Propel Aviation into the Future

Overall objective and context

The overall vision is to achieve, by 2050, zero climate impact aviation. “Zero climate impact” takes account of all aviation impacts, including CO₂ and non-CO₂ gases and aviation-induced cloudiness. The vision is extremely difficult to implement in practice, in part because of the very long lifetime of capital stock in the aviation industry – developing, designing, testing, refining, and building wholly new aircraft is a complex, decades-long process; once built, aircraft remain in service for decades.

Consequently, aviation targets – near-term and long-term – must be science-driven and consistent with achieving net-zero emissions across all sectors by 2050. Mandates are critical: Achieving aviation emissions goals should be mandatory and backed up by strong compliance measures. Airlines should cut their own emissions by (a) making fleets more efficient; (b) improving operations, including modernizing air traffic control; and (c) using sustainable aviation fuels (SAF). Limited amounts of offsets can be used as a gap-filler. Both offsets and SAF must meet strong sustainability standards (at a minimum, standards adopted in the UN’s International Civil Aviation Organization (ICAO)). Emissions reductions, whether from in-sector, SAF, or offsets, cannot be double counted in other national or international regimes.

To achieve the emissions cuts needed over the long-term, funding directed towards R&D and early commercialization subsidies may be useful in some cases (e.g. sustainable alternative fuels like power-to-liquids). Care must be taken not to shift the problem to other sectors - for example, policies that merely redirect SAF from existing uses (e.g., road transport) to aviation without unlocking new climate mitigation (e.g., electrification of road transport) should be avoided. Policies that promote liquid fuels made from carbon dioxide removal must ensure those technologies are powered by surplus renewable electricity, otherwise their use could simply cause total emissions to go up.

Theory of change: If the aviation industry believes that significant portions of its core business, government, and holiday travel customers will not start flying again unless the industry is on an enforceable path to zero net climate impact, it will accept stringent regulation, but that regulation must be accompanied by tools that enable the industry as a practical matter to make the needed shifts.

Topline targets: The industry has a current “aspirational” goal of cutting emissions 50% by 2050, but that target is not sufficient for Paris climate goals. The US has acceded to an international standard that caps the net emissions of international flights at the average of 2019-2020 emissions levels through 2035 (see “CORSIA”, below). A new administration has a crucial opportunity to strengthen these targets to require a trajectory consistent with achieving net-zero aviation emissions by 2050 and at least a 30% reduction from 2019 levels by 2035.
Priority strategies

Administrative strategies:

a) EPA has authority, shared with FAA, under Section 231 of the Clean Air Act, to certificate aircraft engines for pollutant emissions. This authority can be used not only to implement the aircraft efficiency standard agreed to by the Obama Administration in 2016 in ICAO (a proposed rule to do so is currently stalled by the Trump Administration and subject to litigation over the unreasonable delay), but also to implement a more ambitious standard. A high level of ambition would be to require a 2.5% per annum fleetwide fuel efficiency improvement. It is possible that any particular level of ambition could be challenged in litigation.

b) Existing Clean Air Act authority could potentially also be used to establish an aviation low-carbon fuels standard (LCFS), although this would be more complex.

c) A new Administration could direct existing FAA and DOT research programs toward reducing the climate impact of aviation including research on fuels, electric aircraft, new approaches to flight.

d) A new Administration could stop the Trump Administration’s efforts to speed approval for highly-inefficient, super-expensive supersonic aircraft.

e) A new Administration could examine existing policies (e.g., “use or lose” rules for slot-constrained airports, resulting in “ghost flights” being flown simply to maintain a competitive hold on slots; antitrust policies that bar different carriers from consolidating nearly-empty flights) that inadvertently encourage high emissions and discourage efficiency, to see whether these policies could be revised to cut pollution while protecting consumer interests.

Legislative Strategies:

a) Congress should establish a declining cap on emissions of domestic and international flights, applicable to each airline that operates flights from U.S. airports, implementing the targets noted above. EPA should conduct a scientific and technical review every five years, with notice and comment, to determine whether to strengthen the cap and trajectory.

b) Congress should make ICAO’s emissions cap for international flights, under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), binding on airlines and should require EPA to conduct scientific and technical reviews with notice and comment to determine whether to strengthen the cap and trajectory. CORSIA should be the floor for minimum quality of offsets and SAF, and Congress should require SAF to reduce carbon intensity by at least 50% compared to conventional aviation fuels. Congress should consider other SAF incentives in the early years.

This section is based upon input from the following individuals (section leads are noted with an asterisk and additional contributors are listed in alphabetical order): Carol A. (“Annie”) Petsonk (Environmental Defense Fund)*; and Brad Schallert (World Wildlife Fund-US)*. The views reflected in this document are not intended to be consensus perspectives and do not reflect the views of the individuals’ organizations.