H2020 call: LC-SC3-ES-10-2020 DC – AC/DC hybrid grid for a modular, resilient and high RES share grid development

HYPERRIDE - Hybrid Provision of Energy based on Reliability and Resiliency by Integration of Dc Equipment

Coordinator: AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH (AUSTRIA)

Other Partners: SCIBREAK AB (Sweden), RWTH AACHEN (Germany), EATON (Czech Republic), EPFL (Switzerland), ZELISKO (Austria), ASM TERNI SPA (Italy) ENGINEERING - INGEGNERIA INFORMATICA SPA (Italy), EMOTION SRL (Italy) FLEXIBLE ELEKTRISCHE NETZE FEN GMBH (Germany)

HYPERRIDE contributes to the field implementation of DC and hybrid AC/DC grids. Grid planning and operation guidelines are developed, and available sizing tools adapted for DC. TRL of enabling technologies will be raised focused on MVDC breakers, sensors and DC measurement units to provide field ready devices for grid automation and protection. Automation algorithms are created, validated and transferred to demo sites. This involves concepts and solutions for cyber security and fault mitigation to avoid cascading effects. Demonstrations in Aachen (DE), Lausanne (CH), Terni (IT) will showcase above-mentioned technologies. Benefits of the solutions are evaluated, especially the integration potential of renewables. Business models are created for products, services and applications.

Project period	Project total cost	EU contribution	Website
2020 – 2024	8.2 M€	7.0 M€	www.hyperride.eu

Technologies and services deployed

Technologies for consumers

Grid technologies
- MVDC, MVDC circuit breaker, protection
- Network management, monitoring and control
- Micro-grid
- Multi-terminal systems

Large-scale storage technologies

Distributed storage technologies
- Batteries, Electric Vehicles

Generation technologies
- PV

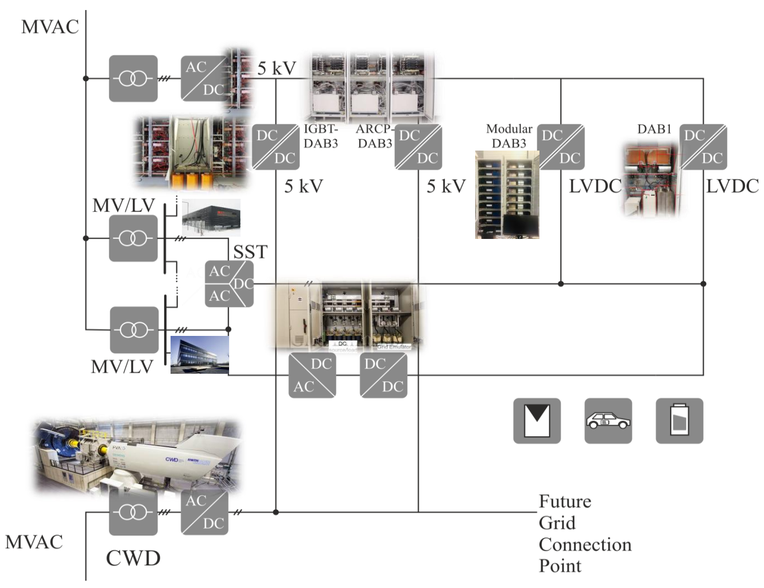
Energy Market
- Electricity market
- Ancillary services

Objectives

The main objective is to demonstrate MV – LVDC – AC/DC hybrid grid architectures based on a DC underlay grid interconnecting micro/nano-grids on target Technology Readiness Level (TRL) 5-8.

Technical description and implementation

Following three demonstrations are planned:
- Demo 1 (Lausanne, CH) and Demo 2 (Aachen, DE): MV – LVDC – AC/DC hybrid campus grids.
- Demo3 (Terni, IT): LV DC - AC/DC hybrid DSO grids with connection to MVAC grid via AC-transformer in the field.



Demo2: RWTH Aachen MV/LVDC Campus grid

This project has received funding from the European Union´s Horizon 2020 research and innovation programme under Grant Agreement No. 957788.

Visit our project website