New Project Examines Potential for Europe's Power Grid to Increase Adoption of High Voltage Direct Current Technology

Electric grid resilience and reliability critical elements for European energy transition

Villeurbanne, France (November 28, 2022) – A partnership of 14 leading European energy industry, research organizations, and universities today announced the launch of a new project to identify opportunities to increase integration of high-voltage direct current (HVDC) technology into the European transmission system.

The HVDC-WISE project is supported by the European Union's Horizon Europe program. The project's goal is to develop a toolkit for grid developers to evaluate the grid's performance under extreme conditions and to plan systems in a way that realizes the full range of potential benefits from deep integration of HVDC technology into the European transmission system.

Project participants include: SuperGrid Institute, Tennet TSO, Scottish Hydro Electric Transmission, Universidad Pontificia Comillas, University of Strathclyde, RWTH Aachen, EPRI Europe, TU Delft, Tractebel Impact, University of Cyprus, RSE, Energinet, Amprion & Statnett.

"The European electricity grid is remarkably reliable by any standard. But as the climate changes and the grid becomes exposed to more extreme conditions, energy interdependence between regions intensifies and threats from external actors emerge. The new grid needs to be robust to those challenges," said Eamonn Lannoye, Managing Director of EPRI Europe.

Juan Carlos Gonzalez, researcher with the SuperGrid Institute, who leads the project said:

"HVDC-WISE is intended to provide planners with the tools and know-how to understand how grid development options perform in the context of changing threats and to ensure reliability by establishing strategies to manage the interactions between HVDC and conventional AC grids from the long term to the micro-second scales. This knowledge directly supports Europe in achieving Europe's Fit for 55 objectives."

The HVDC-WISE project is focused on enhancing electric grid reliability and resilience while navigating the energy transition. Building and maintaining network infrastructure to move power across Europe is an urgent and complex task, particularly with the continuing growth of wind and solar generation. At the same time, threats to the integrity of the power system are on the rise from multiple sources, including climate, cyber, and physical hazards.

HVDC is a mature technology but is typically developed in an 'A to B' component rather than as a network fully integrated with the grid. The HVDC-WISE project hopes to understand how to best deploy HDVC technology in a network context, alongside the established AC grid, to maximize benefits to customers across the continent.

Speaking about HVDC-WISE, TenneT COO, Tim Meyerjürgens, commented: 'We are happy to contribute to the HVDC-WISE project with our years of experience in HVDC technology. This initiative is an important research project for the industry, TSOs and for the whole of Europe. As European governments want to achieve their climate goals even faster, we see great potential in a meshed DC grid to realise this desired acceleration. A necessary prerequisite for this acceleration is the standardisation of such DC grids, which is urgently needed. The knowledge gained in this project will certainly make a valuable contribution to this urgent need.'

The project builds on previous work carried on the assessment of a hybrid AC-DC system by ENTSO-E and is aligned with its 10-year roadmap towards a stable and carbon free European Energy System. HVDC-WISE provides TSOs with the environment needed for research and innovation to support the urgent need to develop hybrid AC-DC systems.

HVDC-WISE is supported by the European Union's Horizon Europe program under agreement 101075424 and by the UK Research and Innovation Horizon Europe Guarantee scheme. The project runs from 2022 to 2026. Follow the project for updates on LinkedIn and Twitter.

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