EU Taxonomy for aviation eligible aircraft technology

An analysis by ICF

The objective of this analysis

The EU Taxonomy is a classification system established by the European Union to define which economic activities are considered environmentally sustainable. This document outlines ICF's projections regarding the in-production aircraft models and associated engine variants (aircraft) which may be in scope for eligibility under the EU Taxonomy for Aviation (EUTA) (commission delegated regulation (EU) 2023/2485) subject to aircraft manufacturer (OEM) self-declaration and CO_2 certification.[1]

[1] ICF has provided technical assistance to EASA on the EUTA, guidance on EUTA is available from the European Commission's FAQs and EASA.

The requirements of the EU Taxonomy for Aviation

The EUTA outlines technical screening criteria for activities to be considered environmentally sustainable relating to, amongst other, the manufacturing of aircraft, leasing of aircraft and passenger and freight air transport. This states that only aircraft with zero tailpipe emissions fulfil criteria for "Substantial contribution to climate change mitigation". For activities relating to aircraft that are not zero tailpipe emission technology a set of criteria is established for an activity to be considered "transitional" as referred to in Article 10(2) of Regulation (EU) 2020/852.

For an aircraft having maximum take-off mass greater than 5,7 tons[2] to be eligible under Activities 3.21, 6.18 and 6.19 it must meet minimum environmental performance characteristics regarding CO_2 emissions alongside the relevant do no significant harm (DNSH) criteria[3]. Table 1 represents ICF's projections for the in-production aircraft that may be eligible under these requirements.

[2] Other than produced for private or commercial business aviation.

[3] An aircraft is compliant when it meets all the technical screening criteria and the DNSH requitements under the relevant activity.

Sources

Determination of margin to ICAO CO_2 New Type Standard is based on the information provided by Aircraft OEMs and estimated CO_2 Metric Value (MV) performance using commercially available performance estimation products such as PIANO. Reviews of compliance with the do no significant harm (DNSH) requirements were conducted using public available aircraft and engine certification databases available through EASA regarding noise levels, and emissions during the landing-take-off cycles for nitrogen oxides (NOx) and non-volatile Particulate Matter (nvPM).

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The information provided in this analysis is for general information purposes only and does not constitute legal, financial or professional advice of any kind. No representation or warranty is given regarding the accuracy or completeness of the analysis or its suitability for any particular purpose. The analysis, including but not limited to the estimates and opinions given, should not be relied upon as a substitute for professional advice. Users of this information are encouraged to seek independent advice. ICF disclaims all liability for any decisions or actions taken based on the information in this analysis. This information is provided based on interpretation of the delegated regulation (EU) 2023/2485 and known aircraft characteristics as at the date of writing which may be subject to change. This document is only applicable to reporting on activities in the financial year commencing 2024. Any analysis contained herein does not imply endorsement or verification by any third parties mentioned herein.

Limitations of applicability

The information provided in table 1 is not to be considered as equivalent to an aircraft OEM self-declaration or CO_2 certification.

In-production aircraft likely to be eligible and self-declared or CO_2 certified

Table 1: Aircraft likely to be eligible subject to self-declaration or CO_2 certification under EU Taxonomy for Aviation

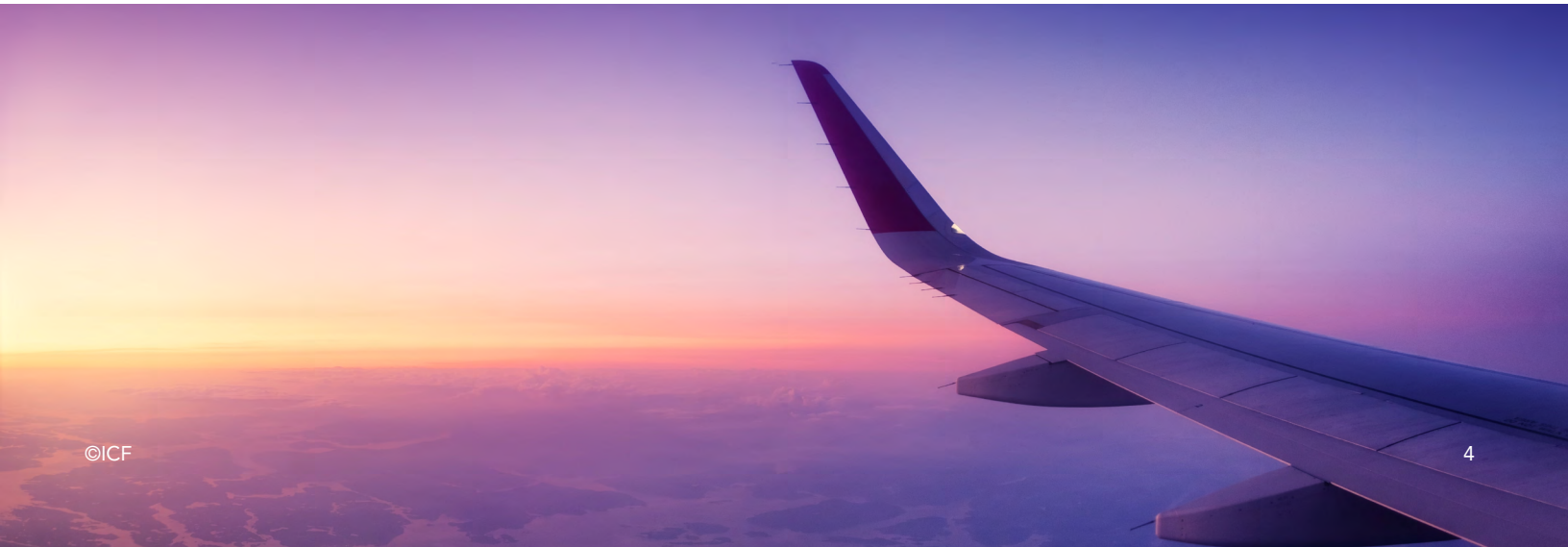
Aircraft CO_2 eligibility			Aircraft DNSH (4) and (5) Compliance		
Aircraft Model	**Engine Variant**	**CO_2**	**Noise**	**NOx**	**nvPM**
A220-100	PW1500G	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A220-300	PW1500G	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A319-100N	LEAP-1A	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A320-200N	PW1100G, LEAP-1A	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A321-200N	PW1100G, LEAP-1A	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A321N XLR	LEAP-1A	EASA CO_2 Certified	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A321N XLR (PW1100G)			Project Aircraft, not yet certified		
A330-800	Trent 7000	EASA CO_2 Certified	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A330-900	Trent 7000	EASA CO_2 Certified	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A350-900	Trent XWB	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A350-1000	Trent XWB	EASA CO_2 Certified	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
A350F			Project Aircraft, not yet certified		
737-7 MAX			Project Aircraft, not yet certified		

737-8 MAX	LEAP-1B	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
737-9 MAX	LEAP-1B	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
737-10 MAX			Project Aircraft, not yet certified		
787-8	GENX-1B, TRENT 1000	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
787-9	GENX-1B, TRENT 1000	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
787-10	GENX-1B, TRENT 1000	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
777-8F			Project Aircraft, not yet certified		
777-8			Project Aircraft, not yet certified		
777-9			Project Aircraft, not yet certified		
E190-E2	PW1900G	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
E195-E2	PW1900G	Likely eligible	Meets EUTA Ch. 14 margin	Yes (CAEP/8)	Yes (CAEP/11)
ATR42-600	PW127	Likely eligible	Meets EUTA Ch. 14 margin	Not applicable	Not applicable
ATR72-600	PW127	Likely eligible	Meets EUTA Ch. 14 margin	Not applicable	Not applicable

Project aircraft are aircraft yet to be formally certified by the aircraft manufacturer's indigenous aviation certification authority.

All aircraft listed comply with section 5a (3.21, 6.18 & 6.19) (pollution prevention and control) of the EU Taxonomy DNSH criteria.

Engines variants listed represent all certified engine variants of the same family and assume compliance with the EU Taxonomy criteria, unless otherwise stated.



The CO_2 performance technical screening criteria

EUTA aircraft technology CO_2 criteria requires additional margin to the International Civil Aviation Organization (ICAO) New Type standard. Certification to the ICAO standard is not required by EUTA until 11 December 2026 and verified data on CO_2 performance is not available prior to certification. As such, data regarding which aircraft meet the CO_2 EUTA technical screening criteria is limited to those aircraft which have already been CO_2 certified. In advance of certification to meet EUTA CO_2 criteria, aircraft OEMs are required to self-declare aircraft which meet the criteria but are not yet certified. The self-declaration process is expected to be launched in 2025. Table 1 outlines ICF's opinion of aircraft that are likely to meet the criteria and are likely to be self-declared and/or CO_2 certified. The opinion is based on data provided by the aircraft OEMs, and estimated CO_2 Metric Value (MV) performance against the EUTA requirement using commercially available performance estimation products such as PIANO.

Do no significant harm (DNSH) technical screening criteria

Aircraft technology

EUTA DNSH regarding pollution prevention and control requires, amongst others, that aircraft must comply with the latest appropriate noise and emissions certifications. Aircraft listed in Table 1 comply with the margin to applicable ICAO emissions standard for noise (Chapter 14), NOx (CAEP/8) and nvPM (CAEP/11) unless otherwise stated. Details of the tests can be found on the EASA Noise Certification Noise Levels webpage for noise certification details of Jet and heavy propellor aircraft and additional details can be found on engine emission performance on the ICAO Aircraft Engine Emissions Databank (EEDB, hosted by EASA).

Aircraft manufacturing

It is ICF's understanding that major commercial aircraft OEMs comply with existing environmental regulations in relation to the manufacture of aircraft and their associated components. The Boeing Company, Airbus S.A.S., ATR-GIE Avions de Transport Regional, and Embraer S.A. all adhere to the principles of ISO 14001, an internationally recognized standard for environmental management systems. This compliance underscores their commitment to reducing the environmental impact of their manufacturing processes, ensuring regulatory compliance, and driving continual improvement in environmental performance.

It is therefore assumed that the below aircraft OEMs with aircraft listed in table 1 conform to the DNSH requirements relating to transition to a circular economy and pollution prevention and control.

Aircraft OEM ISO 14001 Certificates
The Boeing Company
Airbus S.A.S.
ATR-GIE Avions de Transport Regional
Embraer S.A. [4]

[4] Link to Embraer's third party verifier – qe.eagle.org/qenetcert/ECert.Abs_ccd1

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