium term is questionable. Some members underlined that the work already done by ICAO shows that different roles could be assigned to different organizations, like setting a goal to be achieved through MBM as part of a global goal for emissions reduction from international aviation, the design of a global MBM, and the administration of funds generated by the scheme. Also, in the likely case where at least initially different schemes would be implemented by States, ICAO should define a global framework to ensure guidance to address compatibility or equivalence between systems.

### 2.6 Principles and main issues identified in relation to the implementation of MBM, as resulting from the work already done by ICAO:

- the type of MBM which could be considered in the design of a global scheme are a carbon fuel charge or carbon passenger charge, provided the revenues are directed to the mitigation of the environmental impact of aviation, or an open ETS;
- The main issues are to combine in the design of a global scheme the principle of non-discrimination between operators set forth in the Chicago Convention, and a principle of differentiation to account for CBDR established under the UNFCCC.
- in the application of MBM by States, the main issues are the geographical scope (only arriving or only departing or all flights, mutual agreement in case of participation by foreign operators), and compatibility between systems to avoid double counting/charging and ensure equivalence.
- in the design of a global MBM, main issues are the roles of ICAO, other organizations, or States in setting a goal for the contribution for MBM, in designing the scheme and in administering funds eventually generated for mitigation of climate impact of aviation.

### **3. REVIEW OF SCHEMES DEVELOPED AT NATIONAL OR REGIONAL LEVEL AND PROPOSALS FOR A GLOBAL SCHEME UNDER A SECTORAL APPROACH**

3.1 Among the schemes which have been reviewed by the WG, some have been implemented or will be in the future by a State or a group of States at national or regional level. and some others are scenarios or concepts for a global sectoral approach which have been proposed for study by the Industry, or by members of the WG. All schemes are described in more detail in separate Information Papers. Main characteristics of each scheme and main issues raised are summarized below.

#### **3.2 REVIEW OF SCHEMES DEVELOPED AT NATIONAL OR REGIONAL LEVEL**

##### **3.2.1 The New Zealand scheme**

3.2.1.1 The New Zealand Emissions Trading Scheme will cover liquid fossil (transport) fuels used in New Zealand from 1 January 2011. Emissions from fuel used for international aviation and marine transport are exempt from the scheme. Fuel suppliers are required to participate in the scheme and will have a responsibility to report on emissions and to 'surrender' emission units. Air New Zealand, Qantas and Virgin Blue can also participate voluntarily in the scheme. Once they 'opt-in' they take on all legal obligations associated with the fuel used on domestic flights. The government will not give fuel suppliers free emission units. It is expected that the cost of emission units will be passed through to consumers. The price impact on jet fuel is expected to be around 7 cents a liter, assuming that the price of carbon is about NZ\$25 per ton of carbon dioxide equivalent.

##### **3.2.2 The European ETS**

3.2.2.1 The scheme will work from 2012, when aircraft operators will have to account for their CO<sub>2</sub> emissions by surrendering emissions allowances to the regulatory authority at the end of each year. Main features are:

- All IFR flights < 5700 kg arriving at and departing from EU, with exemptions;
- 'De minimis' exemption for commercial operators having less than 2 flights a day, or emitting less than 10,000 tonnes CO<sub>2</sub> per year;
- Cap based on emissions from all EU related flights in 2005. In 2012, the cap will be 97% of this

amount, and as of 2013, the cap will be 95% of this amount; 85% of allowances will be free, on the basis of a benchmark proportionate to the activity of the operators in 2010. 15% of allowances will be auctioned by EU Member States. Revenues from the auctioning of allowances should be used to tackle climate change in the EU and third countries. Options to avoid double regulation on flights and ensure optimum interaction between the EU-ETS and measures with equivalent effect adopted by third countries.

### **3.2.3 Australia's Domestic Emissions Trading Scheme – Carbon Pollution Reduction Scheme**

3.2.3.1 The Carbon Pollution Reduction Scheme (CPRS) is Australia's primary domestic tool for achieving its emissions reduction objectives. Proposed for commencement on 1 July 2010, the CPRS is a cap-and-trade system with a long term target of a 60 per cent reduction in greenhouse gas emissions below 2000 levels by 2050. The domestic transport sector will be included in the CPRS with Scheme obligations being applied to upstream suppliers of transport fuels. For the aviation sector, the Scheme will only apply to domestic air travel and will exclude international flights and domestic legs of international flights.

### **3.2.4 Recent proposals related to MBM currently discussed in the USA**

3.2.4.1 In the USA, the concept of cap-and-trade has been discussed for many years. The Obama Administration is committed to reducing the U.S. economy's carbon footprint and is developing proposals for an economy-wide cap-and-trade system. Separately, the U.S. Congress has been discussing a number of legislative approaches. In the most recent proposals, it is envisaged that a scheme could be implemented to cover CO<sub>2</sub> emissions by most sectors of the US economy. For transport activities, including aviation, the measures could be applied in the form of an upstream cap and trade system whereby fuel suppliers would be required to participate in a cap-and-trade scheme.

## **3.3 REVIEW OF PROPOSALS FOR SECTORAL SCHEMES FOR INTERNATIONAL AVIATION**

### **3.3.1 Association of European Airlines proposal**

3.3.1.1 The Association of European Airlines proposes a global sectoral approach to address international aviation emissions, based on the following key elements:

- International aviation to be included as a sector in any post-Kyoto multilateral agreement on climate change;
- ICAO to represent the aviation sector at the Copenhagen negotiations;
- Reconciliation of the Chicago principle of non-discrimination between operators and the Kyoto principle of differentiated responsibilities between countries;
- Countries to be grouped into 3 Blocks according to the maturity of their aviation market;
- Differentiated target-setting for the 3 Blocks, but equal treatment of all air carriers operating within the same Block;
- For traffic between 2 Blocks, application of the lowest target to all air carriers regardless of nationality;
- Targets and classification of countries within the Blocks to be reviewed and adjusted by ICAO overtime.

### 3.3.2 AGD proposal

3.3.2.1 The Aviation Global Deal (AGD) Group, a coalition that brings together large international airlines, aviation sector companies and international NGO "The Climate Group" proposes a global sectoral approach to address international aviation climate change impact. The key elements of the AGD approach can be summarised as following:

- A global sectoral agreement covering CO<sub>2</sub> emissions from all international air transport providers is proposed, ensuring equal treatment in aviation markets;
- A global emissions reduction target is set for the sector to ensure it plays a fair and equitable part in addressing global emissions reductions;
- The aviation agreement is integrated within the overall climate framework with open access to global carbon markets;
- Individual air carriers would surrender allowances in proportion to the carbon content of their annual fuel purchases;
- Allowances could be obtained free of charge, from auction, from CDM and potentially credits from REDD (reducing emissions from deforestation and forest degradation in developing countries);
- An international body of the UN would administer the system;
- Revenue generated from the auction of CO<sub>2</sub> allowances would be collected by the administering authority and distributed to a set of clearly defined, transparent and verified uses, including the Kyoto Protocol's Adaptation Fund, Seed funding for sustainable bio-fuel feedstock cultivation and bio-jet refining capability in developing countries, UNFCCC-compliant REDD and, possibly, a fund for financing research and development of innovative technology solutions for aviation;
- CBDR is achieved as a significant proportion of the aforementioned revenue is distributed to climate change projects in developing countries;
- Funds raised are hypothecated to projects that deliver real environmental benefits through low carbon solutions and are not treated as general revenue by national Governments.

### 3.3.3 Canadian considerations for a sectoral approach

3.3.3.1 Canada presented a variant from the AGD proposal. Instead of operators surrendering allowances proportionate to fuel burnt, and having access to a carbon market, a passenger levy could be established at the sectoral level, and collected funds could be administered centrally, for agreed upon objectives including the purchase of offsets in a global carbon market for emissions above a sectoral goal. Participation by States would be voluntary, but with incentives, like the redistribution of funds only to participating States. One question would be whether the passenger charge should take into account the efficiency of the operator. The charge would apply to all international flights departing from participating States, in order to respect equity of treatment of operators. The CBDR principle would be respected in the redirection of funds mainly to developing countries, like with the AGD concept. The variant could also be seen as a transition scenario towards the AGD concept.

### 3.3.4 Australian considerations for a sectoral approach

3.3.4.1 The Australian representative proposed that the principles along the following lines should underpin any sectoral approach for market-based measures for global international aviation:

- Effectively contribute to the reduction of net greenhouse gas emissions;
- Be cost-effective;
- Cover most if not all international aviation emissions;

- Avoid commercial distortions between competing air carriers;
- Not prescribe specific emission reduction methods;
- Support, promote and facilitate technical innovation and R&D in the sector;
- Revenue should be used to provide assistance to developing countries; and
- Be practical, transparent and easy to administer.

3.3.4.2 The Australian representative suggested these principles could be met through a hybrid approach where charges imposed on fuel uplifted are used to fund the purchase of offsets, identifying the following key elements:

- Assessment of projected absolute level of emissions from international aviation;
- Agreement on a net emission reduction goal (from the absolute level) and a timeframe in which to achieve the reduction;
- Assessment of the cost of offset projects necessary to achieve required emissions reduction;
- Calculation of the charge required to fund the purchase of offsets, with the emission charge being applied to fuel uplifted by all international carriers to avoid discrimination;
- Collection of the revenue from the charge by individual States – possibly by imposition of an appropriate surcharge on aviation fuel uplifted in the State for international aviation services;
- Revenue would be expended on offset projects that meet agreed criteria with emphasis on supporting mitigation measures in developing countries; and
- Verification that revenue has been spent on effective emissions mitigation measures.

#### 3.4 Main issues arising from the review of the different options or scenarios

- All systems tend to implement MBM in a way which reduces carbon emissions without compromising the growth of international aviation. Moreover, MBM are not primarily intended to reduce the demand in aviation by increasing its cost.
- Most systems include a way to respect an emissions limitation established for aviation through the purchase of recognized carbon offsets on the market if aviation emissions exceed the target limitation;
- Some schemes include redirection of a certain amount of the generated funds to the aviation sector to improve its fuel efficiency;
- The principle of CBDR can be acknowledged in a variety of ways. Some examples are: by setting differentiated goals on different types of routes, according to the maturity of the air transport markets by adopting a phased-in approach, or through the selective redistribution of funds collected through a uniform charge with a bias in favor of developing States;
- Some schemes have a ‘de minimis’ clause to exclude small emitters.

## 4. DISCUSSION OF SCENARIOS TO IMPLEMENT MBM

4.1 Generally speaking, the WG recognized that many issues have already been discussed by ICAO and have raised difficult questions among contracting States. Although diverse views remain on these issues, the new momentum created by the 36th Assembly, with the creation of GIACC, the convocation of a High Level Meeting and the perspective of the Copenhagen Conference, should give the opportunity to reexamine these issues and make progress on their resolution.

4.2 The WG generally considered that MBM are not only an element of a basket of measures that can be used by each State in addition to technological, operational and infrastructure measures. They

raise two main issues: how do they contribute to the goals mainly defined in terms of fuel efficiency; and how should they be implemented given the different part MBMs will play in countries plans without creating a patchwork of systems incompatible with international aviation.

4.3 The Working Group has envisaged 3 main types of scenarios to implement MBM, which could be designated as scenario A (business as usual), scenario B (the so called “ideal global scheme” under a sectoral approach) and scenario C (States initiatives within an ICAO Framework). Scenario C should be seen as an intermediate step between current scenarios A where each State would adopt its own measures and the ideal future scenario B where a global scheme under a sectoral approach is adopted. Scenario C should be considered as an improvement over Scenario A in the sense that the framework by ICAO would provide a coordinated plan so that individual States policies, although voluntary, constitute building blocks towards a global system.

#### 4.4 Scenario A (business as usual without an ICAO mandatory framework)

4.4.1 Market based measures would be implemented by States or by Regions, with a diversity of policies and parameters, e.g. taxation of fuel or emissions trading, different applicable entities (operators or flights), and different scopes.

##### PROs

- Some States concerns about the principle of CBDR are respected since each State implements its own policy;
- there is no problem of institutional feasibility since States decide how and which MBMs are used as part of an integrated plan to address aviation GHG emissions from their industry.

##### CONs

- a patchwork of measures is created, which is difficult to follow for airlines;
- a potential competitive problem is created on each route between two States with different systems;
- there is little previsibility from the point of view of UNFCCC of the evolution of the total amount of emissions from international aviation;
- a potential dispute is created over the sharing of resources with any scheme which collects revenues;
- potential legal disputes given different views of applicability and geographic scope of MBMs

#### 4.5 Scenario B (ideal global scheme under a sectoral approach)

4.5.1 A unique global system would be created on a mandatory basis imposing a global emissions cap-and-trade system for international aviation. The system could include a principle of differentiation, based on different caps or different dates to reach the same cap, according to maturity of markets.

##### PROs

- the system would be clear for all international airlines;
- a global system is what IATA and some in industry is calling for;
- Some States concerns about the principle of CBDR can be respected;
- the system is implemented on a uniform basis, which could respect the principle of non discrimination;
- the contribution of such a scheme to the evolution of emissions is predictable.

CONs

- Consensus on this concept would be difficult to reach in ICAO;
- ICAO would not have the power to impose such a system on States;
- If the system included a measure similar to a taxation on fuel, it would require a modification existing ICAO policy, and hundreds of air service agreements;
- If a new international institution needs to be created to collect and redistribute funds, this might also take a number of years;
- In case an emission trading system is created for international aviation, it needs to be an open system linked to an international carbon market, which does not currently exist.

**4.6 Scenario C (State and Regional initiatives under an ICAO Framework)**

4.6.1 Market based measures would be implemented by States or by Regions but within an ICAO framework. This framework would define agreed principles for the implementation of MBM, including how they should contribute to global goals. It would provide a coordinated plan so that individual States policies constitute building blocks of a future global system.

PROs

- Some States concerns about the principle of CBDR could be better respected than in scenario B since each State would implement its own scheme (some being excluded);
- there would be less problem of institutional feasibility;
- the number of different measures implemented by States would be reduced to a minimum, which makes the system easier to follow for airlines;
- Could use the already approved ICAO guidance to foster framework development.
- there would be a better predictability of the evolution of emissions from international aviation, provided that a capping would apply to a significant amount of international emissions;
- the main policy instruments could be agreed at the 2010 ICAO Assembly.
- The scenario C could become a transition towards a global sectoral approach (scenario B).

CONs:

- This scenario is less efficient than a truly global system.

**4.7 Discussion**

4.7.1 *This section of the WG report presents some interesting thoughts brought by some members, but that have not yet been sufficiently discussed to become a conclusion of the WG. The conclusions will follow in section 5.*

4.7.2 Some members considered that CO<sub>2</sub> emission charges are to be preferred to tradable permits, because they are not subject to market price changes and are easier to predict accurately for long term planning.

4.7.3 It was generally recognized that the application of a charge would be easier at an upper level of operation, and that a fuel charge would be the easiest to apply in terms of administrative burden.

4.7.4 Some members underline on the other hand that emissions trading is the most cost-effective way to provide emissions reduction, as has been recognized by ICAO of the MBM it considered.

4.7.5 The group also considered that a new type of hybrid MBM could be envisaged by combining the administrative simplicity of a charge collected by States, and the environmental efficiency of an ETS if States would then use the revenues to purchase carbon credits on the market.

4.7.6 Scenario C could include both emission charges and trading schemes. Both approaches can be accepted, provided there is a common goal in terms of carbon emissions limitation, and the revenues are effectively used to tackle the climate change

4.7.7 Some members expressed interest in possible solutions that would ensure that most of the emissions from international aviation are covered by the scheme.

4.7.8 Any system should be simple and non discriminatory for operators. However, one member envisages that it would be simpler to adopt a threshold approach by addressing the problem among the 20 to 30 countries whose carriers emit approx. 80% of emissions worldwide according to ICAO data, by modifying the corresponding relatively small number of bilateral air services agreements, even though some discrimination would result.

4.7.9 One member believes that when emissions trading scheme is discussed, it should be made clear regarding who will be targeted, how demanding the cap will be, and how a scheme would be implemented. Without above information, it is hard to evaluate its effectiveness and efficiency.

4.7.10 One member underlines that when open emissions trading scheme is chosen from a basket of measures, possibility to meet the target and level of effort to do so need to be duly considered. Also, the member believes that imposing equal efforts to all participants in the open scheme is essential. The member considers that it is not rational if international aviation sector had to purchase emissions allowance from other sector, which has reached or exceeded the target by lower effort than that of international aviation sector.

4.7.11 A phased in approach could be envisaged for any system, as a way to respect CBDR. If this concept is applied, it could be applied on a route basis to avoid distortion of competition. An increased stringency in emissions limitation could be prescribed as the maturity of market grows on a given route. Criteria to determine maturity of market could be based on the lowest level of development of both countries at the ends of the routes. A small number of categories of States could be established by ICAO for that particular purpose.

4.7.12 Concerning the use of funds generated by a scheme, some members believed that a portion should be used for the purchase of carbon credits to compensate emissions in excess of a given target, and the issue was about how much should be redirected to the aviation sector to improve fuel efficiency, and which portion should go to developing countries projects.

4.7.13 One member believes that it is more rational when the usage of generated funds is limited to international aviation sector in developing countries when used for support and assistance for those countries.

4.7.14 One member believed that it could prove challenging to define a global scheme at ICAO level as MBMs will likely play different roles in different States approach to address aviation GHG emissions.

4.7.15 One member noted that such a framework should also ensure that the portion of GHG emissions attributable to other stakeholders such as air traffic service providers and airports is accounted for.

4.7.16 However, it was also reminded that the ultimate responsibility to decide the use of revenues collected by one State lies in that State. Eventually, the role of States could be limited to the collection of a charge and the transfer of funds to an organism in charge of a global scheme, if a legal international instrument was adopted to that effect.

4.7.17 GIACC/3 recommended that ICAO put in place a rigorous system of data collection for reporting and monitoring of progress against established goals. Reporting and validation of performance data would be key elements of any market based measures adopted by ICAO.

## **5. DRAFT MAIN CONCLUSIONS**

### **5.1 General sectoral approach for international aviation**

5.1.1 The group generally agrees that market-based measures implemented by States or by Regions with different policies and parameters in the absence of a global sectoral framework developed by ICAO are far from optimal. This approach may make coordination more difficult, create risks of distortion of competition, create unnecessary burdens for industry and complicate industry compliance.

5.1.2 The group acknowledges that a unique global sectoral system for international aviation could be desirable. However enforcement powers would have to be established in ICAO or some other UN Agency to manage such a global system. For this reason, among others, the WG recognizes that implementation of such an approach would face major challenges, particularly in the short and medium term.

5.1.3 As a matter of priority, the group therefore considers it more feasible to develop further a sectoral framework through ICAO regime, allowing States and Regions to adopt their own market-based measures in line with the globally agreed principles established by this framework.

5.1.4 The ICAO framework should ensure in particular that (a) only the most effective and efficient measures are chosen, (b) the principle of non-discrimination by States between operators is fully respected, (c) the specific circumstances and different capabilities of each State and Region can be taken into account, (d) industry compliance is facilitated, and (e) market-based measures can be coordinated and are not duplicative and (f) the geographical scope issues are properly addressed.

5.1.5 Such a Framework should also ensure at least that double counting/charging is avoided. Equivalence between two types of MBM should be established on the basis of tons of carbon emissions reduction provided on a given flight, and not on the cost of the measures, especially if prices of carbon credits are different on different markets.

### **5.2 Market-based measures options for States and Regions**

5.2.1 The group notes that ICAO has already undertaken extensive work on market-based measures to address the climate change impact of international aviation emissions, i.a. through its Committee on Aviation Environmental Protection (CAEP). This has allowed the ICAO General Assembly to provide already some guidance on possible options.

5.2.2 The group generally agrees that neither closed emissions trading nor charging systems are the most cost-effective option. It also recognises that while taxation of fuel could be an option, it raises policy and legal issues, including in relation to bilateral air services agreements.

5.2.3 The group acknowledges that, among the other possible options, two types of measures have been selected by the States and Regions that are currently developing market-based measures: (a) open down-stream emission trading schemes with direct inclusion of aircraft operators and (b) open up-stream schemes imposing uplifted fuel charges on aircraft operators. These two alternative options could potentially fall under the ICAO sectoral framework.

### 5.3 Interaction between State and Regional measures

5.3.1 The group generally considers it important to ensure effective interaction between market-based measures adopted by States and Regions in order to avoid double burdens on air operators as well as to minimise the risks of distortion of competition and carbon leakage.

5.3.1.1 In this context, the group notes that international aviation access to a global carbon market could be pursued by linking the local carbon markets developed under States and Regional measures. The group recommends that ICAO work with the UNFCCC to further develop guidance in view of facilitating this process.

5.3.2 To ensure non-discrimination between operators, the group recognises that the application of similar measures to all operators on routes between two States or Regions could represent an optimal solution. But it also agrees that implementation of measures per country of departure and other criteria should be considered as an acceptable alternative to minimize competitive distortions.

### 5.4 Specific circumstances and respective capabilities of States and Regions

5.4.1 The group recognises the need to take into account the specific needs and capabilities of developing States when implementing market-based measures. The level of maturity of different States' and Regions' aviation markets should in particular be considered.

5.4.1.1 The group considered different forms of differentiation and how they might interface with the ICAO principle of non-discrimination by States between air operators. It noted that some examples of different approaches that are possible include (a) making the stringency of market-based measures different for different aviation markets, (b) distributing revenues generated taking into account the level of development of States, (c) exempting small emitters under a given threshold, (d) phasing in the participation of States on the basis of the level of maturity of their market.

### 5.5 Use of revenues generated by market-based measures

5.5.1 The group generally agrees that revenues generated by market-based measures applicable to international aviation could be used to fund climate change mitigation and adaptation measures in priority in aviation and possibly also in other sectors, domestically but also abroad, in particular in developing countries.

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**APPENDIX A**  
**English only**

**MARKET-BASED MEASURES WORKING GROUP**

**Membership**

**Chair:** Mr. Paul Schwach (France)

Mr. Carl Burleson (Adviser to US)

Ms. Brigita Gravitis-Beck (Canada)

Mr. Luiz Alberto de Melo Brettas and Jorge Silveira (Advisers to Brazil)

Mr. John Doherty (Australia)

Mr. Jocelyn Fajardo (Adviser to France)

Mr. Zhanbin (China) and Mr. Sun Guoshun (Adviser to China)

Mr. Tetsu Shimitzu (advisor for Japan)

The following persons also participated to the work of the Working Group:

Mr. David Southgate (adviser from Australia)

Ms. C Blain (adviser from Canada)

Ms. Sam Brand (adviser from Canada)

Mr. Philippe Langumier (adviser from France)

Mr. Ted Milczarek (adviser from Australia)

The group received also contributions from:

Mr. Mohammed Ali Jamjoon (adviser from Saudi Arabia)

**Terms of reference**

Explore options on Market-Based Measures to assist a program of action to address emissions from International Aviation having regard to:

recent announcements of industry proposals and different scenarios available;  
work already conducted within ICAO and the importance of avoiding duplication;

Explore the scope of what can be achieved through market-based measures and related metrics.

**Deliverables**

Report advising GIACC/4 on options for further work.