

Climate Change Matrix: Consideration of Climate Change in Preparing Aviation Forecasts

Potential actions by individuals or governments	Current status	Potential future impact on passenger traffic growth (Positive/negative/neutral)	Available data on impact (Available / Limited / None)	Offsetting factors (Increase/decrease future impact on passenger traffic)	Potential forecast scenario interpretation/mechanism
1. Reduction in Air Travel Propensity. Individuals could choose to reduce the number of air trips that they make	Unknown	Negative	None	Perceived need to reduce air travel decreased with adoption of GHG/carbon tax or trading measures	Judgement based assumption on reduction in trips per person / speculative
2. Voluntary Carbon Offset Fees. Individuals could voluntarily choose to pay a carbon offset fee to mitigate the emissions created by their air trips	In process	Neutral, if paying fees does not affect future travel; Negative, if for those who choose to do this, it represents an increase in the cost of air travel, which is likely to reduce future traffic growth to some extent.	Limited (not public information) However, data <u>could</u> be obtained from air traveler surveys; there is some information in the recent PDX Household Survey on willingness to pay offset fees, although not whether any respondents have actually done this voluntarily	Government actions instituted which reduce need for voluntary contributions	Assessment of reduction in passenger traffic
3. Mandatory Taxes or Other Fees. Governments could impose a mandatory carbon offset tax or other emission-related tax or fee on air travel	No plan	Negative	None	If existing taxes are assumed to be part of the base case, a fuel-based tax [the most logical approach] would increase the premium on fuel efficiency, potentially accelerating the introduction of more fuel-efficient aircraft and reducing the cost impact on air travelers.	Assume fuel tax--increase in fuel price and cost of travel. Timing and phasing of tax an issue for forecasts
4. Emissions Targets and Trading. Governments could set greenhouse gas emission targets and establish an emissions trading scheme to encourage airlines to exceed their targets and require those airlines that fail to meet the targets to purchase emissions credits to make up the shortfall	No plan in the U.S. (However, the EU is pursuing such a plan vigorously and it is likely to be implemented in the near future.)	Negative	To be determined (Further research needed on the potential impact of the proposed EU actions.)	If existing taxes are assumed to be part of the base case, impact could vary with actions by airlines to reduce emissions, such as fleet replacement.	Assume increase in cost of travel. Timing of targets an issue for forecasts
5. Regulating Aircraft Engine Emissions. Governments could set progressively more restrictive standards for aircraft engine emissions and require the phase-out of those aircraft (or at least those engines) that fail to meet the standards	No plan	Negative	To be determined (Further research needed of recent ICAO/CAEP discussions on revising the aircraft engine emissions standards.)	Future impact could be decreased with issuance of waivers and accelerated fleet replacement by airlines for fuel efficiency and cost reasons, depending on the implementation schedule.	Assume increase in cost of travel. Consider broad range of potential implementation schedules.
6. Limitations on the Number of Flights. Governments could set limits on the number of flights	No plan	Negative	None	Future impact decreased with accelerated fleet replacement to increase average aircraft size.	Assume increase in cost of travel that would result from such restrictions.
7. Development of Alternative Fuels and Advanced Aircraft Technology. Governments could support expanded research into alternate fuels and advanced aircraft technology that reduces emissions or fuel consumption (the two issues are closely related, since reducing fuel consumptions reduces carbon emissions).	In process-no tax (Commercial Aviation Alternative Fuels Initiative--CAAFI)	If tax is imposed to support research and oil prices remain at high levels, in short-term, negative; in long-term, positive. (Use of alternative fuels for emission reasons would adversely impact traffic growth if they cost more than oil-based fuel. If the developed economies start turning to alternative fuels in a big way, it is likely that OPEC will reduce prices.)	Information available on likely future costs of alternative fuels, which could be used to make estimates of the potential impact on future airline costs. However, such estimates would be very dependent on assumptions about future oil prices.	Need for tax may be delayed by increased fuel costs to levels that prompt private sector development of alternative fuels or accelerated fleet replacement with more fuel-efficient aircraft. (The key forecast issue is determining the baseline fuel price scenario, and how this is linked to assumptions about the deployment of alternative fuels.)	Assume successful development of alternative fuels and new aircraft technology--decrease in fuel costs and cost of travel. Timing and contribution of alternative fuels in reducing GHG emissions and lowering fuel costs is a forecast issue.
8. No action is taken	No plan	Neutral	Not applicable	None	None--continuation of status quo as part of base case forecast