

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

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.

### 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.

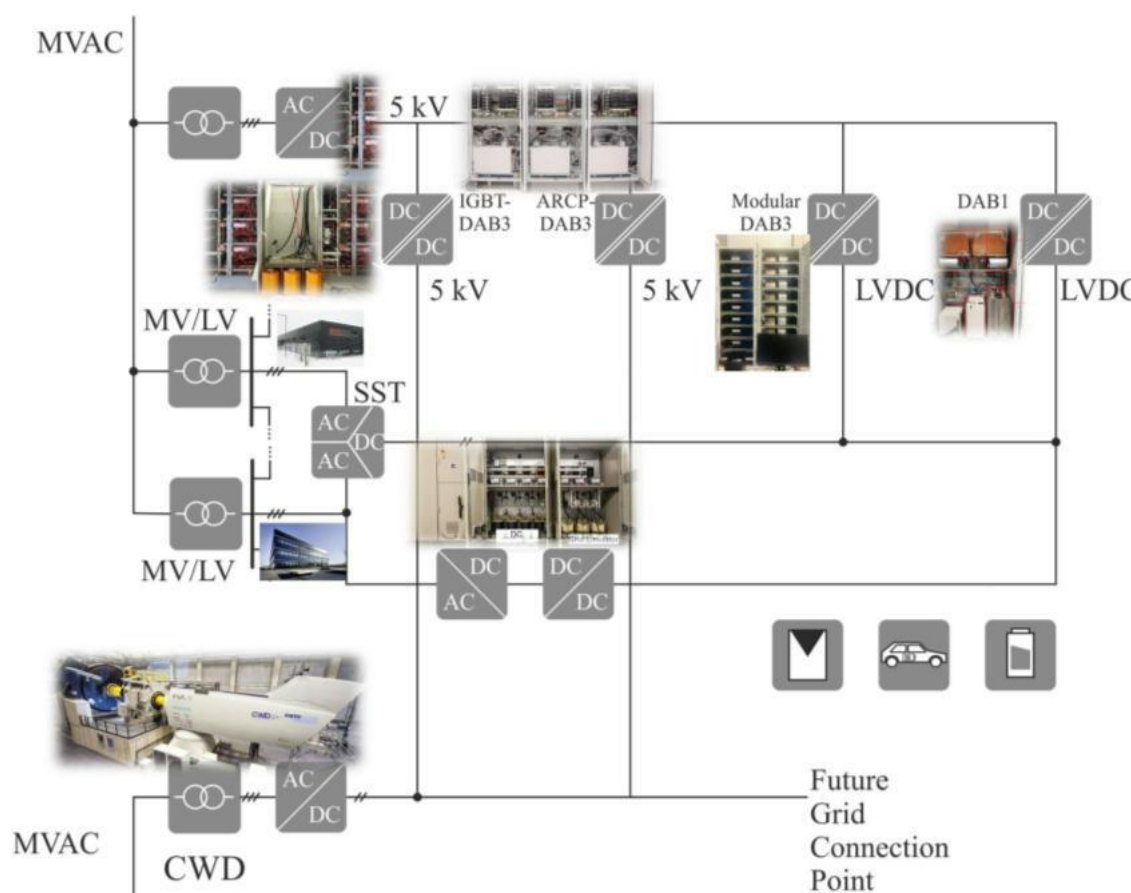
### TECHNICAL DESCRIPTION AND IMPLEMENTATION

#### MV – LVDC – AC/DC hybrid campus grids

- Demo 1 (Lausanne, CH)
- Demo 2 (Aachen, DE)

#### LV DC - AC/DC hybrid DSO grids with connection to MVAC grid

- Demo 3 (Terni, IT)



Demo2: RWTH Aachen MV/LVDC Campus grid

#### ► Project period

2020 – 2024

#### ► Project total cost

8.2 M€

#### ► EU contribution

7.0 M€

### 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

