



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Aviation Rulemaking Committee Charter

Effective Date: 4/9/2015

SUBJECT: Energy Supply Device Aviation Rulemaking Committee

1. **PURPOSE.** This charter establishes the Energy Supply Device Aviation Rulemaking Committee (ARC), according to the Administrator's authority under Title 49 of the United States Code (49 U.S.C.) 106(p)(5). The sponsor of this ARC is the Director of the Aircraft Certification Service and this charter outlines the committee's organization, responsibilities, and tasks.
2. **BACKGROUND.** The aviation industry has indicated significant interest in installing hydrogen fuel cells in airplanes. A hydrogen fuel cell produces electrical energy from hydrogen and oxygen reacting. Currently, the aviation industry is conducting research and pursuing efforts to install fuel cells on airplanes because fuel cells:
 - a. Are efficient sources of electric energy and produce usable water and heat as byproducts;
 - b. Could significantly reduce airplane weight, emissions of pollutant gases and noise; and
 - c. Support Europe's Clean Sky initiative.

The aviation industry has been studying, performing tests and developing prototypes to support several applications of fuel cells on airplanes. Some applications that have been discussed during industry meetings are as follows:

- a. Use the electrical energy to replace an airplane's main battery, ram air turbine and auxiliary power unit;
- b. Power equipment such as galley cookers, chillers, coffee makers, inflight entertainment systems, cargo unit load devices and medical equipment; and
- c. Use the water produced as a byproduct to reduce the need for water refilling trucks and ground support equipment.

Carrying hydrogen on-board an airplane creates safety issues that need to be understood and carefully addressed. For example, hydrogen is highly combustible and, due to its small molecular size, commonly leaks. The FAA is tasking the Energy Supply Device ARC to develop a thorough understanding of the safety issues and appropriate installation requirements to support the FAA's anticipated application for a fuel cell installation.

The FAA considers hydrogen fuel cells to be a main driver in determining appropriate airworthiness standards for energy supply device installations associated with this ARC. However, FAA airworthiness standards should be written to be performance-based and should address all foreseeable energy supply device types to the greatest extent possible.

3. **OBJECTIVES AND TASKS OF THE ARC.** The Energy Supply Device ARC will provide a forum for the aviation community to discuss and provide recommendations to the FAA and is tasked to specifically:
 - a. Develop a plan for determining appropriate airworthiness standards and guidance for energy supply device installations, with a primary focus on transport airplanes but also considering other types of aircraft.

- b. Identify hazards associated with installations of hydrogen fuel cells, batteries, ultra-capacitors, and other energy supply devices on transport airplanes and other types of aircraft.
- c. Identify the designs and operational principles that may be used to safeguard against these hazards.
- d. Identify the current rules in Title 14, Code of Federal Aviation Regulations (14 CFR) part 25 that are applicable for addressing energy supply device installations.
- e. Determine proposed revisions of, and any additions to, the applicable part 25 rules needed to provide an appropriate and adequate level of safety for energy supply device installations and operation.
- f. Review the existing advisory circulars and FAA policy memorandums and statements that provide guidance relating to this subject and determine proposed revisions or additions to the guidance. As a part of this effort, determine proposed guidance on the assumptions and approach that should be used to perform a safety assessment of these energy supply device installations.
- g. Recommend appropriate airworthiness standards and guidance for energy supply device installations.

Recommendation Report. The Energy Supply Device ARC shall provide recommendations that may be used by the FAA to develop appropriate airworthiness standards and guidance for energy supply device installations on transport airplanes and other types of aircraft. The report should include:

- a. A list of the types of energy supply devices studied.
- b. An explanation of all hazards associated with installing energy supply devices on airplanes.
- c. Discussion on the designs and operational principles the ARC considers will be used to safeguard against these hazards.
- d. An explanation of how the proposed airworthiness standards and guidance will sufficiently address all of the associated hazards.
- e. Any additional information the ARC considers, in associated with the task, that would help the FAA further understand the recommendation.
- f. Estimated costs associated with certification of each recommended energy supply device.

4. ARC PROCEDURES.

- a. The Energy Supply Device ARC acts solely in an advisory capacity by advising and providing written recommendations to the Director of the Aircraft Certification Service and the Director of the Office of Rulemaking.
- b. The Energy Supply Device ARC may propose additional tasks as necessary to the Director of the Aircraft Certification Service for approval.
- c. **Status Reports.** The Energy Supply Device ARC will provide a status update to the Director of the Aircraft Certification Service every six months.
- d. **Recommendation Report.** The Energy Supply Device ARC will submit a report detailing recommendations within 24 months from the effective date of the charter.
 - i. The Industry Co-Chair sends the recommendation report to both the Director of the Aircraft Certification Service and the Director of the Office of Rulemaking.

- ii. The Director of the Aircraft Certification Service determines when the recommendation report is released to the public.
- c. The Energy Supply Device ARC may reconvene following the submission of the recommendation report for the purposes of providing advice and assistance to the FAA, at the discretion of the Director of the Aircraft Certification Service, provided the charter is still in effect.

5. ARC ORGANIZATION, MEMBERSHIP, AND ADMINISTRATION. The FAA will establish a committee of members of the aviation community. Members will be selected based on their familiarity with energy supply device design, operation, installation and regulatory compliance. Membership will be balanced in viewpoints, interests, and knowledge of the objectives and scope.

The provisions of the August 13, 2014, Office of Management and Budget guidance, "Revised Guidance on Appointment of Lobbyists to Federal Advisory Committees, Boards, and Commissions" (79 FR 47482), continues the ban on registered lobbyists participating on Agency Boards and Commissions if participating in their "individual capacity." The revised guidance now allows registered lobbyists to participate on Agency Boards and Commissions in a "representative capacity" for the "express purpose of providing a committee with the views of a nongovernmental entity, a recognizable group of persons or nongovernmental entities (an industry, sector, labor unions, or environmental groups, etc.) or state or local government." (For further information see the Lobbying Disclosure Act of 1995 (LDA) as amended, 2 U.S.C 1603, 1604, and 1605.)

Membership is limited to promote discussion. Attendance, active participation, and commitment by members will be essential for achieving the objectives and tasks. When necessary, the Energy Supply Device ARC may set up specialized and temporary task groups that include at least one member and invited subject matter experts from industry and government.

This ARC will consist of members from aircraft manufacturers, fuel cell designers, operators, and foreign civil aviation authorities.

- a. The Director of the Aircraft Certification Service will:
 - 1) Select and appoint industry and the FAA participants as members to the Energy Supply Device ARC,
 - 2) Select an Industry Co-Chair from the membership of the Energy Supply Device ARC,
 - 3) Select the FAA Co-Chair from the FAA line-of-business,
 - 4) Provide the FAA participation and support from all affected lines-of-business,
 - 5) Provide administrative support for the Energy Supply Device ARC, through the Transport Airplane Directorate, and
 - 6) Receive all status reports and the recommendation report.
- b. Once appointed, the Industry Co-Chair will:
 - 1) Coordinate required ARC (and task group, if any) meetings in order to meet the objectives and timelines,
 - 2) Provide notification to the members of the time and place for each meeting,

- 3) Establish and distribute meeting agendas in a timely manner,
 - 4) Keep meeting notes, if deemed necessary,
 - 5) Perform other responsibilities as required to ensure the objectives are met,
 - 6) Provide status reports in writing to the Director of the Aircraft Certification Service, and
 - 7) Submit the recommendation report to the Director of the Aircraft Certification Service.
6. **COST AND COMPENSATION.** The estimated cost to the Federal Government for the Energy Supply Device ARC is approximately \$2,500. All travel costs for government employees are the responsibility of the government employee's organization. Non-government representatives, including the Industry Co-Chair, serve without government compensation and bear all costs related to their participation on the ARC.
7. **PUBLIC PARTICIPATION.** Meetings are not open to the public. Persons or organizations outside the ARC who wish to attend a meeting must get approval in advance of the meeting from either the Industry Co-Chair or the FAA Co-Chair.
8. **AVAILABILITY OF RECORDS.** Consistent with the Freedom of Information Act, Title 5, U.S.C., section 552, records, reports, agendas, working papers, and other documents that are made available to or prepared for or by the ARC will be available for public inspection and copying at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW, Renton, WA 98057-3356. Fees will be charged for information furnished to the public according to the fee schedule published in Title 49 of the Code of Federal Regulations, part 7.
- You can find this charter on the FAA Committee Database website at:
http://www.faa.gov/regulations_policies/rulemaking/committees/documents/.
9. **DISTRIBUTION.** This charter is distributed to the Director of the Aircraft Certification Service, the Office of the Associate Administrator for Aviation Safety, the Office of the Chief Counsel, the Office of Aviation Policy and Plans, and the Office of Rulemaking.
10. **EFFECTIVE DATE AND DURATION.** The Energy Supply Device ARC is effective upon issuance of this charter and will remain in existence for 28 months, unless the charter is sooner suspended, terminated, or extended by the Administrator.

Issued in Washington, D.C. on April 9, 2015



Michael P. Huerta
Administrator