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HIGREEW – Deliverable Report

<< D4.1 – Battery system design and component specification >>

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Publishable summary

One of the main results of the HIGREEW project is to build up and demonstrate a fully functional 5 kW / 20 kWh prototype AORFB. The prototype will be integrated in a demonstrator test site in La Plana, Spain where it will interact with renewable generators as well as other energy storage technologies.

In the first three work packages of the project, the specifications for the main components and the prototype have been defined, active components have been developed and improved, and the technology has already been scaled up from the laboratory to the level of a small demonstrator (stack). All this work culminates in the design and construction of the HIGREEW prototype.

In the first step of the prototype construction a system design, or “Balance of Plant” (BOP) was developed. The design encompasses process diagrams (P&ID), component lists, a pre-selection of component manufacturers and models and a signal list for the battery management system (BMS). This report describes in detail the resulting system parameters and the design process that led to the design specifications. Furthermore, focus was not only put on operation but also on maintenance procedures. The relevant procedures were summarized in a list of instructions.

The BOP will form the basis for all subsequent design tasks, as well as for translating the system design into the physical prototype. The diagrams and component lists described in this report will be updated as needed during the course of the project so that they can be compiled into comprehensive documentation and operating instructions for the HIGREEW prototype.

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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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