

1981 ICAO NO<sub>x</sub> and CO emission standards, as well as the NO<sub>x</sub> emission standards and test procedures revised by ICAO in 1993. As discussed above, the U.S. has an obligation under the Convention on International Civil Aviation to notify ICAO regarding differences between U.S. standards and ICAO standards, and to provide notification on the date by which the program requirements will be consistent. In response to the recent actions by ICAO and for the reasons discussed below, EPA proposes to adopt standards equivalent to ICAO's 1999 amendment to the NO<sub>x</sub> emission standard, the test procedure changes approved by ICAO in 1997, and other technical amendments to further align EPA and ICAO requirements.

### C. EPA's Responsibilities Under the Clean Air Act

As discussed earlier, section 231 of the CAA directs EPA, from time to time, to propose aircraft engine emission standards for any air pollutant that could reasonably endanger public health and welfare. In addition, EPA is required to ensure such standards' effective dates permit the development of necessary technology, giving appropriate consideration to compliance cost. Also, EPA must consult with the FAA concerning aircraft safety before proposing or promulgating emission standards. (See section V of today's proposal for further discussion of EPA's coordination with FAA and FAA's responsibilities under the CAA.)

In addition, section 233 of the CAA vests authority to implement emission standards for aircraft engines only in EPA.<sup>13</sup> States are preempted from taking independent action. Thus, while many states are implementing control programs to reduce mobile source emissions, EPA has the authority to establish an emission control program for aircraft engines.

### III. Environmental Need for Control

As mentioned above, section 231(a)(2)(A) of the CAA authorizes the EPA Administrator to, from time to time, revisit emission standards for aircraft engine emissions " \* \* \* which in his judgment causes, or contributes to air pollution which may \* \* \* endanger public health or welfare." In judging the need for the NO<sub>x</sub> standard promulgated in today's action, the

Administrator has determined (1) That the public health and welfare is endangered in several air quality regions by violation of the National Ambient Air Quality Standards (NAAQS) for ozone (NO<sub>x</sub> contributes to the formation of ozone); and (2) that airports and aircraft are now or are projected to be, increasing sources of emissions of NO<sub>x</sub> in some of the air quality control regions in which the NAAQS are being violated.

Nationwide, aircraft account for about 1 percent of the NO<sub>x</sub> emissions from mobile sources.<sup>14</sup> Commercial aircraft emissions contribute from 74 to 99 percent of the NO<sub>x</sub> aircraft emissions in the U.S. (Aircraft emissions sources include aircraft types used for public, private, and military purposes as follows: commercial aircraft, air taxis, general aviation, and military aircraft.<sup>15</sup> The current nationwide aircraft emission estimates have limitations for military aircraft emissions. Therefore, the estimated range of commercial aircraft's emissions contribution to nationwide aircraft NO<sub>x</sub> described above is reflective of earlier and current estimates for military aircraft emissions).

Commercial aircraft emissions are projected to be a growing segment of the transportation sector's emission inventory. This growth in commercial aircraft emissions is expected to occur at a time when other significant mobile and stationary sources are drastically reducing emissions, thereby accentuating the growth in aircraft emissions. For instance, from a local/regional perspective the 1999 EPA study, *Evaluation of Air Pollutant Emissions from Subsonic Commercial*

*Jet Aircraft*, reported that from 1990 to 2010 increases in commercial aircraft NO<sub>x</sub> emissions for the ten cities studied (19 airport facilities with significant commercial jet aircraft activity were identified within these selected cities) are expected to range from 50 to 110 percent.<sup>16</sup> As an average for the ten cities, commercial aircraft's contribution to regional mobile source NO<sub>x</sub> was anticipated to increase from about 2 percent in 1990 to about 5 percent in 2010. In addition, the study showed that in 2010 commercial aircraft are projected to contribute as much as 10 percent of total regional mobile source NO<sub>x</sub> emissions in at least two of the cities studied.<sup>17</sup>

(The above projections were made prior to the tragic events of September 11, 2001, and the subsequent economic downturn. A January 2003 report by the Department of Transportation indicated that the combination of the September 11, 2001 terrorist attacks and a cut-back in business travel had a significant and perhaps long-lasting effect on air traffic demand.<sup>18</sup> However, the FAA expects the demand for air travel to recover, and then continue a long-term trend of annual growth in the United States.<sup>19</sup> Recently, FAA reported that flights of commercial air carriers will increase by 18 percent from 2002 to 2010 and 45 percent from 2002 to 2020.<sup>20</sup> For a

<sup>16</sup> This study (EPA 420-R-99-013, April 1999) is available at <http://www.epa.gov/otaq/aviation.htm>. It can also be found in Docket No. OAR-2002-0030.

<sup>17</sup> Based on the one-hour ozone standard, nine of the ten metropolitan areas are currently not in attainment of NAAQS for ozone; the tenth city has attained the ozone standard and is considered an ozone "maintenance" area. See section III.A.1. of this proposal for further discussion on the ozone NAAQS. Also, for more detailed information on the 8-hour ozone standard, see the following EPA Web sites: <http://www.epa.gov/airlinks/ozpminfo.html>, <http://www.epa.gov/airlinks/airlinks4.html> or <http://www.epa.gov/ttn/naaqs/ozone/o3imp8hr>. EPA has not yet designated areas for the 8-hour standard.

<sup>18</sup> U.S. Department of Transportation, Office of Inspector General, "Airline Industry Metrics," CC-2203-007, January 7, 2003. A copy of this document can be found in Docket No. OAR-2002-0030.

<sup>19</sup> U.S. General Accounting Office, "Aviation and the Environment: Strategic Framework Needed to Address Challenges Posed by Aircraft Emissions," GAO-03-252, February 2003. This document is available at [www.gao.gov/cgi-bin/getrpt?GAO-03-252](http://www.gao.gov/cgi-bin/getrpt?GAO-03-252), and it can also be found in the Docket No. OAR-2002-0030.

<sup>20</sup> The flight forecast data is based on FAA's Terminal Area Forecast System (TAFS). TAFs are the official forecast of aviation activity at FAA facilities. This includes FAA-towered airports, federally-contracted towered airports, nonfederal towered airports, and many non-towered airports. For detailed information on TAFS and the air carrier activity forecasts see the following FAA Web site: <http://www.apo.data.faa.gov/faatfall.HTM>. As of May 1, 2003, the aviation forecasts contained in TAFS for Fiscal Years 2002-2020 included the impact of the terrorists' attacks of September 11, 2001 and the recent economic downturn. However,

<sup>13</sup> CAA section 233 entitled "State Standards and Controls" states that "No State or political subdivision thereof may adopt or attempt to enforce any standard respecting emissions of any air pollutant from any aircraft or engine thereof unless such standard is identical to a standard applicable to such aircraft under this part."

<sup>14</sup> U.S. EPA, "Average Annual Emissions, All Criteria Pollutants Years Including 1980, 1985, 1989-2001," February 2003. This document is available at <http://www.epa.gov/ttnchie1/trends/>. A copy of this document can also be found in Docket No. OAR-2002-30. Documentation for these estimates can be accessed at <http://www.epa.gov/ttn/chief/net/index.html#1999>: U.S. EPA, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory, Volume I—Methodology," November 11, 2002. A copy of this document can also be found in Docket No. OAR-2002-30.

<sup>15</sup> Commercial aircraft include those aircraft used for scheduled service transporting passengers, freight, or both. Air taxis also fly scheduled service carrying passengers, freight or both, but usually are smaller aircraft and operate on a more limited basis than commercial carriers. General aviation includes most other aircraft used for recreational flying and personal transportation. Aircraft that support business travel, usually on an unscheduled basis, are included in the category of general aviation. Military aircraft cover a wide range of sizes, uses, and operating missions. While they are often similar to civil aircraft, they are handled separately because they typically operate exclusively out of military bases and frequently have distinctive flight profiles.