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Affordable High-Performance Green Redox Flow Batteries

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HIGREEW – Deliverable Report

D1.2 – Validation protocol for test bench testing



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Written By	C-TECH	2020-02-18
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Reviewed by (if applicable)	Reviewer 1 Petr Mazur (UWB) Reviewer 2 Jiří Vrána (PFES)	2020-02-21
Approved by	Raquel Ferret (CIce)	2020-02-27
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Publishable summary

The HIGREEW project sets out to design, build, and demonstrate a prototype of a new high energy density generation of Aqueous Organic Redox Flow Battery (AORFB) based on a water-soluble low-cost organic electrolyte, and featuring low-cost components and long service life.

The need for a validation protocol for characterizing the battery and its components is paramount for the efficient screening of materials, characterizing of the battery, and subsequent performance testing when integrated into an energy storage application.

This report provides an outline of the defined testing protocols that shall be used to validate the prototype, including all component materials, its functionality and performance, and that of its electrical and control systems. Also included is a detailed list of all tests to be carried out, specific to each stage of the battery development, from early component level, through testing of the cell and developed stack and its fluid handling systems, to the final fully integrated prototype system.

The report provides guidance and clarity on what tests are required, to be carried out by which partner, and at which stage of the project, and the output expected from each test. In doing so, the prototype battery will be fully characterized and ready for implementation into the tested at the SGRE Test Facility at La Plana in Spain.