



# Hydrogen Challenge Stakeholder Working Group

## Terms of Reference

### Context

Introducing hydrogen propulsion is a critical deliverable for the UK Civil Aviation Authority's (CAA) sustainability strategy and to enable zero emissions flight. The Hydrogen Challenge will provide a comprehensive understanding of the risks that hydrogen as a fuel poses to aviation safety and an updated roadmap to certification. It will also facilitate collaboration with industry and academia to improve understanding of hydrogen-related risks in aviation, identify gaps in regulations and policies, and propose new recommendations to develop net-zero regulations and policies. This will be achieved through the delivery of the following activities and outputs.

- Recommendations from industry including any amendments required to existing regulations and policies and any gaps in the current regulatory framework
- Hazard, risk, challenges, and opportunities log
- Hydrogen Sandbox activities, testing and reports
- Creation of different stakeholder working groups

The Hydrogen Challenge is funded with nearly £940,000 from the Regulators' Pioneer Fund, which is overseen by the Department for Science, Innovation, and Technology.

### 1. Scope

The Hydrogen Challenge Stakeholder Working Group (**HSWG**) is established to facilitate effective engagement, consultation, and collaboration between the CAA and selected governmental, industry, academic and community stakeholders relating to the Hydrogen Challenge project. The HSWG aims to ensure that the development and implementation of the project align with the needs and expectations of stakeholders and maintain a high standard of safety while promoting efficiency and innovation in relation to using hydrogen as an aviation fuel.

## 2. Objectives

The objectives of the HSWG are as follows:

2.1. **Engagement:** Foster open and constructive dialogue between the CAA and external stakeholders to exchange information, share perspectives, and address concerns about hydrogen as an aviation fuel.

2.2. **Consultation:** Seek input from stakeholders to gather valuable insights, expertise, and diverse viewpoints regarding the design, implementation, and impact of hydrogen aviation.

2.3. **Collaboration:** Facilitate collaboration and cooperation amongst stakeholders to identify opportunities, resolve challenges, and develop practical solutions that meet the shared goals of using hydrogen as an aviation fuel.

2.4. **Feedback and Recommendations:** Provide feedback and recommendations to the CAA within the Hydrogen Challenge, including a better understanding of the underlying physics of deploying hydrogen in aviation, a clear picture of the hydrogen technologies under development, any amendments required to existing regulations and policies and any gaps in the current regulatory framework.

## 3. Membership

3.1. Working Groups: **Three** initial Working Groups will be established, these will be:

1. H2 Propulsion Systems (Technological challenges)
2. H2 Aircraft Safety & Certification (Certification challenges)
3. Aerodromes & Airports

Additional working groups may be established at any time, as required.

3.2. Composition: The Hydrogen Challenge Stakeholder Working Group will comprise a diverse range of representatives from the following groups:

- a) Industry representatives within and outside the aviation industry who work in developing hydrogen-related technologies with applicability to the aviation domain.
- b) Government and National Aviation Authority officials with knowledge or interest in hydrogen as an aviation fuel.
- c) Airport/Aerodromes, airline operators, hydrogen production and distribution infrastructure representatives.
- d) Academics who are conducting research directly applicable to hydrogen as an aviation fuel.
- e) Any other stakeholder, whose work is relevant to the objectives of the Hydrogen Challenge.

3.3. Selection Process: The CAA shall invite potential stakeholders to participate in the HSWG based on their expertise, experience, and ability to contribute to the objectives of the HSWG. The selection process will apply transparent and objective selection criteria. The CAA is committed to promoting diversity and inclusivity both within our organisation and externally and encourages all stakeholders with the relevant expertise, experience, and ability to apply to take part in the HSWG.

3.4. The CAA will appoint stakeholders into three specific groups based on the categories described earlier in the document. Due to expertise and experience, some stakeholders could join more than one subgroup, if they wish to do so.

3.5. Term of Membership: The term of membership for SWG participants will be determined by the CAA and will align with the duration of the Hydrogen Challenge project, which is expected to complete by the end of FY24.

3.6. Leaving a Subgroup: Members will be removed from their subgroup by the CAA if the CAA determines they are not contributing positively to the objectives of the HSWG or the aims of a specific working group, including not sharing information openly or maintaining confidentiality within the group. Members will be removed from their sub-group by the CAAo leave their sub-group if they breach the terms of the non-disclosure agreement (NDA) signed before taking up their working group membership.

3.7. In addition to members appointed to the working group via this application process, it may be necessary for the CAA to appoint additional members, e.g. because a specific skill group is not represented, or a member leaves. Our intention to do so will be discussed with the working group before making such a decision. However, the CAA's decision to appoint will be final.

#### **4. Roles and Responsibilities**

##### 4.1. CAA Responsibilities:

- a) Provide relevant project updates, information, and documentation to HSWG members in a timely manner.
- b) Seek input and feedback from the HSWG on key project deliverables, including regulation and policy recommendations, regulation, policy and standards review and safety risks log.
- c) Consider and address the recommendations raised by the HSWG, as appropriate.
- d) Collaborate with HSWG members to identify potential issues, risks, and opportunities associated with hydrogen as an aviation fuel.

##### 4.2. HSWG Member Responsibilities:

- a) Act as a representative of their respective stakeholder group and provide input based on their expertise and experience.
- b) Attend and actively participate in SWG meetings, workshops, and discussions.
- c) Bring your own experience, ideas, and documents to the working group; in certain instances, this may mean sharing a Concept of Operation (ConOps) and safety-critical data with the CAA.
- d) Provide constructive feedback, recommendations, and suggestions to enhance the project's effectiveness, safety, and stakeholder satisfaction.

- e) Collaborate with other SWG members to address common challenges and find mutually beneficial solutions.
- f) Endeavour to carry out tasks as decided by the HSWG to assist in achieving the objectives of the HSWG.
- g) Maintain confidentiality and handle sensitive information in accordance with the NDA signed before taking up membership.

## 5. Meeting Structure

5.1. **Frequency:** The HSWG subgroups will meet approximately every two months. Meeting frequency will be reviewed periodically by the CAA and may be adjusted depending on project timescales and the level of stakeholder engagement required to support individual project phases.

5.2. **Meeting Formats:** HSWG subgroup meetings may take various formats, including face-to-face meetings, virtual meetings and workshops, depending on the circumstances and availability of participants.

5.3. **Agenda:** In consultation with HSWG subgroup members, the CAA will develop the agenda for each meeting. The agenda shall reflect the key topics, objectives, and any pre-circulated materials that require discussion or decision-making.

5.4. **Meeting Facilitation:** SWG subgroup meetings will be facilitated by the CAA's project manager for the Hydrogen Challenge or a suitable nominated delegate as and when required.

## 6. Reporting

6.1. **Progress Reports:** The CAA shall provide periodic progress reports to subgroups within the HSWG, outlining updates on the Hydrogen Challenge project's development, milestones achieved, and any significant decisions made. The CAA shall also provide periodic progress

reports on the working groups to the Department of Science Innovation and Technology (DSIT).

**6.2. Communication Channels:** The CAA shall establish appropriate communication channels to facilitate ongoing interaction and information sharing between HSWG members, including email correspondence, online collaboration platforms, and dedicated project updates.

## **7. Review and Evaluation**

**7.1. Review Process:** The CAA shall periodically review the effectiveness and impact of the Hydrogen Challenge Stakeholder Working Group to assess its contribution to the project's success, stakeholder satisfaction, and achievement of objectives.

**7.2. Feedback and Improvements:** Based on review findings, the CAA may seek feedback from HSWG members to identify areas for improvement and implement necessary adjustments to enhance the HSWG's effectiveness and efficiency.

**7.3** The CAA may change the objectives or membership of the group or may discontinue the HSWG if we determine that the group is (or specific group members are) not contributing appropriately to the objectives of the HSWG.

## **Expenses**

There will be no payment by the CAA to HSWG Members for work in connection with their membership, including time spent on attending or preparing for working group meetings or for expenses incurred in attending in-person working group meetings.

## **8. Amendments**

These Terms of Reference may be amended or updated as deemed necessary by the CAA including to reflect changing project requirements, stakeholder needs, or other relevant factors. Amendments will be communicated to the HSWG in a timely manner.

We will continue to review the membership of the group periodically to ensure the representation remains reflective of the industry and the challenges we face.