

ATTACHMENT to State letter AN 1/17-09/093

**QUESTIONNAIRE CONCERNING VOLUNTARY ACTIVITY FOR GHG REDUCTION/MITIGATION  
IN THE AVIATION SECTOR**

A copy of the questionnaire, in Microsoft Word format, has been posted on the Internet at <http://www.icao.int/icao/en/env/measures.htm>.

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**Q1.** Name of the voluntary activity.

<b>Implementation of Collaborative Arrival Manager (CAM) at Auckland and Wellington airports.</b> Note: This service may be added to other airports with agreement of customers.
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**Q2.** Type<sup>1</sup> of the voluntary activity.

<input type="checkbox"/> Unilateral commitment <input type="checkbox"/> Public voluntary scheme <input checked="" type="checkbox"/> <b>Negotiated agreement</b> <input type="checkbox"/> Other (Please describe the activity in the box below.)
<b>All major airline customers agreed to the implementation of CAM.</b>

**Q3.** Please mark all the participants<sup>2</sup> of the activity.

<input checked="" type="checkbox"/> <b>Airline</b> <input type="checkbox"/> Airline association <input type="checkbox"/> Manufacturer <input type="checkbox"/> Manufacturer association <input checked="" type="checkbox"/> <b>Airport authority</b> <input checked="" type="checkbox"/> <b>Air traffic control</b> <input type="checkbox"/> Government <input checked="" type="checkbox"/> <b>Other</b> (Please specify in the box below.)
<b>All aircraft operators using the nominated airports were consulted prior to the introduction of CAM and receive regular reports on the performance benefits of CAM.</b>

**Q4.** Is the voluntary activity accompanied by a side agreement<sup>3</sup>?

<input type="checkbox"/> Yes (Proceed to Q4-1.) <input checked="" type="checkbox"/> <b>No</b> (Proceed to Q5.)
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<sup>1</sup>The features of each type of voluntary activity are as follows.

- Unilateral Commitment: The environmental improvement plan established by the participant itself, and declared to the stakeholders, such as employees, stockholders, consumers, etc. Target and measures to environmental improvement are established by the participant itself.
- Public Voluntary Scheme: The scheme which the participant agrees voluntarily with the standard on environmental improvement target, technology, management, etc. established by public organization such as Ministry for Environment.
- Negotiated Agreement: Contract based on negotiation between public organization (national government/local government) and industries. Both parties can independently decide whether to agree to the contract.

<sup>2</sup> If you marked "Public voluntary scheme" on Q2, the public organization which establishes the standard is included in the participants. If you marked "Negotiated agreement" on Q2, the public organization which agrees to the contract is included in the participants.

<sup>3</sup> "Side agreement" is the agreement between the participant of the activity and a third party. For example, the agreement between an airline and an engine manufacturer, which prescribes that the manufacturer assist the airline to attain its target by introducing new emission-reducing technologies, is considered as a side agreement. For more information, please refer to Part II Paragraph 6.5.2 on "Template and Guidance on Voluntary Measures", released on ICAO CAEP website ([http://www.icao.int/icao/en/env/Caep\\_Template.pdf](http://www.icao.int/icao/en/env/Caep_Template.pdf)).

**Q4-1.** If the voluntary activity is accompanied by side agreement, please describe the parties and outline the side agreement.

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**Q5.** Please answer the following questions concerning the coverage of the voluntary activity:

**Q5-1.** Select all green house gases (GHGs) which are part of the voluntary activity.

Carbon dioxide (CO<sub>2</sub>)     Methane (CH<sub>4</sub>)     Nitrous oxide (N<sub>2</sub>O)     Hydrofluorocarbons (HFCs)  
 Perfluorocarbons (PFCs)     Sulphur hexafluoride (SF<sub>6</sub>)     Nitric oxide & Nitrogen dioxide (NO<sub>x</sub>)     Water vapor (H<sub>2</sub>O)     Other (Please specify in the next box.)

**All GHG emissions will be affected but only estimated CO<sub>2</sub> emissions are being reported.**

**Q5-2.** Please select all operations<sup>4</sup> which are part of the voluntary activity.

International passenger flight     Domestic passenger flight     International cargo flight     Domestic cargo flight     Other (Please specify in the next box.)

**All IFR flights that are operating to the nominated airports.**

**Q6.** Please answer the following questions concerning the index to measure the effect of the voluntary activity.

**Q6-1.** Select the index used to measure the effect of the voluntary activity.

Absolute quantity of GHG emissions<sup>5</sup> (Please outline the index in the box below.)  
 Unit of GHG emissions<sup>6</sup> (Please outline the index in the box below.)  
 **Introduction of specific technology**  
 Introduction of specific procedure     Other (Please specify in the box below.)

**Kg of CO<sub>2</sub>**

<sup>4</sup> In case that the voluntary activity describes its coverage from the other viewpoint than listed above, such as “operation under IFR”, “operation of aircraft larger than specific weight”, etc. and that aim of the activity is not linked to operation directly, for example introduction of new technology which contributes reduction/mitigation of GHGs, please mark “other” and please describe feature.

<sup>5</sup> The example of the unit is Ton-CO<sub>2</sub>, Ton-C, m<sup>3</sup>-CO<sub>2</sub>, etc.

<sup>6</sup> The example of the unit is g-CO<sub>2</sub>/RPK(Revenue Passenger Kilometer), g-CO<sub>2</sub>/ASK(Available Seat Kilometer), g-CO<sub>2</sub>/RTK(Revenue Ton Kilometer), g-CO<sub>2</sub>/ATK (Available Ton Kilometer), etc.

**Q6-2.** Please outline the procedure to acquire data to calculate or describe the index of Q6-1.

**Airways obtained fuel consumption data for each aircraft type from each airline. Airways then calculated the minutes of delay avoided for each aircraft type at the nominated airports and produced the following KPI's;**

- 1. The airborne fuel burn avoided (in Kgs) by imposing ground delays to those flights destined for the nominated airports (those receiving a CAM service).**
- 2. The reduction in fuel burn corresponding to the actual difference in flight time for scheduled flights (by aircraft type) operating the city pair. The sum of actual delay for each quarter is compared with the corresponding quarter of the previous twelve months to determine the actual saving.**

**This data was also used to calculate both the monetary savings the airlines obtained from reduced fuel burn and the corresponding reduction of CO<sub>2</sub> emissions. The estimates of CO<sub>2</sub> emissions were derived using 3.16 kilograms of CO<sub>2</sub> per kilogram of jet fuel. The fuel cost per kilogram was obtained from Shell New Zealand and an average price of \$1.50 per kilogram was used for the modelling calculations for the most recent reporting period.**

**Q7.** Please answer the following questions concerning the target of the voluntary activity.

**Q7-1.** Is the target of the voluntary activity clearly defined?

Yes (Proceed to Q7-2.)     No (Proceed to Q8.)

**Q7-2.** Please describe the target of the voluntary activity, including substance of the target, target year, base year.

**Aim is to minimise fuel burn to the greatest extent possible by reducing airborne delay but a specific target (% saving or absolute value) has not been determined.**

**Q8.** Please list the measures to attain the target or to reduce/mitigate GHGs.

**Reduce airborne delay for IFR flights and minimise tactical interventions so that flights normally follow the STAR using the most fuel efficient trajectory.**

- Reducing airborne delay is achieved by issuing a Controlled Time of Take-off (CTOT = a 5minute window) to each departing flight that enables the flight to arrive at its destination as close to the scheduled arrival time as conditions allow with minimal airborne delay.**
- Ensuring that as far as possible, arriving flights are permitted to fly the optimum trajectory (e.g. Continuous Descent Operations) so that they minimise fuel burn).**

**Q9.** Please answer the following questions concerning periodic review of the voluntary activity.

**Q9-1.** Is the progress of the voluntary activity reviewed periodically?

Yes (Proceed to Q9-2.)     No (Proceed to Q10.)

**Q9-2.** Please describe the frequency of the periodic review.

**The customers are provided progress reports every three months.**

**Q9-3.** Is a third party's opinion considered/to be considered in the periodic review?

Yes (Proceed to Q9-4.) × **No** (Proceed to Q10.)

**Q9-4.** Please outline the third party opinion.

**Q10.** Please answer the following questions concerning legislative obligation.

**Q10-1.** Is there any legislative obligation on attainment of the target?

Yes (Proceed to Q10-2.) × **No** (Proceed to Q11.)

**Q10-2.** Please describe legislative obligation, including measures taken in case that the participant of the voluntary activity fails to attain the target.

**Q11.** Please answer the following questions concerning disclosure of information<sup>7</sup> on the voluntary activity:

**Q11-1.** Is the name of the participant of the voluntary activity disclosed to the public?

Yes × **No**

**Q11-2.** Is the target of the voluntary activity disclosed to the public? (If you marked “no” at Q7-1, the answer to this question shall be “not applicable”.)

Yes  No × **Not applicable**

**Q11-3.** Are the measures taken/to be taken by the participant of the voluntary activity to attain the target/reduce or mitigate GHGs disclosed to the public?

Yes × **No**

**Q11-4.** Is the result of each periodic review disclosed/to be disclosed to the public? (If you marked “no” at Q9-1, the answer to this question shall be “not applicable”.)

Yes  No × **Not applicable**

**Q11-5.** Is the effect of the voluntary activity disclosed/to be disclosed to the public?

Yes × **No**

<sup>7</sup> Item(s) to which the answer is/are “no” from Q11-1 to Q11-5, are considered but this information will not be included in the final report.

**Q12.** Please answer the following questions concerning effect of the voluntary activity:

**Q12-1.** Is third party's opinion considered/to be considered when examining the effect of the voluntary activity?

Yes (Proceed to Q12-2.)     No (Proceed to Q12-3.)

**Q12-2.** Please outline the third party opinion.

**Note: The emissions reduction conclusions are communicated to the airlines and they have agreed with the estimates calculated by Airways NZ.**

**Q12-3.** How much of GHGs amount emitted per year, in CO<sub>2</sub> weight equivalent are reduced or mitigated/expected to be reduced or mitigated by the voluntary activity?

**Estimated actual reduction = 19.6 million Kgs of CO<sub>2</sub>**

**Q13.** Please provide the website address for the voluntary activity, if any, in the box below.

**Not available**

**Q14.** Please describe additional information, if any.

**Intentionally blank**

Duly completed questionnaires should be returned to:

Voluntary Measures Focal Point  
ICAO Committee on Aviation Environmental Protection (CAEP)  
Attention: Mr. Tetsu Shimizu  
Policy Coordinator for Global Environment  
Civil Aviation Bureau of Japan  
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Copy to:  
Jane Hupe

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