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Affordable High-Performance Green Redox Flow Batteries

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HIGREEW – Deliverable Report

<< D4.2 – Physical battery balance of plant design and
commissioning >>



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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. This was described in the earlier Deliverable report D4.1. In the second step a detail engineering was carried out. All concepts and outlines described in D4.1 were refined and elaborated into a detailed plan to describe the construction of the HIGREEW prototype system.

The system was designed in such a way that it can be assembled in a laboratory facility to test and evaluate the functionality of individual components. For that reason, it was partitioned into several building blocks or “modules”. This allows for the setup to be easily dismantled after testing and reassembled in a conditioned shipping container for outdoor installation.

This report describes in detail the design of the prototype system, the individual components, and their container enclosure. Furthermore, all steps necessary for testing and commissioning of the system are defined. The final versions of several important results which have already been introduced in D4.1, like process and instrumentation diagram (P&ID) as well as component list, are presented as well.

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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	ZAPADOESKA 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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