Benefits

The results of the project will strongly contribute to the design of the future European energy system.

By providing the necessary framework for HVDC grid design, the project will enable future EU-GB grids to be planned and operated in a reliable and resilient fashion, acting as a firewall to events such as extreme weather or cyber attacks.

- Reduced Transmission Losses Using HVDC
- Greater Capacity And Power Capabilities For Energy Transport
- Facilitates Renewable Energy System Integration
- Facilitates Inter-Area Energy Trade

Project Consortium

HVDC-WISE gathers 14 partners from 11 European countries, including a number of Transmission Systems Operators, academic organizations and industry-based participants. The project is led by SuperGrid Institute, based in France.





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HVDC-WISE

Reliable and resilient AC & DC grid design to accelerate the integration of renewables across Europe

Context

The European Commission has defined plans for the development of renewable energies to reach climate neutrality by 2050. This change in production of electricity from fossil fuels to wind and solar power generation will lead to dramatic changes in power flows across AC transmission networks. High Voltage Direct Current (HVDC) is increasingly being recognized as the most effective technology to handle the transport of this energy.



Milestones & Objectives

- Develop a complete reliability-&-resilience-oriented planning toolset with appropriate representation of different HVDCbased grid architecture concepts in hybrid AC/DC grids.
- Identify, propose and compare different HVDC-based grid architecture concepts aiming to address Transmission System Operators' reliability and resilience needs for widespread AC/DC systems.
- Identify and assess emerging technologies for HVDC-based grid architecture concepts needed for the deployment of widespread AC/DC transmission grids.
- Validate the toolset and grid architecture in an industrially relevant environment.
- Prepare for the adoption and deployment of these proposed solutions by the industry.

The future European power system will need to consider new sources of vulnerability as the integration of RES, HVDC, and PE increases.



Challenges

A wide range of issues can affect the reliability and resilience of the electricity network.







Actions of **Malicious Actors**



