

EPA Finalizes First Steps to Address Greenhouse Gas Emissions from Aircraft Engines

In this final action, the Administrator makes two findings under section 231(a)(2)(A) of the Clean Air Act (CAA) that: (1) concentrations of six well-mixed greenhouse gases (GHGs) in the atmosphere endanger the public health and welfare of current and future generations (the endangerment finding), and (2) GHGs emitted from certain classes of engines used in certain aircraft are contributing to the air pollution—the mix of those six GHGs in the atmosphere—that endangers public health and welfare.

The Administrator is making these findings using the same definitions of the “air pollution” and “air pollutant” as was used under CAA section 202(a)(1) regarding motor vehicle GHG emissions, namely the combined mix of six key well-mixed GHGs: carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These six well-mixed GHGs are considered as a combined group and together are the root cause and best understood drivers of human-induced climate change and the resulting impacts on public health and welfare. The EPA is not at this time proposing or finalizing aircraft engine GHG emissions standards.

Aircraft GHG Emissions

The U.S. transportation sector is a significant contributor to total U.S. and global anthropogenic GHG emissions. Aircraft remain the single largest GHG-emitting transportation source not yet subject to GHG standards in the U.S.

U.S. aircraft (this includes all domestic flights and international flights originating in the U.S.) emit:

- 12 percent of GHG emissions from the transportation sector in the U.S.
- 3 percent of total U.S. GHG emissions.
- 29 percent of all global aircraft GHG emissions.
- 0.5 percent of total global GHG emissions

Scope of Covered Aircraft

The contribution finding concludes that GHG emissions from certain classes of engines used in “U.S. covered aircraft” contribute to the air pollution that endangers public health and welfare. The EPA defines “U.S. covered aircraft” to be subsonic jet aircraft with a maximum takeoff mass (MTOM) greater than 5,700 kilograms and subsonic propeller driven aircraft (e.g., turboprops) with a MTOM greater than 8,618 kilograms. Examples of covered aircraft include smaller jet aircraft such as the Cessna Citation CJ3+ and the Embraer E170, up to the largest commercial jet aircraft –the Airbus A380 and the Boeing 747. Examples of covered turboprop aircraft include larger turboprop aircraft, such as the ATR 72 and the Bombardier Q400. The scope of covered aircraft aligns with the applicability thresholds (based on MTOM) for the international aircraft CO₂ standard.

The Administrator is not at this time making a contribution finding for GHG emissions from engines not used in covered aircraft (i.e., those used in smaller turboprops, smaller jet aircraft, piston-engine aircraft, helicopters and military aircraft). Examples of aircraft that are not covered include smaller turboprop aircraft, such as the Beechcraft King Air 350i, and smaller jet aircraft, such as the Cessna Citation M2.

This contribution finding for engines used in U.S. covered aircraft results in the vast majority (89 percent) of total U.S. aircraft GHG emissions being included in this determination.

Findings Background

In 2009 the EPA issued endangerment and contribution findings that GHG emissions from new motor vehicles cause or contribute to the air pollution that causes climate change endangering public health and welfare. In this final action under CAA section 231(a)(2)(A), EPA relies primarily on the extensive scientific and technical evidence in the record supporting the 2009 Endangerment Finding under section 202(a) of the CAA, including the major, peer-reviewed scientific assessments used to address the question of whether GHGs in the atmosphere endanger public health and welfare, and on the analytical framework and conclusions upon which the EPA relied in making the 2009 finding. This final finding accounts for the EPA’s careful consideration of the scientific and technical record for the 2009 Endangerment Finding, the new, major scientific assessments issued since closing the administrative record for the 2009 Endangerment Finding, and consideration of public comments.

The Clean Air Act and Aircraft Regulation

The EPA and the Federal Aviation Administration (FAA) traditionally work within the standard-setting process of the International Civil Aviation Organization’s (ICAO) Committee on Aviation Environmental Protection (CAEP) to establish international emission standards and related requirements, which individual nations later adopt into domestic law. At its meeting in February of 2016, ICAO/CAEP agreed on the first-ever international standards to regulate CO₂ emissions from aircraft. The ICAO Assembly will now seek to approve these CO₂ standards in October 2016, and then ICAO will formally adopt these standards in March 2017.

The EPA's final endangerment and cause or contribute findings for aircraft GHG emissions do not prejudice what future EPA standards will be for engines used in covered aircraft. Instead, the EPA's final findings are in preparation for a future domestic rulemaking process to adopt future GHG standards. These findings trigger EPA's duty under the Clean Air Act to promulgate emission standards applicable to GHG emissions from the classes of aircraft engines included in the contribution finding. Any such future proposed domestic regulatory actions would be open to the appropriate public comment and review, providing opportunity for stakeholders and the public to provide input.

For More Information

You can access the final findings on EPA's Office of Transportation and Air Quality (OTAQ) website:

www.epa.gov/otaq/aviation.htm