

LC-BAT-11-2020 JM-FB Proposal Overview

This consortium is looking to connect with others who can add value and in turn benefit from this work. We are looking to accelerate electrification of waterborne transport to meet the EU objectives for fully electric short-transit ferries and hybrid powered larger vessels. We aim to develop a new set of standardised test methods and means for certification to provide a reduced overall cost for deploying marine electric propulsion. In parallel we will introduce a new battery electrode with trusted chemistry using an enhanced battery pack to decrease cost and weight while enhancing safety.

Who we are, the gaps, and the roles:

| Task | Partner | Role |
|------|-----------------------|--|
| 1 | A, JM, FB, MEET, SO | Research and develop a large system and cells cheaper than current system. |
| 2 | A, JM, FB, MEET, SO | Work applicable to at least 1 MWh system |
| 3 | B, BAE | Prove tech and manufacturing through system trials and testing |
| 4 | JM, FB | Address production efficiency |
| 5 | C, MEET, FB | Certification development. |
| 6 | C, MEET, NPL | Certification methodology and testing standardisation verifying safety at a reduced cost to current process. |
| 7 | D1, D2, BAE | Consider different vessel types, address system integration |
| 8 | E, all | Undertake cost benefit analysis and project manage |
| 9 | JM, FB, MEET, NPL | Assess end of life and disposal/recycling strategies |
| 10 | All industry partners | Develop business case and consider financing models |

Roles A-F may have tentative partners identified and are still actively being sought. Additional partners in all roles are most welcome to help ensure that the certification methodology covers an excellent breadth of chemistry, process, system design, and vessel type. Partner types are as follows:

A should have full scale cylindrical cell manufacturing capability

B should have large scale system testing capability

C should be a certification body

D should be an end-user

E should be the project manager

Current technical leads:

FB - Faraday Battery (UK) is a young SME manufacturing battery packs at 0.1 MW to 1 MW scale for transport markets including trains, buses, and ships. The battery pack is designed to perform in extreme weather conditions using lithium ion cell chemistry and innovative thermal management and power electronics with six patents pending for these innovations. The battery pack is also a significantly lighter weight and smaller form-factor battery package topology versus conventional designs. The battery pack is designed to provide 0.1 MW to 0.5 MW.

JM - Johnson Matthey (UK, DE, PL, etc) is a global leader in sustainable technologies. In recent years, JM has made a considerable strategic investment into the area of battery materials and collaborates closely with customers and the supply chain to deliver custom solutions. JM offers battery material manufacturing, formulation, and research; with expertise in Li-ion and beyond Li-ion technologies supported by a full suite of analytical and cell construction and testing capabilities, which provide deep insights into governing factors of cell performance. This includes flexible material scale up, manufacturing capability, new pilot scale electrode, and cell making capabilities.

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