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WORKING PAPER

ASSEMBLY — 36TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 17: Environmental protection

MANAGEMENT OF THE CLIMATE CHANGE IMPACTS OF AVIATION

(Presented by Australia)

EXECUTIVE SUMMARY	
This working paper outlines Australia's position on the establishment of a strategic framework by ICAO on the management of greenhouse gas emissions from aviation. **Action:** The Assembly is invited to: a) resolve to expedite the development of a strategic framework to manage aviation emissions; b) under the framework, prioritise practical operational and technical measures; c) encourage the development of a balanced approach that also promotes other complementary measures, such as open emissions trading options; and d) resolve to support the principles of multilateral cooperation in encouraging emissions trading options for international aviation that are implemented on the basis of mutual agreement by affected parties.	
Strategic Objectives:	This working paper relates to Strategic Objectives C (*Environmental Protection – Minimize the adverse effect of global civil aviation on the Environment*).
Financial implications:	Not applicable.
References:	Assembly Resolution A35-5

1. INTRODUCTION

1.1 Climate change is a serious global challenge that Australia is committed to addressing. Greenhouse gas (GHG) emissions from international aviation represent about 2 per cent of global anthropogenic GHG emissions. Emissions of CO_2 from global aviation are growing at a rate of about 3 per cent per year. It is important that the sector address the impacts of aviation emissions on the climate.

1.2 Australia considers that addressing emissions from aviation requires an effective global response. Given the obvious global issues concerning possible approaches to reducing or limiting GHG emissions from international aviation, it is entirely appropriate that we consider this through multilateral discussions. ICAO is the appropriate forum within which to do this. ICAO Assembly Resolution 35-5

urges States to refrain from unilateral environmental measures that would adversely affect the orderly development of international civil aviation.

1.3 Australia welcomes ICAO's proposed development of a strategic approach to address aviation emissions, and is pleased to note the recognition of the international aviation community that this matter needs to be addressed as a matter of priority by ICAO.

1.4 It is critical that ICAO take a balanced approach to this matter. ICAO's approach should include the evaluation and application of a broad range of measures to successfully reduce GHG emissions from aviation, in particular practical technological and operational approaches that can demonstrate early gains, and including market-based measures.

1.5 Australia considers that measures should be non-discriminatory, not disproportionately affect long haul carriers and be implemented without bias through a process agreed by ICAO. Measures should be implemented in a way that does not distract from concerted multilateral action.

1.6 In order to ensure the sustainability of the aviation industry, all key players, including airlines, airports, other industry stakeholders, community representatives and governments, should engage in a transparent discourse through ICAO on how best to address emissions from aviation. This is particularly important in light of increasing public pressure to address the climate impacts of aviation emissions by restricting growth or blocking airport infrastructure developments.

1.7 Addressing GHG emissions from aviation can be a win-win for the industry, communities and the environment, with many GHG mitigation measures making both economic and environmental sense. For example, fuel efficiency initiatives reduce both GHG emissions and costs, and operational initiatives reduce both GHG emissions and improve airport operational efficiency.

2. TECHNOLOGICAL ADVANCES

2.1 The highest priority should be given to pursuing and implementing technological advances directed at improving the efficiency of the aviation sector. It is envisaged that these efforts will encompass the design of aircraft, air navigation systems and airports.

2.2 It is critical that the emissions benefits of technological advances can be clearly measured and demonstrated. Benefits from the implementation of new technology should be tracked through computing and publishing performance indicators.

3. OPERATIONAL EFFICIENCY IMPROVEMENTS AND AIR NAVIGATION SERVICE PROVIDERS

3.1 Air navigation service providers have a key role to play in the implementation of more efficient operational procedures which can result in significant savings in emissions.

3.2 Australia's air navigation service provider, Airservices Australia, has been working closely with airlines to implement a range of measures to reduce fuel burn and emissions. These measures include improving fuel efficiency through flexible flight tracks, improving aircraft air traffic control sequencing and continuous descent approaches.

4. EMISSIONS TRADING

4.1 Emissions trading can be a cost effective complementary means of addressing emissions from international aviation. In order for emissions trading to become an effective tool for addressing emissions from international aviation, it would need to be mutually agreed between affected parties and be part of broader approaches including other GHG emitting sectors.

4.2 A global emissions trading scheme that includes international aviation would require serious negotiations both within ICAO and the broader climate regime. In the meantime, ICAO should encourage Contracting States to implement national schemes in a way that does not prejudice the activities of other parties and upholds the principles of multilateral cooperation. Unilateral action in this regard has the potential to detract from the good work already underway and the action planned in ICAO.

5. CARBON OFFSETTING

5.1 Carbon offsetting can allow aviation to contribute to climate action and should be considered as part of a balanced approach to addressing international aviation emissions.

5.2 For offsetting to be successful it is fundamental that there is public confidence in the transparency and robustness of any offsetting scheme that is adopted. A standardised methodology for calculating emissions, mutual recognition and accreditation of offset schemes should therefore be a part of an ICAO emissions strategy.

5.3 As an interim measure, voluntary offset pilot projects, for example in the areas of avoided deforestation and reforestation in developing countries, should be encouraged. Such pilot schemes stand outside the Clean Development Mechanism (CDM) of the Kyoto Protocol and thus are attractive for international aviation offsets.

6. ADDITIONAL MEASURES

Airports

6.1 Airports are an integral part of the aviation system and as such should have a responsibility to minimise their carbon footprints and to report to their communities on the actions that they are taking to achieve this end. For example, airports should be encouraged to produce and promulgate climate change strategies that describe the measures they are implementing to manage emissions. They should also monitor and regularly report changes in their carbon footprints over time.

Alternative Fuels

6.2 The long term sustainability of aviation will be enhanced if alternative aviation fuels can be developed from non-fossil based sources. Consideration should be given to providing additional encouragement for research work into alternative fuels specifically for the aviation sector.

Regional Cooperation

6.3 Countries should also be encouraged to enhance regional dialogue and collaboration on measures to address international aviation emissions. For example, the potential exists for enhanced fuel

efficiencies and reduced GHG emissions to be derived from countries working together towards more efficient flight routes and air traffic sequencing.

6.4 To this end, Australia is actively encouraging regional dialogue and collaboration on international aviation emissions, including through the Asia Pacific Economic Cooperation (APEC). A strategic seminar on aviation emissions was hosted by Australia in Singapore from 10-11 August. The seminar provided an important opportunity for APEC economies and key industry stakeholders to examine strategically this important global challenge and to discuss technical, operational and policy options, and areas for cooperative work (see Appendix A for Chair's Summary).

6.5 Aviation emissions were recognised as an area for co-operative action in the Sydney APEC Leaders' Declaration on Climate Change, Energy Security and Clean Development announced on 9 September 2007. The APEC Declaration included agreement to convene a second public-private sector strategic seminar in early 2008 to advance work in key areas such as air traffic management, aircraft design and alternative fuels.

6.6 The APEC Leaders also noted the leading role of ICAO in developing a balanced approach to aviation emissions based on mutual consent and relevant international legal instruments.

7. ACHIEVING BALANCE BETWEEN NOISE AND EMISSIONS

7.1 While the reduction of emissions is a priority, this should not be pursued in isolation from consideration of aircraft noise. It is recognised that in some circumstances noise will take a higher priority than emissions, in particular when managing local environmental impacts.

7.2 In many circumstances it will be necessary to determine a balance between emissions and noise through involvement with communities living in the vicinity of airports. For example, it may be possible to optimise operations at an airport on emissions at noise tolerant times (eg during the day on weekdays) and optimise on noise at noise sensitive times such as evenings and weekends.

7.3 In situations where managing noise has to be accorded priority over minimising emissions, consideration might be given to offsetting the additional emissions incurred to minimise noise.

8. AREAS FOR FURTHER WORK

8.1 It is fundamental that all policy decisions relating to aviation climate change impacts be based on solid data. To this end it is important that priority be given to developing agreed methodologies and tools for computing, analysing and reporting GHG emissions.

8.2 In addition, sound strategic transport policy requires a good understanding of the relative climate impacts of competing modes of transport. It is common to see advice that recommends journeys by road or rail, rather than air, to minimise GHG emissions. It is important that the aviation sector is aware of the costs and benefits associated with substitution. This is an area that merits research.

8.3 It may be possible to bring about worthwhile reductions in aviation emissions by implementing consumer disclosure and voluntary incentive programs that influence individual flying behaviour. These programs could include, for example, schemes for emissions labelling of air routes,

promulgating information on the efficiency of aircraft types, or schemes that offer passengers inducements to carry less baggage.

9. CONCLUSION

9.1 There is clearly an opportunity for ICAO to strengthen its role in addressing the aviation emissions issue. This objective would be enhanced if the Assembly:-

a) resolved to expedite the development of a strategic framework to manage aviation emissions;

b) under the framework, prioritised practical operational and technical measures;

c) encouraged the development of a balanced approach that also promotes other complementary measures, such as open emissions trading options; and

d) resolved to support the principles of multilateral cooperation in encouraging emissions trading options for international aviation that are implemented on the basis of mutual agreement by affected parties.

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APPENDIX

APEC STRATEGIC SEMINAR ON MEASURES TO MANAGE AVIATION EMISSIONS

CHAIRMAN'S SUMMARY

A strategic seminar on measures to manage aviation emissions was hosted by Australia in Singapore from 10 to 11 August. The seminar was conducted in accordance with the request of APEC Transportation Ministers. At their meeting in March 2007, ministers expressed support for work in ICAO towards a balanced approach to aviation emissions based on mutual consent, and requested the Transportation Working Group work to address options for cooperative work towards sustainable policy approaches.

The seminar provided an important opportunity for APEC economies and key industry stakeholders to examine strategically this important global challenge and to discuss technical, operational and policy options, and areas for cooperative work.

The seminar was attended by the following APEC economies: Australia, Canada, People's Republic of China, Indonesia, Japan, New Zealand, Papua New Guinea, the Republic of Korea, the Republic of the Philippines, Singapore, Chinese Taipei, Thailand, the United States and Viet Nam. The following key organisations also participated: ICAO, Airports Council International, the International Air Transport Association, the Association of Asia Pacific Airlines, the ASEAN Secretariat and the Pacific Islands Forum. Hong Kong China attended as an observer. Representatives of the aviation industry included airlines, airports and air navigation service providers. Experts made presentations on technological, operational and policy approaches and their implications.

Participants identified scope for collaborative work in APEC in the areas of research and data sharing, coordination of work on practical measures such as efficient air navigation, and further analysis of options for policy measures. The Transportation Working Group will consider establishing a taskforce to develop a work programme in these areas and prepare for a further seminar to be held early in 2008.

Aviation contributes around 2 per cent of global carbon dioxide emissions. Demand for aviation services is growing, particularly in Asia. Presenters advised that the full impact of aviation emissions, including on the formation of contrails and cirrus clouds, is not yet fully understood. Seminar participants acknowledged that addressing aviation emissions is important, and that all parts of the industry (including airlines, airports and air navigation service providers) and governments have a role to play.

Participants discussed the emissions reductions already being made through operational and technological advances in the aviation industry, and noted the significant scope for further adoption of practical measures to address emissions.

Airline representatives and others outlined the substantial fuel and emissions efficiencies to be gained through ongoing innovations in aircraft and engine design. Participants noted the substantial gains available from fleet upgrading, with newer more efficient aircraft progressively replacing older aircraft.

Presentations indicated that a number of APEC economies, in conjunction with air navigation service providers and aircraft operators, are working towards more efficient navigation management measures

which reduce fuel use and emissions. Participants discussed the potential for APEC economies to work collaboratively towards the wider adoption of such systems across the region.

Participants were told that these practical measures are important and will make an early and significant contribution to address emissions, but are unlikely to outweigh the effects of growth over time.

Participants noted that there are a number of policy instruments available to economies to assist in addressing emissions issues, including regulatory measures, environmental taxes and market-based mechanisms, such as emissions trading, but that these options need to be carefully considered.

In discussion of policy options, the following key issues were identified:

- the need to consider the full costs and implications of market-based measures, including the potential substitution effects if aviation demand is reduced;
- the complexities of implementing market-based measures to achieve effective environmental outcomes in a cost-effective way;
- that while emissions trading approaches appear to offer the most cost-effective option to reduce emissions, this is on the basis that the approach applies across all emissions-producing sectors of the economy;
- that robust verification arrangements are required for offset approaches to be accepted as credible;
- that the market for transport sectors is relatively inelastic, although with some sectors more price sensitive than others so that there may be significant economic impacts on industries such as leisure tourism;
- the need for further scientific and economic research, and collection and sharing of data;
- the need for investment in research and development, in particular into aircraft design improvements and alternative fuels;
- the need to look for longer-term breakthroughs as well as more immediate measures;
- the need to consider the relationship between emissions, aircraft noise, and local air quality;
- the need for further work on implementation of environmental management systems and contingency plans; and
- the need for more effective communication strategies about aviation's relative contribution to global greenhouse gas emissions and efforts already underway to contain aviation emissions.

A vibrant and sustainable aviation industry is essential for economic integration and growth across APEC economies. Participants agreed that measures to address aviation emissions must be pursued, but expressed concern that any measures aimed at reducing aviation demand may prejudice ongoing regional economic growth.

Participants noted that to achieve broad support for regional cooperation on aviation, the varying capabilities of economies to act and the importance of skills development, technological collaboration and capacity building across the region must be acknowledged.

Participants noted the lead role of ICAO in developing strategies for a global response to emissions from international aviation and the scope for APEC to contribute to such work.

Participants acknowledged that cooperation and coordination would be essential to achieve effective outcomes at the global level. Participants recalled the support by ministers for a balanced approach to aviation emissions based on mutual consent.

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