# IDENTIFICATION OF THE INFORMATION COLLECTION

## Title of the Information Collection

TITLE: Control of Air Pollution From Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures

OMB Control Number: 2060-NEW

EPA ICR Number: 2626.01

## Short Characterization/Abstract

# In order to understand how the proposed GHG standards are affecting the in-production fleet, we need access to timely, representative emissions data of the fleet at the requisite model level. The EPA needs the information on technology, performance parameters, and emissions data to conduct accurate technology assessments, compile airplane emission inventories, and develop appropriate policy. The ICAO CO2DB (discussed in Section V.G) will only include the airplane identification information, MTOM, and Metric Value. The EPA proposes to collect additional elements or information beyond what ICAO will request for the voluntary CO2DB. These additional elements would be the RGF and the annual production volume. In general, we would expect the manufacturers to claim this additional information as confidential business information (CBI), and under such circumstances we would treat it accordingly under 40 CFR part 2 and 40 CFR 1068.10. The EPA does not expect a full dataset on all in-production airplanes until shortly after the in-production applicability date of January 1, 2028. In the context of EPA's standard-setting role under the CAA with regard to aircraft engine emissions, it is consistent with our policy and practice to ask for timely and reasonable reporting of emission certification testing and other information that is relevant to our mission.[1] Under the CAA, we are authorized to require manufacturers to establish and maintain necessary records, make reports, and provide such other information as we may reasonably require to discharge our functions under the Act. (See 42 U.S.C. 7414(a)(1).)

# NEED FOR AND USE OF THE COLLECTION

## Authority for the Collection/Need

Under CAA section 231, 42 U.S.C. § 7571, the EPA is responsible for establishing standards for emissions from aircraft engines, and under CAA section 232, 42 U.S.C. § 7572, the Federal Aviation Administration (FAA) is responsible for enforcing these standards. The EPA and the FAA traditionally work within the International Civil Aviation Organization (ICAO) to establish international aircraft emission standards and related requirements. Individual nations, including the U.S., later adopt these standards into their domestic law in fulfillment of their obligations under the Convention on International Civil Aviation (Chicago Convention).[[1]](#footnote-2)

CAA section 114 additionally provides broad authority for the EPA to collect information related to the regulations we adopt for aircraft engines and other emission sources (42 U.S.C. § 7414(a)(1)).

In addressing CO2 emissions, ICAO has an approach that measures the fuel efficiency from the perspective of whole airplane design - an airframe and engine combination. The EPA agrees with ICAO's approach to measure the fuel efficiency based on the performance of the whole airplane. In 2017, ICAO adopted this new measurement approach or (test) procedure, emission standards, and voluntary reporting provisions for airplane CO2 emissions from civil subsonic jet airplanes with a maximum takeoff mass (MTOM) of greater than 5,700 kilograms and civil subsonic propeller driven airplanes (e.g., turboprops) with an MTOM greater than 8,618 kilogram.[[2]](#footnote-3) The EPA proposes to control GHG emissions in a manner identical to how ICAO's standards control CO2 emissions - with a fuel efficiency standard based on the characteristics of the whole airplane.[[3]](#footnote-4)

Table 1 describes the applicability dates of the proposed standards for the different applicable classes of airplanes, which are the same as the applicability dates for the ICAO standards.

Table : Proposed GHG standard applicability dates

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MTOM (kilograms) | Engine Type | Seats | New Type | In Production |
| 5700 | Jet | ≤19 | 1/1/2023 | 1/1/2028 |
| 5700 | Jet | >19 | 1/1/2020 | 1/1/2028 |
| 8618 | Turboprop | Any | 1/1/2020 | 1/1/2028 |

The EPA and the FAA, along with other regulatory authorities around the world, worked with manufacturers to develop the proposed CO2 emissions metric and emission standards through ICAO. The U.S., as one of the member nations, is proposing to adopt domestic standards at least as stringent as these international standards to meet our treaty obligations under the Chicago Convention.

The full list of parameters to be submitted to EPA are described later in Section 4(b) (ii) and (iii).

## Practical Utility/Users of the Data

In order to understand how the proposed GHG standards are affecting the in-production fleet, we need access to timely, representative emissions data of the fleet at the requisite airplane model level. The EPA needs information on technology, performance parameters, and emissions data to conduct accurate technology assessments, compile airplane emission inventories, and develop appropriate policy. While the FAA would have access to the information during certification, the EPA would not be able to access this information provided to FAA, and these circumstances reinforce the need for the EPA reporting requirement.

Having the information updated every year will be most helpful for assessing technology trends and impacts and in a broader sense confirming, in a timely way, that manufacturers would be properly complying with regulatory requirements. It will also help us to stay abreast of any developments in the characteristics of the industry. The EPA will begin to collect data as airplanes enter production following certification by the FAA. The EPA does not expect a full dataset on all in-production airplanes until shortly after the in-production applicability date of January 1, 2028. It is expected that airplanes will begin to be certificated shortly after this rule is implemented. Manufacturers should begin reporting data for the year they start producing and delivering aircraft.[[4]](#footnote-5) In the context of EPA's standard-setting role under the Clean Air Act with regard to aircraft engine emissions, it is consistent with our policy and practice to ask for timely and reasonable reporting of emission certification testing and other information that is relevant to our mission. Under the Clean Air Act, we are authorized to require manufacturers to establish and maintain necessary records, make reports, and provide such other information as we may reasonably require to discharge our functions under the Act. (See 42 U.S.C. 7414(a)(1).)

The EPA believes it is necessary to collect information on airplanes to further understand the characteristics of airplanes that are subject to emission standards and their impact on emission inventories. Much of this information is required to develop both present and future emission inventories. The emission inventory methodology includes the following information:

* Airplane and engine models and/or submodels;
* Metric Value (MV) and Specific Air Range (SAR) performance; and
* Number of operations (arrivals and departures) by airplane model or submodel operating in the study area (e.g., one or more airports) over the study time period (e.g., annually).

Projecting future emission inventories requires information on the emissions characteristics of particular airplanes to be coupled with data used to forecast fleet turnover (older airplanes and engines being retired as new equipment is added to the fleet). More specifically, the forecast methodology relies on:

* emission rate information,
* knowledge of the annual production levels for each airplane model or submodel including the year in which production of certain airplane models or submodels ended, and
* information on the activity and life expectancy of the aircraft/engines (e.g., the life of an airplane is nominally 25-30 years)

Having such information available helps the Agency set appropriate and achievable emission standards and related requirements for airplanes in the context of the international process. This data may also be useful in evaluating alternative approaches to transitioning to new standards.

Current estimates of airplane GHG emissions are based on approximations from PIANO (Project Interactive Analysis and Optimization),[[5]](#footnote-6) a proprietary aircraft performance model, purchased by the EPA to estimate airplane emissions. The new airplane GHG data proposed to be collected will allow EPA to generate better estimates of airplane performance.

# NONDUPLICATION, CONSULTATIONS, AND OTHER COLLECTION CRITERIA

## Non-duplication

ICAO plans to develop the “ICAO CO2 Certification Databank” (CO2DB) with some of the information that is the subject of the proposed new reporting requirement. The ICAO databank will be a useful tool for providing a general overview of the aircraft fleet, but it does not yet exist, and the frequency of updates is currently unknown. Further, the data that it will contain will be voluntarily reported from each manufacturer, and it may not specifically include information for every airplane sub-model.

When complete, the ICAO CO2DB will be more limited than what is proposed here. It will only include airplane identification information and the aircraft metric value. It will not include information about test conditions or airplane fuel burn information.

ICAO maintains a similar database with information of aircraft engine emissions. The EPA has attempted to use the ICAO engine emissions databank to conduct analyses in support of policy development, but we were not able to get reliable information in certain key areas. Thus, EPA has an existing ICR for aircraft engine emissions. With these past challenges with the ICAO aircraft engine emissions database, and the fact the ICAO certification CO2 database does not yet exist, we believe it is prudent to begin collecting the GHG information now.

EPA needs information on airplane technology, performance parameters, and emissions data, submitted under this ICR to conduct accurate technology assessments and airplane emission inventories and develop appropriate policy; therefore, the ICAO CO2 databank will not alone be a sufficient tool to inform our policy decisions, including future standard-setting actions. In the context of the roles of the EPA and the FAA with regard to aircraft engine emission standards, it is consistent with EPA policy and practice to ask for timely and reasonable reporting of emission certification testing and other information that is relevant to our emission standards.

## Public Notice Required Prior to Information Collection Request (ICR) Submissions to OMB

This proposed ICR and the supporting statement are being submitted for public review. The EPA will consider public comments on these proposed documents. Based on comments received the EPA will then submit the revised documents to the Office of Management and Budget (OMB) -- and publish the revised materials for another public comment period.

## Consultations

The EPA has communicated with manufacturers on a regular basis as a part of our work at ICAO. These discussions have included the extent, form, and timing of the information submissions.

The EPA, along with the FAA, have worked through ICAO to develop a consistent and robust test procedure to measure airplane GHG emissions. This test procedure is described in ICAO Annex 16, Volume III. This consultative process involved the active participation of airplane manufacturers, aircraft engine manufacturers, and regulating authorities from around the world. The EPA is proposing to adopt data collection requirements based on the voluntary reporting procedures developed and agreed internationally by manufacturers and regulators at ICAO for a public database.

## Effects of Less Frequent Collection

We plan to require annual reporting for the airplane GHG data. This frequency is consistent with the current requirement to submit aircraft engine-related NOx, HC, CO, PM, smoke, and CO2 information (see 40 CFR §§ 87.42 and 87.64 for the EPA’s regulations requiring reporting of these emissions). Since the technical emissions information will not typically change from year to year for the airplane GHG standards, much of the new information received each year will often be limited to the production volumes for the preceding year and to manufacturers introducing new airplane types or models. Having the information updated every year will be most helpful for assessing technology trends. It will also help us to stay abreast of developments in the aircraft engine industry.

## General Guidelines

This collection of information is consistent with all OMB guidelines under 5 CFR § 1320.5.

## Confidentiality

In general, emission data and related technical information collected under CAA section 114 cannot be treated as confidential business information (CBI). However, consistent with governing EPA regulations, in instances where manufacturers clearly mark information that they consider to be confidential, EPA will store and disclose said information as CBI pursuant to 40 CFR part 2 and 40 CFR 1068.10. If manufacturers send the EPA information without marking it as CBI, the EPA may make it available to the public without further notice to the manufacturer[[6]](#footnote-7). Although CBI determinations are usually made on a case-by-case basis, the EPA has issued guidance on what constitutes emission data that cannot be considered CBI (56 FR 7042, February 21, 1991).

## Sensitive Questions

This information collection does not ask any questions concerning sexual behavior or attitudes, religious beliefs, or other matters usually considered private.

# THE RESPONDENTS AND THE INFORMATION REQUESTED

## Respondents/North American Industrial Classification Systems (NAICS) Codes

All the expected respondents are manufacturers of new airplanes, which are represented by NAICS Code 336411.

## Information Requested

### Data items, including record keeping requirements

We are proposing to require that airplane manufacturers submit an annual production report directly to the EPA[[7]](#footnote-8) with specific information for each individual airplane sub-model that (1) is designed to operate at subsonic speeds, (2) is subject to EPA’s GHG emission standards, and (3) has received a type certificate. More specifically, the scope of the proposed production report would include subsonic jet powered airplanes with certificated MTOM over 5,700 kg and turboprop powered airplanes with certificated MTOM over 8,618 kg. We are also proposing that this information be reported to us in a timely manner, which will allow us to ensure that any public policy we create based on this information will be well informed.

Each element is applicable for each affected airplane sub-model and serves as a key tool for informing public policy assessments. This information will be gathered using the test procedures described under 40 CFR §§ 1030.23 and 1030.25.

* Company corporate name as listed on the airplane type certificate;
* Calendar year for which reporting;
* Primary certification authority;
* Date of issue of airplane type certificate and/or exemption, (i.e. month and year);
* Complete airplane sub-model name (this will generally include the model name and the sub-model identifier, but may also include a type certificate family identifier);
* The airplane type certificate and/or supplemental type certificate number, as issued by the FAA (specify if the sub-model also has a type certificate issued by a certificating authority other than the FAA);
* Number of propulsion engines on the airplane;
* Company corporate name as listed on the engine type certificate;
* Complete engine sub-model name (this will generally include the model name and the sub-model identifier, but may also include an engine type certificate family identifier);
* The engine type certificate and/or supplemental type certificate number, as issued by the FAA (specify if the sub-model also has a type certificate issued by a certificating authority other than the FAA);
* Company corporate name as listed on the propeller type certificate – as applicable;
* Complete propeller sub-model name (this will generally include the model name and the sub-model identifier, but may also include propeller an engine type certificate family identifier);
* The propeller type certificate and/or supplemental type certificate number, as issued by the FAA (specify if the sub-model also has a type certificate issued by a certificating authority other than the FAA);
* Date of application for certification to airplane GHG standards;
* Emission standard to which the airplane is certificated (i.e., the specific Annex 16, Volume III, edition number and publication date in which the numerical standards first appeared).
* If this is a modified airplane for emissions certification purposes, identify the original certificated airplane model;
* Production volume of the airplane sub-model for the previous calendar year, or if zero, state that the airplane model is not in production and list the date of manufacture (month and year) of the last airplane produced;
* Number of exempt airplanes produced[[8]](#footnote-9), if applicable;
* Certificated MTOM;
* GHG Emissions Metric Value;
* Regulatory level;
* Margin to regulatory level;
* Reference geometric factor (RGF)

The EPA is proposing to collect additional elements or information beyond what ICAO will request for the voluntary CO2DB. These additional elements are the RGF and annual production volume . From the list above, the ICAO CO2DB will only include the airplane identification information, MTOM, and Metric Value. ICAO limited the information in the public CO2DB for the following reasons: (a) to recognize the concerns of manufacturers to exclude commercially sensitive information and (b) to expedite manufacturers’ voluntary submissions for populating the dataset. These reasons would not pertain to the EPA reporting requirement because: (a) the EPA’s CBI regulations would prevent the disclosure of confidential business information (see 3 (f) above) and (b) the EPA reporting of information would be required, preventing delays in manufacturers’ submissions.

The annual report must be submitted for each calendar year in which a manufacturer produces any affected airplanes that have been certificated by the FAA to the GHG emission standards. These reports are due to the EPA by February 28 of each year, for the previous calendar year. The data will be required starting in 2021 for airplane types that are certificated and produced in calendar year 2020. In instances where emissions information provided for a previous year remains valid and complete for the current reporting year, manufacturers may report production figures and state that there are no changes instead of resubmitting the original information, as provided by 40 CFR § 1030.90(f). Production volume for airplanes produced under an exemption should be reported here, as provided by 40 CFR 1030.90(d)(12). To facilitate and standardize reporting, we will continue to provide an Excel template[[9]](#footnote-10) to each manufacturer.

## Recordkeeping Requirements

Manufacturers need not keep records other than copies of the information submitted to the EPA. They must keep these records for at least three years, the records must be kept readily available, and the EPA may review them at any time. See 40 CFR § 1030.95.

# THE INFORMATION COLLECTED – AGENCY ACTIVITIES, COLLECTION METHODS, AND INFORMATION MANAGEMENT

## Agency Activities

The EPA activities associated with the information collection request include creating a reporting template, coordinating with the FAA on GHG emission certification and answering manufacturers’ questions about how to complete the template. Once the reporting program is in place, the EPA activities will include monitoring and review of emission reports, further communication and outreach, and program evaluation.

## Collection Methodology and Management

Data requested through the existing ICR (described in section 4 (b)(i)) will be collected in the process of type certification on an airplane under 40 CFR part 1030. All manufacturers seeking or amending a type certificate from the FAA under 14 CFR part 21 shall submit data to the EPA for those airplane types subject to this reporting.

We generally expect manufacturers to submit data electronically via email to aircraft\_engine\_reporting@epa.gov. We will maintain records of these files and plan to post non-CBI data on our website.

## Small Entity Flexibility

This reporting requirement would apply to the manufacturers of airplanes subject to our standards. There are no small businesses in this sector, and thus, no small businesses are affected by this reporting requirement.

## Collection Schedule

We would require annual reporting. The EPA anticipates issuing the CAA section 114 letters once this collection request is approved. These CAA section 114 letters will serve as a reminder to respondents about what data we are requiring to be submitted and provide any necessary clarification about the process. These letters would require the manufacturer of a subject airplane type that has been certificated by the FAA to submit completed reporting forms to the EPA by February 28, 2021.

Once the proposed GHG rule is finalized, the EPA expects airplane manufacturers to begin the process of certifying their airplanes. The EPA expects that it will take a number of years for all airplanes to be certificated and reported under this requirement. All in-production airplanes that will be subject to the standards must be certificated by January 1, 2028. Thus, we do not expect a full dataset until 2028.

Much of the information will not change from year to year; we expect that the new information will often be limited to production volumes for the preceding year and to manufacturers introducing new airplane types or models. Having the information updated every year will be most helpful for assessing technology trends and impacts and in a broader sense confirming, in a timely way, that manufacturers are properly complying with regulatory requirements. It will also help us to stay abreast of any developments in the characteristics of the aircraft engine industry.

The EPA will issue CAA section 114 and 40 CFR part 1030 letters using this template beginning in 2021.

# ESTIMATING THE BURDEN AND COST OF THE COLLECTION

 Section 6(a) of this Supporting Statement provides estimates of burden hours for all respondent types. Section 6(b) contains estimates of respondent costs for the information collection. Section 6(c) summarizes Federal burden and costs. Section 6(d) describes the respondent universe and the total burden and cost of this collection to respondents. Section 6(e) presents the bottom-line burden and cost. The burden statement for this information collection is in Section 6(f).

## Estimating Respondent Burden

### Estimated burden for elements in the existing collection

The EPA estimates that the annual burden of the existing ICR to each respondent would be 6 hours per year over the three years covered by this information collection.

The EPA estimates that up to 10 respondents[[10]](#footnote-11) will submit a report to the EPA each year relating to the ICR.

## Estimating Respondent Costs

Costs to respondents associated with this information collection include labor costs (i.e., the cost of labor by manufacturers to meet the existing information collection requirements). Because the requirements merely supplement existing activities, we believe manufacturers will incur no non-labor costs (e.g., the cost of purchasing and installing equipment or contractor costs associated with providing the required information).

To calculate labor costs, the EPA estimated technical, managerial, clerical, and legal loaded labor rates for each industry sector using labor rates from the Bureau of Labor Statistics[[11]](#footnote-12) and applying a 60% loading factor.[[12]](#footnote-13) The loaded labor rates[[13]](#footnote-14) in 2018 US Dollars are: $125.97 for managers; $88.69 for aerospace Engineers; $37.51 for clerical staff, and $139.34 for legal staff.

### Proposed Collection

During the three years covered by this information collection, the EPA estimates that the annual burden imposed on each of the 10 anticipated respondents/airplane manufacturers will average 6 hours or $543 (60 hours or $5,430 annually in total) each year for tasks covered under the proposed ICR. This is based on an estimated effort involving 1 hour for managers, 1.5 hours for engineers, 2 hours for clerical staff, and 1.5 hours or attorneys. Manufacturers would be required to submit similar information to the FAA as part of the certification process. We expect that submitting and keeping the additional records will involve no capital costs and no Operations and Maintenance (O&M) costs. Table 2 presents the total cost to all manufacturers each year for the existing collection.

Table 2: Estimated Annual Burden for Elements of the Existing Collection

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|    | Hours per Response | BLS - Mean Hourly Wage(2017) | Inflated Mean Hourly Wage – 2018 | Load Factor | Loaded Labor Rate | Labor Cost | Number of Respondents | Total Hours | Total Cost |
| Manager | 1 | $77.82 | $78.73 | 0.6 | $125.97 | $125.97 | 10 | 10 | $1,260 |
| Aerospace Engineer | 1.5 | $54.79 | $55.43 | 0.6 | $88.69 | $133.03 | 10 | 15 | $1,330 |
| Clerical Staff | 2 | $23.17 | $23.44 | 0.6 | $37.51 | $75.01 | 10 | 20 | $750 |
| Legal Staff | 1.5 | $86.08 | $87.09 | 0.6 | $139.34 | $209.01 | 10 | 15 | $2,090 |
|  |  |  |  |  |  |  |  |  |  |
| Totals |  |  |  |  |  | Annual Hours | 60 | $5,430 |
|  |  |  |  |  |  | (respondent) | 6 | $543 |

## Estimating Agency Burden and Cost

This section describes the burden and cost to the Federal government associated with this information collection, both existing and new data. Federal activities under this information collection include FAA verification of testing and EPA oversight of the reporting program.

The EPA estimates the salary, overhead, and benefits of agency staff to be $55.25. To derive this figure, the EPA multiplied the hourly compensation at GS-12, Step 5 on the 2018 General Schedule pay scale ($34.53) by the standard government benefits multiplication factor of 1.6 to account for overhead and benefits.

The EPA activities associated with the collection include oversight and implementation of the reporting program, e.g., monitoring and verification of emission reports, communication and outreach, and program evaluation. The EPA estimates that this will involve up to 1 staff hour per year per manufacturer for these activities.

## Estimating the Respondent Universe and Total Burden and Costs

The EPA expects to receive annual reports from 10 manufacturers once all airplanes have been certificated.

## Bottom Line Burden Hours and Costs

The EPA estimates that each respondent’s burden and costs associated with the activities described in Section 4 (b)(i) over the three years covered by this request, will average 6 hours or $543[[14]](#footnote-15) per year (Table 2). This results in a total for all respondents of 180 hours or $16,290 over the 3 years (60 hours or $5,430 per year)

This is described in more detail in Table 3.

The EPA’s estimated burden for this information collection is 10 hours or $552 per year (30 hours or $1657 over 3 years)

Table 3 - Total burden

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | Total |
|  |  | Response hours | Labor Cost | Number of Respondents | Capital / Startup Cost | Annual Burden(hours) | Annual Cost (2017 $) |
| Respondent Burden | 2020 | 6 |  $ 543  | 10 |  $ -  |  60  |  $ 5,430  |
| 2021 | 6 |  $ 543  | 10 |  $ -  |  60  |  $ 5,430  |
| 2022 | 6 |  $ 543  | 10 |  $ -  |  60  |  $ 5,430  |
|   |   |  |  |  |   |  |  |
| EPA Burden | 2020 | 1 |  $ 55  | 10 |  $ -  |  10  |  $ 552  |
| 2021 | 1 |  $ 55  | 10 |  $ -  |  10  |  $ 552  |
| 2022 | 1 |  $ 55  | 10 |  $ -  |  10  |  $ 552  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | Total OEM Reporting Burden | 180 |  $ 16,291  |
|  |  |  |   |  | (per year) | 60 |  $ 5,430  |
|  |  |  | Individual Respondent Burden | 18 |  $ 1,629  |
|  |  |  |   |  | (per year) | 6 |  $ 543  |
|  |  |  | Total EPA Burden  | 30 |  $ 1,657  |
|  |  |  |   |  |  | 10 |  $ 552  |
|  |  |  | Total Burden | 210 |  $ 17,948  |

## Change in Burden Estimates

This is a new collection.

## Burden Statement

The respondent reporting and recordkeeping burden for this collection of information is estimated to be up to 180 hours or $16,291 over the 3 years of this collection. Total burden to the government and all respondents is estimated to be 30 hours or $1,657. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA’s regulations are listed in 40 CFR part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, the EPA has established a public docket for this ICR under Docket ID Number EPA-HQ-OAR-2018-0276, which is available for online viewing at [www.regulations.gov](http://www.regulations.gov), or in person viewing at the Air and Radiation Docket in the EPA Docket Center (EPA/DC), EPA West, Room 3334, 1301 Constitution Avenue, NW, Washington, D.C. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742. An electronic version of the public docket is available at www.regulations.gov. This site can be used to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. When in the system, select “search,” then key in the Docket ID Number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, D.C. 20503, Attention: Desk Officer for EPA. Please include the EPA Docket ID Number EPA-HQ-OAR-2016-0546 and OMB Control Number 2060-0680 in any correspondence.

1. ICAO, 2006: *Convention on International Civil Aviation*, *Ninth Edition*, Document 7300/9, 2006, 116 pp. Available at: <http://www.icao.int/publications/Documents/7300_9ed.pdf> (last accessed., September 8, 2017). For purchase available at: <https://www.icao.int/publications/catalogue/cat_2017_en.pdf> (last accessed September 8, 2017). The ICAO Doc 7003/9 *Convention on International Civil Aviation, Ninth edition*, Document 7300/9 2006, 116pp, is found on page 1 of the ICAO Products & Services 2017 Catalog and is copyright protected; Order No. 7003. [↑](#footnote-ref-2)
2. The February 2016 agreement by Committee on Aviation Environmental Protection (CAEP), a body of ICAO, was formally adopted by ICAO in March 2017. For purchase available at: <https://www.icao.int/publications/catalogue/cat_2020_en.pdf> (last accessed September 8, 2017). The ICAO Doc 10069, CAEP10, 432pp, *Report of the Tenth Meeting.* *Montreal, 1-12 February 2016, Committee on Aviation Environmental Protection Report*, is found on page 27 of the ICAO Products & Services 2020 Catalog and is copyright protected; Order No. 10069. [↑](#footnote-ref-3)
3. While the EPA’s proposed standards incorporate characteristics of airplane design as adopted by ICAO, the EPA is not asserting independent regulatory authority over airplane design. [↑](#footnote-ref-4)
4. For example, if an airplane is certificated for GHG emissions in June 2021 and starts delivering planes that month, they should submit a data report under this ICR, for calendar year 2021, by February 28, 2022. [↑](#footnote-ref-5)
5. PIANO is the Aircraft Design and Analysis Software by Dr. Dimitri Simos, Lissys Limited, UK, 1990-present; Available at www.piano.aero (last accessed November 21, 2019). PIANO is a commercially available airplane design and performance software suite used across the industry and academia. [↑](#footnote-ref-6)
6. See 40 CFR §§ 1030.98 [↑](#footnote-ref-7)
7. The proposed report would be submitted only to EPA. No separate submission or communication of any kind is required for the FAA. [↑](#footnote-ref-8)
8. Airplanes produced under an exemption would still be required report all information for all fields. In the case new type airplanes that are built and fixed (or changed) in the same year, separate lines should be used to record the exempt and complaint configurations and metric values. [↑](#footnote-ref-9)
9. The template for the existing ICR is EPA Form Number: 5900-223. [↑](#footnote-ref-10)
10. Boeing, Airbus, Gulfstream, Cessna, Bombardier, Dassault, Embraer, Mitsubishi, ATR, and Pilatus. [↑](#footnote-ref-11)
11. Prices adjusted to 2017 dollars using an annual inflation rate of 1.17%. This was calculated based on the change in the Producers Price Index for Aerospace Produce and Parts Manufacturers from January 2015 to January 2017. [↑](#footnote-ref-12)
12. The ICR Handbook (November 2005) recommends using a multiplier of 1.6 to account for benefits and overhead

related to government wages; this is considered a conservative estimate (potentially high) for the private sector. [↑](#footnote-ref-13)
13. This rate reflects total compensation labor rate for workers in the aircraft manufacturing industry based on BLS Occupational Employment Statistics, Aerospace Product and Parts Manufacturing Industry; Date retrieved: September 14th 2018, <https://data.bls.gov/oes/#/indOcc/Multiple%20occupations%20for%20one%20industry> [↑](#footnote-ref-14)
14. All values presented in 2017 dollars [↑](#footnote-ref-15)