Aircraft GHG Emissions

NACAA Briefing

June 23, 2015

Introduction

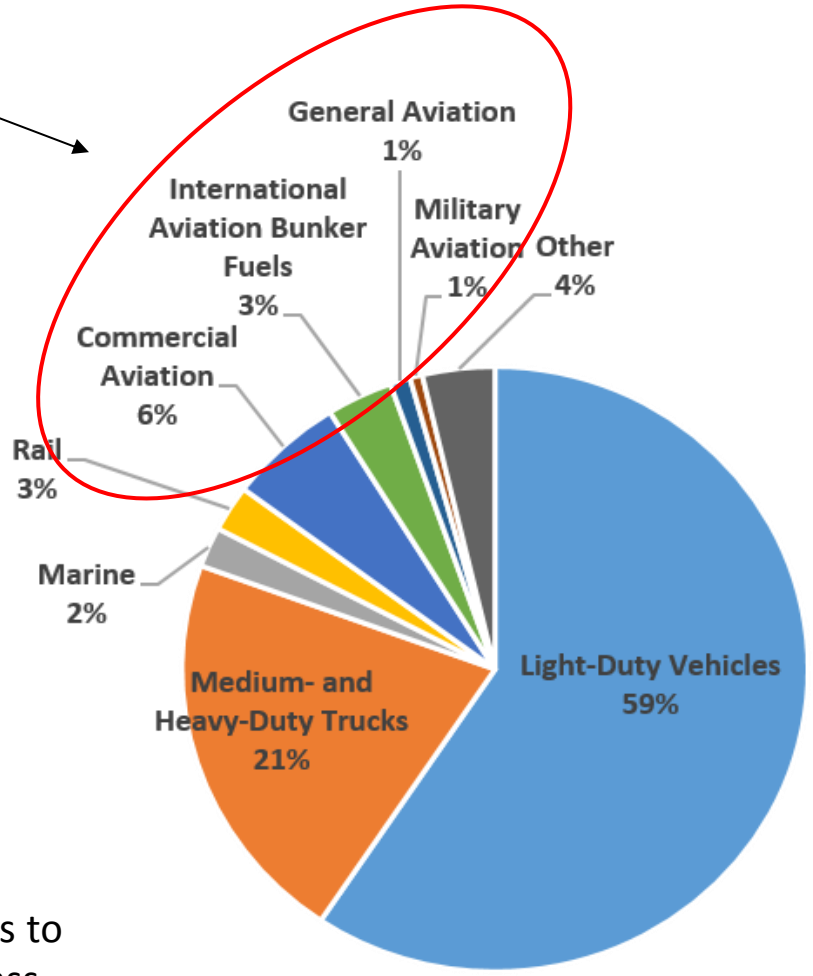
- On June 10, 2015, EPA issued a proposal and Advance Notice of Proposed Rulemaking (ANPR) to take first steps to address GHG emissions from aircraft engines.
- The EPA is not at this time proposing aircraft engine GHG emission standards.
- Comments will be accepted for 60 days beginning when this proposal is published in the Federal Register.
- You can access the proposal and ANPR on EPA's website: www.epa.gov/otaq/aviation.htm
- This proposed action responds to a citizen petition the EPA received in December 2007 requesting the EPA issue an endangerment finding and standards under section 231(a) of the Act for the GHG emissions from aircraft.
- International aircraft CO2 standards are expected to be adopted in early 2016. The proposal and ANPR lay the foundation for the development and implementation of a domestic aircraft engine standard, in accordance with U.S. law and the international process.

Aircraft GHG Endangerment

- The EPA Administrator is proposing to find that GHG emissions from certain classes of engines used primarily in commercial aircraft contribute to the air pollution that causes climate change and endangers public health and welfare. Specifically:
  - Proposing to find that GHG concentrations in the atmosphere endanger the public health and welfare of current and future generations within the meaning of section 231(a) of the Clean Air Act.
  - Finding made with respect to the same six well-mixed GHGs -- carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride -- that together were defined as the relevant air pollution in the 2009 Endangerment Finding under section 202(a) of the Clean Air Act.
  - Proposing to find that GHG pollutant emissions from certain classes of engines used in aircraft are contributing to this mix of GHGs in the atmosphere.
- Since 2009, the science on climate change has strengthened, lending further support to the Administrator's judgment that greenhouse gases in the atmosphere harm public health and welfare.
- In this proposed finding under section 231(a), the EPA relies upon and builds on the extensive scientific and technical evidence in the record supporting the 2009 Endangerment Finding, and supplements it with more recent major scientific climate change assessments.

Aircraft GHG Emissions Contribution

- Aircraft sector contributes ~11% of U.S. transportation GHGs
  - Largest remaining transportation category not yet regulated for GHGs.
  - 3% of total U.S. GHG emissions (not pictured). Total transportation is about a third.
- The aircraft categories covered by ICAO* comprise the vast majority of aviation sector GHG emissions (U.S. > 90%).



Source: Inventory of U.S. GHG Emissions and Sinks: 1990-2012

*International Civil Aviation Organization (ICAO) proposes to regulate subsonic jet aircraft with a maximum takeoff mass (MTOM) greater than 5,700 kg and subsonic propeller drive aircraft (e.g., turboprops) with a MTOM greater than 8,618 kg.

CO2 Standard Approach

- We are working within the International Civil Aviation Organization (ICAO) to establish global CO2 standards for aircraft
  - Developed NOx standards using this approach
  - Also working on PM standards for engines at ICAO
- ICAO is a specialized agency of the U.N., is a global organization that brings together States, manufacturers, NGOs, and industry organizations
  - Sets standards and regulations necessary for aviation safety, security, efficiency and regulatory, as well as for aviation environmental protection.
  - The environmental protection organization is the Committee on Aviation Environmental Protection (CAEP)
- The US Delegation to ICAO is led by the Federal Aviation Administration (FAA)
  - EPA acts as an advisor to FAA and contributes independent analysis to the working groups

CO_2 Standard Approach

- ICAO is expected to finalize CO_2 standards for aircraft in February 2016.
- ICAO standards are not self-implementing, but rather must be implemented through domestic regulation.
- EPA, in consultation with FAA, has responsibility for issuing air pollution standards for aircraft engines under CAA§231.

- FAA, under CAA§232, has responsibility to prescribe regulations to ensure compliance with the emissions standards.

CO2 Standard Status

- What has been done?
  - Metric system
  - Certification procedures

$$\frac{(1/SAR)_{AVG}}{RGF^{0.24}}$$

- What needs to be decided by 2016?
  - Applicability (new types vs. in-production)
  - Timing
  - Level of standards

Next Steps

- CAEP Steering Group Meeting in Montreal- July 20-25
- Public Hearing
  - August 11, Washington D.C. in the U.S. EPA Hearing Room
  - Hearing will be held if speakers request
- 60 day Comment Period from date of Publication in the Federal Register