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# RESOLUTIONS

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

## APPENDIX I

### Aviation impact on global climate - Scientific understanding

*Whereas* a comprehensive assessment of aviation's impact on the atmosphere is contained in the special report on *Aviation and the Global Atmosphere*, published in 1999, which was prepared at ICAO's request by the Intergovernmental Panel on Climate Change (IPCC) in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer;

*Whereas* the IPCC special report recognized that the effects of some types of aircraft emissions are well understood, it revealed that the effects of others are not, and identified a number of key areas of scientific uncertainty that limit the ability to project aviation's full impacts on climate and ozone;

*Whereas* ICAO requested that the IPCC include an update of the main findings of the special report in its Fourth Assessment Report, published in 2007;

*The Assembly:*

1. *Requests* the Council to:

- a) continue to take initiatives to promote information on scientific understanding of aviation's impact and action undertaken to address aviation emissions and continue to provide the forum to facilitate discussions on solutions to address aviation emissions; and
- b) continue to cooperate closely with the IPCC and other organizations involved in the assessment of aviation's contribution to environmental impacts on the atmosphere.

2. *Urges* States to:

- a) promote scientific research aimed at continuing to address the uncertainties identified in the IPCC special report on *Aviation and the Global Atmosphere* and in the recently released Fourth Assessment report; and
- b) ensure that future international assessments of climate change undertaken by IPCC and other relevant United Nations bodies include updated information on aircraft-induced effects on the atmosphere;

3. *Encourages* the Council to promote improved understanding of the potential use, and the related emissions impacts, of alternative aviation fuels; and

4. *Encourages* the Council and States to keep up to date and cooperate in the development of predictive analytical models for the assessment of aviation impacts.

## APPENDIX J

### Aviation impact on global climate - Cooperation with UN and other bodies

*Whereas* the ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC) is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system;

*Acknowledging* the principles of non-discrimination and equal and fair opportunities to develop international civil aviation set forth in the Chicago Convention, as well as the principles and provisions on common but differentiated responsibilities and respective capabilities under the UNFCCC and the Kyoto Protocol;

*Whereas* the Kyoto Protocol, which was adopted by the Conference of the Parties to the UNFCCC in December 1997 and entered into force on 16 February 2005, calls for developed countries (Annex I parties) to pursue limitation or reduction of greenhouse gases from “aviation bunker fuels” (international aviation) working through ICAO (Article 2.2);

*Whereas* the Kyoto Protocol provides for different flexible instruments (such as the Clean Development Mechanism – CDM) which would benefit projects involving developing States;

*Whereas* the first commitment period of the Kyoto Protocol expires in 2012 and discussions on the follow up to this instrument are being undertaken and ICAO will need to continue to address its responsibility and demonstrate leadership to limit or reduce GHG emissions from international civil aviation;

*Whereas* all stakeholders expect ICAO to demonstrate leadership in mitigating the negative effects of GHG emissions by aviation, and to develop a vision to integrate these environmental objectives into ICAO’s Business Plan and other ICAO programmes;

*Recognizing* the relevance of climate change and economic development in the context of the UN Millennium Development Goals (MDGs) and the role of aviation in helping achieve these goals;

*Noting* it is important to address aircraft emissions without losing sight of their proper context in assessing overall GHG emissions from aviation, the transportation sector, and general economic activity; and

*Noting* that different regions of the world are experiencing wide differences in absolute levels of aviation emissions and aviation emissions growth rates both internationally and domestically;

*The Assembly:*

1. *Requests* the Council to:

- a) ensure that ICAO exercise continuous leadership on environmental issues relating to international civil aviation, including GHG emissions;
- b) continue to study policy options to limit or reduce the environmental impact of aircraft engine emissions and to develop concrete proposals and provide advice as soon as possible to the Conference of the Parties of the UNFCCC, encompassing technical solutions and market-based measures, and taking into account potential implications of such measures for developing as well as developed countries; and

- c) continue to cooperate with organizations involved in policy-making in this field, notably with the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and its Subsidiary Body for Scientific and Technological Advice (SBSTA);

## APPENDIX K

### ICAO Programme of Action on international aviation and climate change

*Whereas* ICAO and its Contracting States recognize the critical importance of providing continuous leadership to international civil aviation in limiting or reducing its emissions that contribute to global climate change;

*Whereas* the rapid growth of civil aviation has generally increased the aviation industry's contribution to greenhouse gas emissions;

*Acknowledging* the principles of non-discrimination and equal and fair opportunities to develop international civil aviation set forth in the Chicago Convention, as well as the principles and provisions on common but differentiated responsibilities and respective capabilities under the UNFCCC and the Kyoto Protocol;

*Whereas* the ICAO Council has developed policy options to limit or reduce the environmental impact of aircraft engine emissions from civil aviation and work is in progress on technology and standards, on operational measures and on market-based measures to reduce emissions;

*Noting* that, to promote sustainable growth of aviation, a comprehensive approach, consisting of work on technology and standards, and on operational and market-based measures to reduce emissions is necessary;

*Noting* that emphasis should be on those policy options that will reduce aircraft engine emissions without negatively impacting the growth of air transport especially in developing economies;

*Acknowledging* the significant progress made in the aviation sector, with aircraft produced today being about 70 percent more fuel efficient per passenger kilometre than 40 years ago, with airlines of some Contracting States achieving net reductions in emissions over the past several years despite a simultaneous increase in operations, and with the commitment of the international airline industry to achieving a further 25 percent fuel efficiency improvement between 2005 and 2020;

*Noting* that the next generation of aircraft technology and modernization of air traffic systems are expected to deliver additional improvements in flight and fuel efficiency that can be encouraged by ICAO through its Global Air Navigation Plan;

*Recognizing* that ICAO Standards and goals for NO<sub>x</sub>, although intended to address local air quality, will also help reduce the impact of aviation on the climate;

*The Assembly:*

1. *Requests* that the Council facilitate action by States by vigorously developing policy options to limit or reduce the environmental impact of aircraft engine emissions, developing concrete proposals

and providing advice as soon as possible to the Conference of the Parties of the UNFCCC, encompassing technical solutions and market-based measures, while taking into account potential implications of such measures for developing as well as developed countries;

2. *Requests* the Council to:

a) form a new Group on International Aviation and Climate Change composed of senior government officials representative of all ICAO regions, with the equitable participation of developing and developed countries, with technical support provided by the Committee on Aviation Environmental Protection, for the purpose of developing and recommending to the Council an aggressive Programme of Action on International Aviation and Climate Change, based on consensus, and reflecting the shared vision and strong will of all Contracting States, including:

1) an implementation framework consisting of economically efficient and technologically feasible strategies and measures that Contracting States can use to achieve emissions reductions, encompassing *inter alia*:

— voluntary measures (e.g. offsetting);

— effective dissemination of technological advances both in aircraft and in ground based equipment;

— more efficient operational measures;

— improvements in air traffic management;

— positive economic incentives; and

— market-based measures;

2) identification of means by which progress can be measured;

3) identification of possible global aspirational goals in the form of fuel efficiency for international aviation and possible options for their implementation; and

4) reporting progress resulting from the actions implemented by Contracting States and Stakeholders;

b) convene at an appropriate time, taking into account the fact that the fifteenth meeting of the Conference of the Parties (COP15) of the UNFCCC will be held in December 2009, a high-level meeting to review the Programme of Action recommended by the Group;

3. *Requests* that the Council, working through the Committee on Aviation Environmental Protection, continue to develop and keep up-to-date the guidance for Contracting States on the application of measures aimed at reducing or limiting the environmental impact of aircraft engine emissions and to conduct further studies with respect to mitigating the impact of aviation and climate change;

4. *Encourages* Contracting States and the Council, taking into account the interests of all parties concerned, including potential impacts on the developing world, to evaluate or continue evaluating the

costs and benefits of the various measures, including existing measures, with the goal of addressing aircraft engine emissions in the most cost-effective manner;

5. *Requests* that the Council provide the necessary guidance and direction to ICAO's Regional Offices to assist Contracting States with studies, evaluations and development of procedures, in collaboration with other States in the region, to limit or reduce GHG emissions on a global basis and work together collaboratively to optimize the environmental benefits that can be achieved through their various programmes;

6. *Requests* States to encourage the industry to establish challenging goals to constantly improve its performance in aviation emissions reduction;

7. *Requests* Contracting States to accelerate investments on research and development to bring to market even more efficient technology by 2020;

8. *Requests* States to elaborate and report on a set of actions and plans to reduce by 2020 airspace congestion that is contributing to delays and unnecessary fuel burn;

9. *Request* States to encourage airport operators to improve efficiency of airside operations and to implement ground side efficiency measures to reduce carbon intensity;

10. *Requests* that the Council, working through the Committee on Aviation Environmental Protection:

- a) report on an annual basis on the progress achieved in average in-service fleet fuel efficiency and the aggregate annual amount of fuel burned in international civil aviation working in close cooperation with the industry;
- b) forecast the overall potential for aviation emissions reduction in the in-service fleet; and
- c) evaluate and quantify further reduction opportunities for consideration by the upcoming session of the Assembly;

11. *Requests* the Council to undertake the necessary action in support of the ICAO emissions initiative, including the pursuit of the ICAO objectives to limit or reduce the impact of aircraft emissions, to foster collaboration among its Contracting States, and to monitor and report on progress made in this area. In particular, the Council should:

- a) explore relevant parameters and develop medium and long term technology goals for aircraft fuel burn and report back by the next Assembly;
- b) continue to develop the necessary tools to assess the benefits associated with ATM improvements, and to promote the use of the operational measures outlined in ICAO guidance (Cir 303) as a means of limiting or reducing the environmental impact of aircraft engine emissions;
- c) implement an emphasis on increasing fuel efficiency in all aspects of ICAO's Global Air Navigation Plan;
- d) foster, as appropriate, regional, inter-regional and global initiatives with Contracting States to enhance air traffic efficiencies to reduce fuel consumption;

- e) encourage Contracting States to improve air traffic efficiency, which leads to emissions savings and to report on progress in this area;
- f) request Contracting States to submit an inventory of actions they are taking to reduce aviation emissions in their respective countries; and
- g) promote the use of new procedures and technologies that have a potential to provide environmental benefits on the operation of aircraft;

12. *Requests* the Council to encourage States and stakeholders in promoting and sharing best practices applied at airports in reducing the adverse effects of GHG emissions of civil aviation;

13. *Requests* the Council to encourage States and stakeholders to develop models of flow control and air traffic management that optimize environmental benefits;

14. *Requests* States to:

- a) encourage the necessary research and development to provide more environmentally efficient engine and aircraft designs;
- b) accelerate the development and implementation of fuel efficient routings and procedures to reduce aviation emissions;
- c) accelerate efforts to achieve environmental benefits through the application of satellite-based technologies that improve the efficiency of air navigation and work with ICAO to bring these benefits to all regions and States;
- d) promote effective coordination between their authorities involved in aviation in designing more environmentally beneficial air routes and improved operational procedures for international civil aviation;
- e) reduce legal, security, economic and other institutional barriers to enable implementation of the new ATM operating concepts for the environmentally efficient use of airspace; and
- f) cooperate in the development of a regional measurement and monitoring capability in order to allow for the assessment of the environmental benefits accrued from the measures above;

15. *Encourages* action by Contracting States, and other parties involved, to limit or reduce international aviation emissions through voluntary measures, and to keep ICAO informed, and *requests* the Council to instruct the Secretary General to keep up-to-date guidelines that ICAO has developed for such measures, including a template voluntary agreement, and to make available such experience to all parties concerned.

## APPENDIX L

### Market-based measures, including emissions trading

*Whereas* market-based measures, including the use of emissions trading, are policy tools that are designed to achieve environmental goals at a lower cost and in a more flexible manner than traditional regulatory measures;

*Recognizing* that Contracting States are responsible for making decisions regarding the goals and most appropriate measures to address aviation's greenhouse gas emissions taking into account ICAO's guidance;

*Acknowledging* the principles of non-discrimination and equal and fair opportunities to develop international civil aviation set forth in the Chicago Convention, as well as the principles and provisions on common but differentiated responsibilities and respective capabilities under the UNFCCC and the Kyoto Protocol;

*Recognizing* that the majority of the Contracting States endorses the application of emissions trading for international aviation only on the basis of mutual agreement between States, and that other Contracting States consider that any open emissions trading system should be established in accordance with the principle of non-discrimination;

*Recognizing* the need to engage constructively to achieve a large degree of harmony on the measures which are being taken and which are planned to provide an appropriate response to the challenge of aviation and climate change while respecting the principles above;

*Whereas* ICAO policies make a conceptual distinction between a charge and a tax, in that "a charge is a levy that is designed and applied specifically to recover the costs of providing facilities and services for civil aviation, and a tax is a levy that is designed to raise national or local government revenues which are generally not applied to civil aviation in their entirety or on a cost-specific basis";

*Whereas* ICAO has developed policy guidance to Contracting States on taxation (*ICAO's Policies on Taxation in the Field of International Air Transport*, Doc 8632), which recommends *inter alia* the reciprocal exemption from all taxes levied on fuel taken on board by aircraft in connection with international air services, a policy implemented in practice through bilateral air services agreements, and also calls on Contracting States to the fullest practicable extent to reduce or eliminate taxes related to the sale or use of international air transport;

*Whereas* the ICAO Council had adopted on 9 December 1996 a policy statement of an interim nature on emission-related charges and taxes in the form of a resolution wherein the Council strongly recommends that any such levies be in the form of charges rather than taxes, and that the funds collected should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions;

*Whereas* such charges should be based on the costs of mitigating the environmental impact of aircraft engine emissions to the extent that such costs can be properly identified and directly attributed to air transport;

*Noting* that there remains a number of issues of a legal and policy nature regarding the implementation of GHG charges and the integration of aviation into existing emissions trading systems that have not been resolved;

*Noting* that ICAO has issued *Draft Guidance on the Use of Emissions Trading for Aviation* (Doc 9885);

*Whereas* Contracting States have legal obligations, existing agreements, current laws and established policies; and

*Whereas* the establishment of carbon offset schemes has helped to raise public awareness of climate change, and may contribute to emissions reductions in the short term;

*The Assembly:*

1. *Encourages* Contracting States and the Council to adopt measures consistent with the framework outlined below:

a) Emissions-related charges and taxes

- 1) *Affirms* the continuing validity of Council's Resolution of 9 December 1996 regarding emission-related levies;
- 2) *Recognizes* that existing ICAO guidance is not sufficient at present to implement greenhouse gas emissions charges internationally, although implementation of such charges by mutual agreement of States members of a regional economic integration organization on operators of those States is not precluded; and
- 3) *Urges* Contracting States to refrain from unilateral implementation of greenhouse gas emissions charges;

b) Emissions trading

- 1) *Urges* Contracting States not to implement an emissions trading system on other Contracting State's aircraft operators except on the basis of mutual agreement between those States;
- 2) *Requests* States to report on new developments, results and experiences in this area; and
- 3) *Requests* the Council to:
  - a) finalize and keep up-to-date for use by Contracting States, as appropriate, and consistent with this and subsequent Resolutions, the guidance developed by ICAO for incorporating emissions from international aviation into Contracting States' emissions trading schemes consistent with the UNFCCC process; and
  - b) conduct further studies, as appropriate, on various aspects of the implementation of emissions trading systems and evaluate the cost effectiveness of any systems put in place, taking into account the effect on aviation and its growth in developing economies in line with the principles stated above;

- c) conduct an economic analysis of the financial impact of including international aviation in existing trading schemes and undertake literature review of cost-benefit analysis of existing trading systems with a special emphasis on how they have been applied to other sectors in order to draw some pertinent lessons learned for the aviation sector;
- c) Carbon offsets
  - 1) *Requests* the Council to examine the potential for carbon offset mechanisms as a further means of mitigating the effect of aviation emissions on local air quality and climate change; and
  - 2) *Requests* the Council to collect and disseminate information on the results of carbon-offset programmes implemented by States and other Organizations regarding aviation emissions;
- d) Clean Development Mechanism (CDM)
  - 1) *Invites* Contracting States to explore the use of the Clean Development Mechanism (CDM) related to international aviation.

**A36-23: Performance based navigation global goals**

*Whereas* a primary objective of ICAO is that of ensuring the safe and efficient performance of the global Air Navigation System;

*Whereas* the improvement of the performance of the Air Navigation System on a harmonized, worldwide basis requires the active collaboration of all stakeholders;

*Whereas* the Eleventh Air Navigation Conference recommended that ICAO, as a matter of urgency, address and progress the issues associated with the introduction of area navigation (RNAV) and required navigation performance (RNP);

*Whereas* the Eleventh Air Navigation Conference recommended that ICAO develop RNAV procedures supported by global navigation satellite system (GNSS) for fixed wing aircraft, providing high track and velocity-keeping accuracy to maintain separation through curves and enable flexible approach line-ups;

*Whereas* the Eleventh Air Navigation Conference recommended that ICAO develop RNAV procedures supported by GNSS for both fixed and rotary wing aircraft, enabling lower operating minima in obstacle rich or otherwise constrained environments;

*Whereas* Resolution A33-16 requested the Council to develop a programme to encourage States to implement approach procedures with vertical guidance (APV) utilizing such inputs as GNSS or distance measuring equipment (DME)/DME, in accordance with ICAO provisions;

*Recognizing* that implementation of approach with vertical guidance (APV) is still not widespread;