

# Business Jets Workshop 2025



21<sup>st</sup> – 22<sup>nd</sup> January 2025  
EASA Headquarters  
Cologne, Germany

#easabusinessjets

# *EASA Roadmap on Electric/Hybrid Propulsion Systems (EHPS)*

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# EHPS – what are we talking about?



Safran

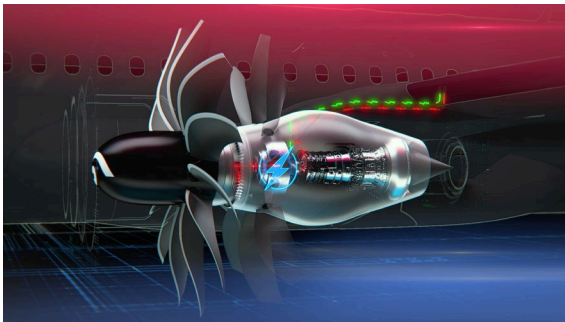


Volocopter

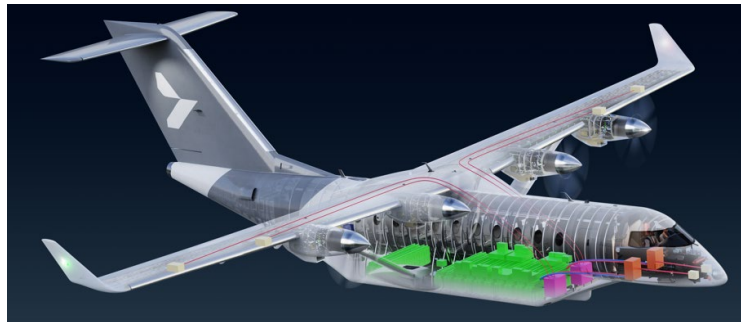


Pipistrel

From single electric engine to complete hybrid and distributed propulsion systems

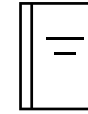


CFM Rise



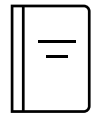
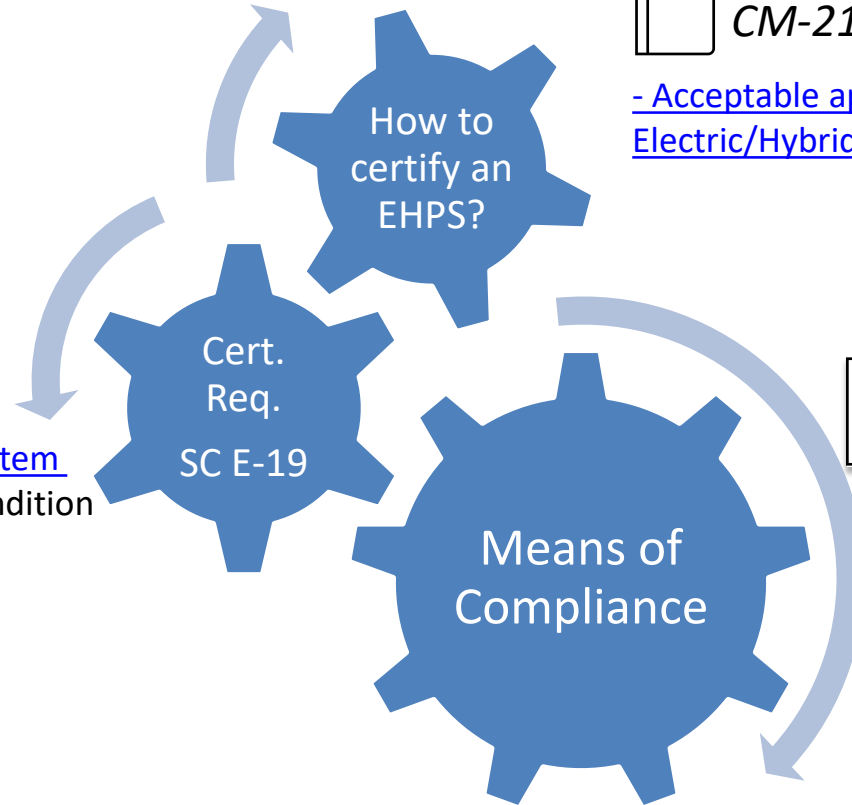
Heart Aerospace

# EHPS certification



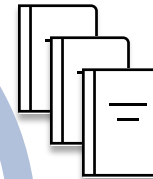
Proposed:  
*CM-21. A-004 Issue 01*

- Acceptable approaches for the certification of Electric/Hybrid Propulsion Systems"



Final:  
*SC E-19 Issue 01*

- Electric / Hybrid Propulsion System
- Performance Based Special Condition



Work in Progress  
*See next slides*

- Detail guidance provided in the MoCs.



# SC E-19

## → Objectives:

- Technology agnostic
- To certify products as safe as the previous generation of propulsion technology
- Be able to reuse certified engines (recip or turbine) as part of an EHPS
- Safety objectives =  $f(\text{intended aircraft application})$  to be proportionate
- To certify an EHPS as a stand-alone product or as part of the aircraft

Performance Based

## → Means of Compliance:

- Level 1 “A la Carte” table: tool for applicants
- Level 2 EASA MOC for each requirement
  - New EASA guidance
  - Explanation how to use recognised standards and Guidance Materials (L3)
  - Dedicated Subpart for each intended aircraft application product type
- Level 3 “Methods of Compliance”: Published Standards, CS-E, Guidance Material...

# Level 2 and 3: examples

SC E.19 REQ	Level 2	Level 3	Name
EHPS.80	MOC.EHPS.80		Safety Assessment
		CS-E 850	Compressor, Fan and Turbine Shafts
		AMC E850	Compressor, Fan and Turbine Shafts
		CMT-20240605	Single Fault Tolerance and LOPC in Electric Engines: Level 1 & 2 Normal-Category Aeroplanes in General Aviation - Issue 2
		SAE AIR-7130	Single Fault Tolerance
		****	****

i.e. **LOPC** and **Single Fault** new material required as a result of the exercise “GAP identification”

Rely on Industry to propose standards or methods of compliance to be accepted by EASA

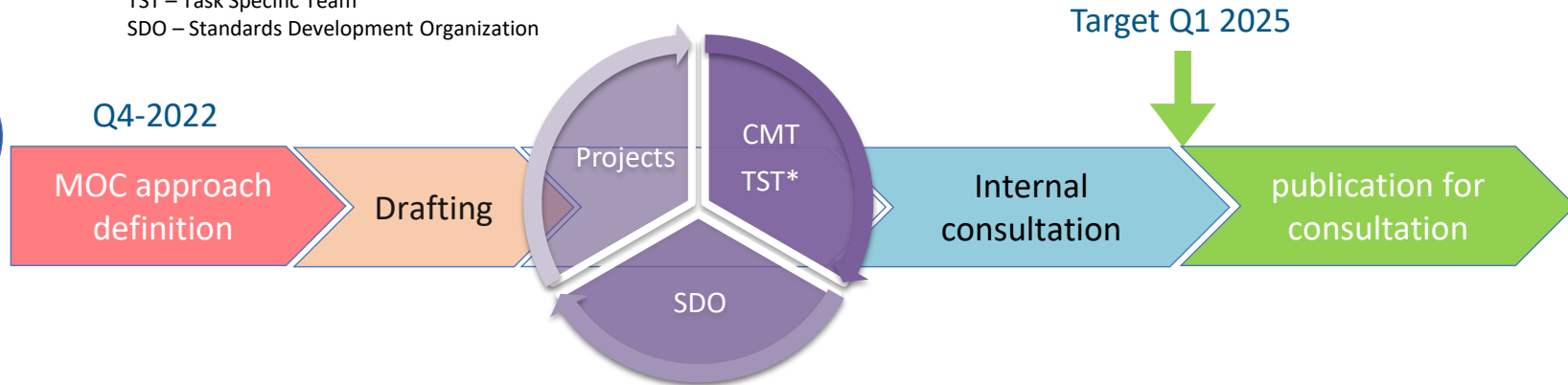
MoC to :

- Provide clarifications of the rationale and intent of the SC- E 19.
- Link to other relevant requirements associated to these requirements.
- Propose means of compliance.
- Refer to methods of compliance such as regulatory texts, guidance material, Certification memo, industry standards, etc.

# SC E19 – Means of Compliance (MOC) Priority 1

Publication-  
April 2021

\*CMT – Certification management team  
TST – Task Specific Team  
SDO – Standards Development Organization



## MoC under definition

EHPS.370 Electrical Power  
Generation, Distribution and Wirings  
EHPS.380 Propulsion Battery  
- Electrical Charger

## 1<sup>st</sup> Draft Initiated

EHPS.100 Fire protection  
EHPS.350 EHPS Control System

## Under review

EHPS.440 Calibration assurance  
EHPS.80 Safety Assessment

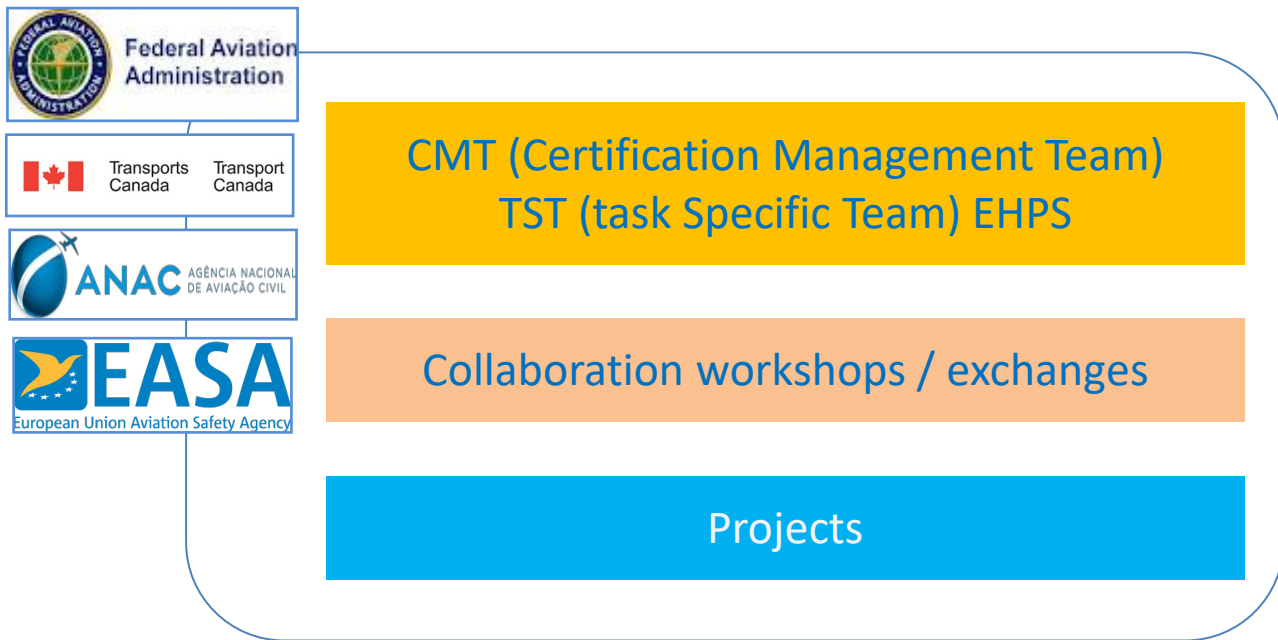
## Public consultation

EHPS.40 Ratings and operating  
limitations  
EHPS.240 Overspeed and rotor integrity  
EHPS.250 Rotating Parts Containment  
EHPS.420 Endurance substantiation  
EHPS.430 Durability demonstration  
EHPS.450 Tear Down inspection

## Working groups supporting the activity -> Join!

- EUROCAE WG113 Hybrid electrical propulsion
- EUROCAE WG116 High Voltage Systems and Components in Aviation
- SAE E-40 Electrified Propulsion

# Harmonization efforts



## Examples CMT:



Final:  
*CMT Decision document*

[Single Fault Tolerance and LOPC in Electric Engines: Level 1 and 2 Normal-Category Aeroplanes in General Aviation](#)



Drafting Finalization:  
*CMT Decision document*

LOPC-E for Single engine GA Level 3, Hybrid, eVTOL



Drafting Initiation:  
*CMT Decision document*

Energy Storage integration and interactions with engine and aircraft.



[easa.europa.eu/connect](https://easa.europa.eu/connect)



**Your safety is our mission.**

An Agency of the European Union 