

**= iSTORMY =**

**EUROPEAN COMMISSION**

HORIZON 2020 PROGRAMME – TOPIC: Hybridisation of battery systems for  
stationary energy storage

Interoperable, modular and Smart hybrid energy STORage system for stationarY  
applications

**GRANT AGREEMENT No. 963527**



## **Deliverable Report**

**D3.5 – Physics-based failure mechanism and function  
safety of the PE modules**



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## **Publishable summary**

The iSTORMY project aims at developing an interoperable and modular Hybrid Energy Storage System (HESS) by demonstrating various use cases and seamlessly interfacing the grid to provide multiple services. This deliverable focuses on the description and assessment of the physics-based failure mechanism and functional safety of the power electronics modules. This assessment involves the development of a lifetime estimation framework that focuses on physics-based failures in order to evaluate the design robustness. By incorporating physics-based degradation into reliability prediction modeling, the lifetime of the designed modular power electronics topology is measured. The results are presented, and conclusions are drawn regarding the service operational lifetime of the HESS power electronics interface.

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Project partners:

#	Partner short name	Partner Full Name
1	VUB	VRIJE UNIVERSITEIT BRUSSEL
2	PWD	POWERDALE
3	CEG	CEGASA ENERGIA S.L.U.
4	CEA	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES
5	MGEP	MONDRAGON GOI ESKOLA POLITEKNIKOA JOSE MARIA ARIZMENDIARRIETA S COOP
6	ZIG	ZIGOR RESEARCH & DEVELOPMENT AIE
7	EDF	ELECTRICITE DE FRANCE
8	TNO	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO
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10	GW	GREENWAY INFRASTRUCTURE SRO
11	AIT	AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH
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