BRIEF: Tiree Renewable Energy Ltd. (TREL) – Battery Storage Feasibility Study

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Project Overview

Tiree Renewable Energy Ltd. (TREL) seeks a consultant to deliver a battery storage feasibility study.

Further detail can be found in the “Scope of Work” section of the brief.

Background

Tiree Renewable Energy Ltd. (TREL) - a wholly owned subsidiary of Tiree Community Development Trust (TCDT) - has been successfully operating a 900kW E44 Enercon turbine at Ruaig on the Isle of Tiree for 13 years. The turbine is wholly owned on behalf of the community, and all proceeds after maintenance, loan servicing and administration are passed to TCDT for use in carrying forward or supporting projects that benefit the island’s community.

TREL recently commissioned a study to identify potential renewables and energy efficiency projects to reduce Tiree’s emissions and continue the island’s transition to Net Zero.

Battery storage to complement the existing community-owned renewable generation was identified as an area meriting further exploration. This is because:

- Installing local battery storage could provide resilience during “islanded” events – where the local diesel generator provides power to the island if the subsea cable is inactive. Instead of having to use fossil-fuel backup generation to provide electricity to residents, the batteries will have been charged by local renewable generation and have a reserve sufficient to meet

the electricity demand, allowing for the continued use of renewable electricity regardless of issues with the subsea cable.

- Under current regulations, the installation of batteries is a prerequisite to allow the current community-owned generation (a 900kW wind turbine) to be the basis of an Energy Local club if the generation is at 11kV and load at low voltage. An Energy Local club creates a cooperative of generators and households, allowing locals to buy locally generated electricity at reduced prices.

TREL are therefore looking to progress with feasibility work on battery storage.

Scope of Work

In order to understand whether battery storage installation and the establishment of an Energy Local club is feasible, the successful consultant should undertake the following work:

- Estimate the total electricity demand of households, businesses and electric vehicle charging on Tiree.
- Estimate the total output of existing generation and the potential generation of new solar.
- Estimate the size of the battery required to provide power for Tiree continuously under Energy Local, taking into account:
    - The existing wind generation.
    - Potential new solar generation.
- Estimate the costs (capital and operational) for installing and operating battery storage.
- Estimate the costs for establishing and operating an Energy Local Club. This should include:
    - Developing an overall financial model for an Energy Local club.
    - Estimating potential savings for households.
- Discuss with SSE the potential to use the battery storage instead of diesel generators as back up, and how this aligns with their plans to use batteries to provide continuous supply of power to households.
- Discuss with SSE how a battery can be used to install further generation and alleviate constraints on the network.

The study should conclude:

- Whether a battery installation to accompany existing community-owned generation is feasible, and;
    - If so, whether the establishment of an Energy Local club is feasible.
- Whether battery storage is feasible as a solution to “islanded” events.
- Whether battery storage could be used as a means of facilitating the future installation of additional generation.

We anticipate the outputs will be delivered primarily in report form. This could be a single report, or a series of reports delivered at milestones throughout the project.

Timeline

This project must be completed (or the final invoice paid, prior to project completion) **by 28th February 2024**.

Payment

We would seek to discuss and agree payment on the basis of the number of paid days of work required with the successful candidate.

The total project budget (including consultancy time and all associated expenses, travel and accommodation costs, VAT if applicable, etc) is **£10,100 ex. VAT.**

Payment schedule to be agreed, but we anticipate this would be in stages paid in arrears based on the sign-off of agreed work as each task is achieved.

Payments relating to expenses can be agreed separately as incurred.

Lead Contacts for the Client

The lead contact would be TCDT General Manager for approval of works, etc. Other contacts would be with the relevant Community Projects Officer in regard to operational matters.

Guidance on Submissions:

The following information is required in the response to allow us to assess tenders, and we are very happy to discuss with potential bidders for further information as needed:

Relevant experience and past performance:

- Provide details of relevant experience within the renewable energy/ community energy sector. The ideal submission would show a strong record, knowledge and experience of similar projects in line with the requirements of this tender.
- Previous experience with projects which delivered similar outputs.
- Provide two contactable references for relevant previous projects.
- Relevant experience of an island context would be an advantage.

Sectoral Knowledge:

- Demonstrate relevant skills and knowledge against requirements of the project.

- Demonstrate relevant knowledge of the wider regional and national energy policy context.
- Sound knowledge of best practices in remote/island areas.

Project management and risk:

- Detail project management processes.
- Set out the project plan to demonstrate how the project will be phased.
- Outline understanding of risk and approach to managing project risks.

Expected Outputs:

The expected outputs are stated in the scope of works. These should be predominantly in a report format.

Methodology and support needed from us:

We would like to see an indicative outline of how you would anticipate proceeding with the work, and what (if any) input you would seek from Trust staff to support the process.

We are happy to have a discussion about this in advance, and for this matter to be resolved in fuller detail as part of initial work to begin the contract.

Project Timeline

We would like to see an indicative timeline for how you would expect to proceed if contracted.

Project Cost

Please quote a total price for carrying out the works.

The price should also include a breakdown of the main costs, including:

- Number of days required, day rate of staff involved in delivering the work, number of staff required.
- Purchase of data (where necessary)
- Expenses such as travel (where necessary)