Resource Information

EPA Finalizes Airplane Greenhouse Gas Emission Standards

In this action, the Administrator is adopting greenhouse gas (GHG) emission standards that apply to certain new commercial airplanes, including all large passenger jets. These standards match the international airplane carbon dioxide (CO_2) standards adopted by the International Civil Aviation Organization (ICAO) in 2017. This action implements EPA's authority under the Clean Air Act and assures the worldwide acceptance of U.S. manufactured airplanes and airplane engines.

Acceptance of U.S. Manufactured Airplanes Worldwide

The standards harmonize with the international standards and provide global consistency, ensuring all the world's manufacturers meet the same standards.

The rule helps ensure that U.S. manufactured airplanes, and airplane engines are accepted by nations and airlines around the world. Without this final action, nations could ban the use of any airplane within their airspace that does not meet ICAO standards.

If EPA did not adopt GHG standards or were to adopt standards less stringent than the ICAO's standards, U.S. airplane manufacturers could be forced to seek CO_2 emissions certification from an aviation certification authority of another country (rather than the Federal Aviation Administration (FAA)) in order to market their airplanes for international operation.

Scope of Covered Airplanes

The standards address subsonic jet aircraft with a maximum takeoff mass (MTOM) greater than 5,700 kilograms and subsonic propeller driven airplanes (e.g., turboprops) with a MTOM greater than 8,618 kilograms. Examples include larger business jets such as the Cessna Citation CJ3+, the larger commercial jet aircraft – the Boeing 777 and the Boeing 787, and larger civil turboprop airplanes such as the ATR 72 and the Viking Q400. These are same types of airplanes covered by the international aircraft CO_2 standard.

The GHG standards apply to new type design airplanes when this rule becomes effective and to in-production airplanes on or after January 1, 2028. They do not

EPA United States Environmental Protection Agency

Office of Transportation and Air Quality
EPA-420-F-20-057
December 2020

apply to already manufactured airplanes that are currently in-use. New type design airplanes are newly developed airplane designs that have not previously been type certificated by the FAA and are not yet being built or flown.

In-production airplanes are new airplanes with designs that have already been type certificated by FAA and are already in production, and these airplanes will continue to be produced and sold after the effective date of the standards.

The Clean Air Act and Airplane Regulation

EPA and FAA have long cooperated in regulating airplane emissions, by first helping ICAO develop international emission standards and then issuing rules under Clean Air Act (CAA) sections 231 and 232 to establish domestic standards and ensure compliance with the standards. In 2017, ICAO adopted the first-ever international standards to regulate CO_2 emissions from airplanes. In this rulemaking, EPA is using section 231 of the CAA to adopt equivalent airplane GHG emission standards domestically.

2016 Findings Background

In 2016, under section 231 of the Clean Air Act, EPA found that: (1) concentrations of six well-mixed GHGs in the atmosphere—CO_2, methane, nitrous oxide (N_2O), hydrofluorocarbons, per- fluorocarbons, and sulfur hexafluoride—endanger the public health and welfare of current and future generations, and (2) GHGs emitted from certain classes of engines used in certain aircraft are contributing to that endangering air pollution. Airplane engines emit two of the six well-mixed GHGs, CO_2 and N_2O. Accordingly, EPA is adopting GHG standards that match the ICAO fuel-efficiency-based standards, which control the GHGs emitted by airplane engines, CO_2 and N_2O.

Aircraft GHG Emissions

The U.S. transportation sector is a significant contributor to total U.S. 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 covered by the rule (this includes all domestic flights and international flights originating in the U.S.) emit:

- 10 percent of GHG emissions from the transportation sector in the U.S.
- 3 percent of total U.S. GHG emissions.

For More Information

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

www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-aircraft