

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

Q1. Name of the voluntary activity.

Boeing Environmental Strategy

Q2. Type¹ of the voluntary activity.

Unilateral commitment Public voluntary scheme Negotiated agreement
 Other (Please describe the activity in the box below)

In addition to and complementary with unilateral commitments, Boeing has entered into agreements and understandings with other parties with the aim of addressing aviation greenhouse gas emissions, e.g. aviation industry declaration shown at <http://enviro.aero/Aviationindustryenvironmentaldeclaration.aspx>. For more information about such agreements, please refer to Boeing's 2009 Environmental Report (see <http://www.boeing.com/aboutus/environment/>).

Q3. Please mark all the participants² of the activity.

Airline Airline association Manufacturer Manufacturer association
 Airport authority Air traffic control Government
 Other (Please specify in the box below)

Voluntary activities include customers, suppliers and other stakeholders as appropriate

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

Yes (Proceed to Q4-1.) No (Proceed to Q5.)

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

¹The feature of each type of the voluntary activities is 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: Public: 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 issue.
- 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 to the participants. If you marked "Negotiated agreement", the public organization which agrees to the contract is included to the participants.

³ "Side agreement" is the agreement between the participant of the activity and 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 third 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).

Boeing has entered into agreements and understandings with other parties with the aim of addressing aviation greenhouse gas emissions. For example, Boeing has joined several other aviation industry members in a declaration of commitment to action on climate change.

(see <http://www.enviro.aero/Aviationindustryenvironmentaldeclaration.aspx>). For more information about such agreements, please refer to Boeing's 2009 Environmental Report (see <http://www.boeing.com/aboutus/environment/>).

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 (CO₂) Methane (CH₄) Nitrous oxide (N₂O) Hydrofluorocarbons (HFCs)
 Perfluorocarbons (PFCs) Sulphur hexafluoride (SF₆) Nitric oxide & Nitrogen dioxide (NO_x)
 Water vapor (H₂O) Other (Please specify in the next box)

includes GHGs associated with commercial aircraft with primary focus on CO₂

Q5-2. Please select all operations⁴ 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.)

Boeing is addressing aviation GHG emissions associated with various types of airplane flights, as well as aircraft maintenance and ground operations; however, such operations typically are directed and carried out by parties other than Boeing, such as airplane owners and operators.

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 emission⁵ (Please outline the index in the box below)
 Unit of GHG emission⁶ (Please outline the index in the box below.)
 Introduction of Specific technology
 Introduction of specific procedure Other (Please specify in the box below)

Introduction of technology and procedures across a variety of applications is made. Primary indicators are expressed in % improvement in fuel efficiency, as well as appropriate metrics for individual constituent emissions of interest. For more information, please refer to Boeing's 2009 Environmental Report (see <http://www.boeing.com/aboutus/environment/>)

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

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.

Internal procedures used to evaluate technology and design improvements along with variety of information available on commercial airplane fleet operational performance. For more information, please refer to Boeing's 2009 Environmental Report (see <http://www.boeing.com/aboutus/environment/>)

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.

Primary target most directly addressing Boeing actions aimed at reducing GHG emissions of aviation is to "Reduce carbon intensity of air transportation by reducing CO2 emissions 15 percent with each new generation of commercial aircraft." (see <http://www.boeing.com/aboutus/environment/policies.html>)

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

Please refer to the section of Boeing's 2009 Environmental Report on "Pioneering Technologies" (available at http://www.boeing.com/aboutus/environment/environmental_report_09/environmentally-progressive-products.html) which highlights items such as advanced blended winglet, retrofit performance improvement packages (low-profile vortex generators, improve RAM air systems, drooped ailerons), and advanced health management technology to automate and enhance the process of fuel and CO2 emissions performance. The report also describes Boeing's ongoing work to promote the development and eventual commercialization of sustainable biofuels for aviation, as well as efforts to implement improved air traffic management technology and procedures.

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.

In most cases, on a monthly basis.

Q9-3. Is 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.

Multiple third parties are engaged and their inputs are often considered in regular internal business reviews. Topical meetings with such third parties are held as appropriate. Regular participation in several third party organizations (e.g. The Nature Conservancy, World Business Council for Sustainable Development, Carbon Disclosure Project) also provides reference for understanding third party perspective.

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

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.

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

Examples of action taken by Boeing that may address GHG emissions associated with aviation are typically disclosed in public via website postings, press releases, interviews, and the like.

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.

Boeing believes that by embracing thoughtful efforts at transparency and standardization the company is better positioned for future changes in regulatory frameworks—particularly around greenhouse gas emissions. Therefore, we engage with a variety of third parties and share our performance in our annual environmental reports.

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?

The result of Boeing efforts is visible in the actual fleet performance; however that performance depends on many other factors, including factors within the control of airplane owners and operators rather than Boeing. Thus, it is not possible to provide a separate estimate.

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

Please refer to www.boeing.com/environment for information on a variety of Boeing’s environmental initiatives, including the Company’s annual Environmental Report.

Q14. Please describe additional information, if any.

Boeing’s approach to helping address aviation greenhouse gas emissions have been recognized favorably by the Carbon Disclosure Project (see <https://www.cdproject.net/en-US/Results/Pages/leadership-index.aspx>)

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