

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.

OAPM - Optimization of Airspace and Procedures in the Metroplex
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Q2. Type¹ of the voluntary activity.

<input checked="" type="checkbox"/> Unilateral commitment <input type="checkbox"/> Public voluntary scheme <input type="checkbox"/> Negotiated agreement <input type="checkbox"/> Other (Please describe the activity in the box below.)

Q3. Please mark all the participants² of the activity.

<input checked="" type="checkbox"/> Airline <input type="checkbox"/> Airline association <input type="checkbox"/> Manufacturer <input type="checkbox"/> Manufacturer association <input type="checkbox"/> Airport authority <input checked="" type="checkbox"/> Air traffic control Government <input checked="" type="checkbox"/> Other (Please specify in the box below.)
The MITRE Corporation's Center for Advanced Aviation System Development, along with other support contractors, participates in the study and design phases of the OAPM process. Support contractors, such as Harris Miller Miller & Hanson Inc. and ATAC Corporation, are also employed to prepare the Environmental Assessment.

Q4. Is the voluntary activity accompanied by a side agreement³?

<input type="checkbox"/> Yes (Proceed to Q4-1.) <input checked="" type="checkbox"/> No (Proceed to Q5.)

¹The 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.

² 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.

³ "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).

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.

<input checked="" type="checkbox"/> Carbon dioxide (CO ₂) <input type="checkbox"/> Methane (CH ₄) <input type="checkbox"/> Nitrous oxide (N ₂ O) <input type="checkbox"/> Hydrofluorocarbons (HFCs) <input type="checkbox"/> Perfluorocarbons (PFCs) <input type="checkbox"/> Sulphur hexafluoride (SF ₆) <input type="checkbox"/> Nitric oxide & Nitrogen dioxide (NO _x) <input type="checkbox"/> Water vapor (H ₂ O) <input type="checkbox"/> Other (Please specify in the next box.)
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Q5-2. Please select all operations⁴ which are part of the voluntary activity.

<input checked="" type="checkbox"/> International passenger flight <input checked="" type="checkbox"/> Domestic passenger flight <input checked="" type="checkbox"/> International cargo flight <input checked="" type="checkbox"/> Domestic cargo flight <input checked="" type="checkbox"/> Other (Please specify in the next box.)

Metroplex is the FAA's fast-track initiative to implement Performance Based Navigation (PBN) procedures and airspace improvements to reduce fuel consumption and aircraft exhaust emissions in some of the United States' busiest airspace.

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.

<input checked="" type="checkbox"/> Absolute quantity of GHG emissions ⁵ (Please outline the index in the box below.) <input type="checkbox"/> Unit of GHG emissions ⁶ (Please outline the index in the box below.) <input type="checkbox"/> Introduction of specific technology <input type="checkbox"/> Introduction of specific procedure <input type="checkbox"/> Other (Please specify in the box below.)

The eight Metroplex studies completed by the end of 2012 estimated substantial potential savings from RNAV approaches and departures and airspace redesign — as much as 30 million gallons of fuel and 298 thousand metric tons of carbon dioxide emissions per year. The Environmental Assessments also contain estimates of CO ₂ e emissions.

⁴ 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.

⁵ The example of the unit is Ton-CO₂, Ton-C, m³-CO₂, etc.

⁶ The example of the unit is g-CO₂/RPK(Revenue Passenger Kilometer), g-CO₂/ASK(Available Seat Kilometer), g-CO₂/RTK(Revenue Ton Kilometer), g-CO₂/ATK (Available Ton Kilometer), etc.

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

The reduction of fuel burn and emissions is based on estimated savings resulting from modelling optimized procedures (reduced track miles and Optimized Profile Descents) compared with what would happen if no further improvements were made. In addition, lead-carriers estimated savings using aircraft simulator flight data collected during proposed procedures evaluations for individual Metroplex sites.

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.

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

The new Air Traffic procedures concept was to pursue near-term advances that would take advantage of equipment already installed on aircraft. This idea led to a combination of airspace redesign and the development of area navigation (RNAV) arrivals and departures within metroplexes — geographic areas with multiple airports and complex, sometimes conflicting flight operations. RNAV procedures are the most basic types of PBN, requiring only performance-based sensors or procedures, such as GPS or triangulation using Distance Measuring Equipment, for which most aircraft already are equipped. The fuel burn and emission reduction estimates are a result of shorter track miles flown and the incorporation of Optimized Profile Descents (OPD) - flying at reduced thrust in a continuous, or near continuous descent from cruise altitude to the final approach fix.

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.

Not currently planned specifically in relation to emissions reduction.

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 information⁷ 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

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

⁷ 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.

Q12-1. 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.

Q12-3. How much of GHGs amount emitted per year, in CO₂ weight equivalent are reduced or mitigated/expected to be reduced or mitigated by the voluntary activity?

CO2: Estimated 298 thousand metric tons
Source: FAA NextGen Implementation Plan 2013

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

<http://www.faa.gov/nextgen/implementation/>
<http://www.oapmenvironmental.com/index.html>

Q14. Please describe additional information, if any.

None