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Affordable High-Performance Green Redox Flow Batteries

GRANT AGREEMENT No. 875613

HIGREEW – Deliverable Report

D4.5 – Description of Control Strategies

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Publishable summary

The HIGREEW project sets out to design, build, and demonstrate a prototype based on a new 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. A fully functional AORFB prototype would be one of the major outcomes of the project. The scope of WP4 is to build the prototype which entails the transition from lab scale to final integration in La Plana (WP5). There are several steps or milestones to be achieved within the major tasks, Task 4.5 Battery Management system design and control strategies is an important task since the battery BMS (battery management system) will be defined and developed.

The control strategies to be implemented in the BMS have been tested in the laboratory and will be based both on the experience acquired in the management of the La Plana hybrid plant and on the experience acquired more particularly from the single cell tests in the laboratory.

This task is of great importance since the control of the battery is defined and developed here and the final operation of the battery will depend on it. For the development of this task, the inputs of the preceding tasks, mainly tasks 4.1, 4.2, 4.3 and 4.4, have been specified, since in these tasks the sensors, actuators, power electronics, etc. have been defined. With all this information the BMS has been developed and for this purpose it has been necessary to select different devices that will compose the main cabinet of the BMS.

Deliverable 4.5 compiles the work done in task 4.5, from the design of the BMS cabinet to the different control modes that have been proposed for the operation of the battery.

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Project partners:

#	Partner	Partner Full Name
1	CICe	CENTRO DE INVESTIGACION COOPERATIVA DE ENERGIAS ALTERNATIVAS FUNDACION, CIC ENERGIGUNE FUNDAZIOA
2	GAMESA	GAMESA ELECTRIC SOCIEDAD ANONIMA
3	UAM	UNIVERSIDAD AUTONOMA DE MADRID
4	CNRS	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS
5	C-TECH	C-TECH INNOVATION LIMITED
7	UWB	ZAPADOCESKA UNIVERZITA V PLZNI
8	PFES	PINFLOW ENERGY STORAGE, S.R.O.
9	UNR	UNIRESEARCH BV
10	SGRE	SIEMENS GAMESA RENEWABLE ENERGY
11	FRAUNHOFER	FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E. V.

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