



Machrihanish Airbase Community Company
79 MACC Business Park
Machrihanish
Campbeltown
Argyll
PA28 6NU

Email: chairman@machrihanishairbase.org.uk

Telephone: 01586 551555

UK Community Renewal Fund (CRF) – MACC Hydrogen Futures Viability Study

Scope for Machrihanish Airbase Community Company (MACC) funding application to the UK CRF fund.

MACC has been successful in securing UK CRF funding for the services detailed below. MACC is carrying out a short turnaround tender exercise in order to proceed with the project as quickly as possible. Responses are required by 19:00 on the 3rd of December 2021. The approximate budget for this work has an upper ceiling of £165,000 + VAT.

MACC is looking for a contractor to conduct detailed feasibility and design work on the creation of a green hydrogen supply chain in the Argyll & Bute area utilising the land, facilities, and infrastructure at MACC. The project deadline will be mid-June 2022. Bids will be assessed on a quality/price ratio of 65/35.

This will involve:

1. Establishing realistic potential market demand profiles for green hydrogen gas supply considering the short (<3 years) medium (3-10 years) & long term (10+ years) demand for hydrogen as a fuel for heat and transport.
 - a. This should be an in-depth study engaging with hauliers, shipping, logistics, aviation, domestic, private and public sector end users to establish realistic energy demands that green hydrogen generation could meet in the area. There should be a particular focus on the potential demand from the SGN-operated Statutory Independent Undertakings (SIU) gas grid in Campbeltown, freight related to key sectors in the Argyll economy including distilling and forestry, local public transport (bus and ferry) providers and public sector road fleets such as RCV's.

Notes

- i. Where actual data is not available this should be substituted with suitable data derived alternatives.
- ii. The area boundary should incorporate Argyll & Bute for land-based users and extend to the Ayrshire, Dumfries & Galloway, and Northern Ireland coasts for shipping opportunities. Where deemed appropriate this may be varied by agreement.

- b. Wider market trends should be discussed and detailed in the study with consideration of the impacts of the planned large-scale commercialisation of hydrogen generation on the viability of any proposed scheme at MACC.
 - c. The potential demand from local industry, including aquaculture, for oxygen produced from the electrolysis process should be established.
 - d. The approximate scale of potential electrolyser and hydrogen storage options should be mapped and green generation options should be outlined at this stage.
2. Providing a suitable engineering design for a green hydrogen electrolysis plant and associated hydrogen storage to meet anticipated demand from all potential hydrogen users identified in the market study.

Detailed design for a hydrogen fuelling station on the MACC site for road transport refuelling should also be provided. These designs should be developed to serve the short-, medium- and long-term demand potential for the provision of green hydrogen. If deemed there is viable demand, oxygen storage and supply infrastructure should also be incorporated in the plant designs.

Outline design and information on implications of an on-site hydrogen liquefaction facility, including sizing, utilities requirements, storage, physical location, on-site logistics and estimated costs.

 - a. Sufficient information should be provided to permit meaningful engagement with the planning authority, statutory consultees and the general public for the siting and provision of hydrogen fuel for heating and transport users.
 - b. A detailed assessment of the existing onsite water, sewerage, electrical, telephone and fibre broadband infrastructure should be undertaken and converted into a digital format to permit a better (easier to interpret and adjust) understanding of the suitability of the sites infrastructure to host the hydrogen electrolyser and distribution equipment alongside the existing and potential future demands on these systems.
 - i. *These will be provided by MACC in PDF format*
3. Establishing feasibility of installing sufficient onsite renewable energy generation equipment to meet the energy requirements for each demand profiles.
 - a. This should consider on site and off-site options for renewable energy generation in detail (i.e., on site solar and small wind or a behind the meter connection to a local onshore or offshore windfarm depending on scale).
 - b. The design should factor in the existing on-site usage scenarios as well as for the hydrogen generation requirements.
 - c. This should include detailed designs that consider of all planning issues and provide a design(s) that complement any planning requirements. (EIA, ZVI, visualisations, etc)
 - d. It should consider energy storage options as part of the design if deemed appropriate.
 - e. External (DNO/National Grid) and internal (MACC Private wire) grid

- reinforcement designs.
- f. Detailed costings following engagement with potential suppliers factoring in cost inflation if completed in a phased basis.
4. A technical review of the suitability of repurposing the existing, unused aviation fuel pipeline from MACC to Campbeltown for the supply of hydrogen for the use in the SIU and to meet potential hydrogen demand from the maritime sector. The viability of repurposing of the existing onsite Jet Fuel Storage Installations (JFSI) storage facilities on site should be investigated as part of this review.
 5. A detailed economic analysis of the recommended proposals is required to justify the leverage of future investment from both private and public sector.
 - a. An easy to interpret summary business plan containing the financial and socio-economic investment requirements and return on investment,
 - b. A business plan complying with the HM Treasuries current green book format business case should be provided as an output to this study,
 - c. A socio- economic impact assessment with a strong focus on the potential job creation of the project locally, regionally, and nationally.
 - d. An assessment of the wider hydrogen refuelling infrastructure which would be required to complement the potential developments at MACC. This should include the whole of Argyll & Bute and on the key routes out of the area used by the main freight dependent sectors.
 - e. Cost benefit analysis of the proposal

General

Monthly progress reports will be expected for MACCs consideration. These reports should include progress against each of the 5 work streams in percentage terms and should be no more than two sides of A4.

A project timeline with review points is to be agreed at the outset of the project but the finalised project report incorporating MACCs final feedback and comments **must be delivered by Friday 17th of June 2022.**

Tender responses should detail payment requirements and frequency.

Contact:

Malcolm McMillan, Business Development Manager

malcolm@maccdl.co.uk

07767165917 or 01586551555