Power grid interconnecting Sardinia, Corsica and Italy is laboratory for beyond state-of-the-art technologies

Experts from across Europe met during an international workshop in Codrongianos on 9th May to appreciate the most innovative technologies developed for HVDC (High Voltage Direct Current), which will play a major role in upgrading the electricity grids of the forthcoming decarbonised power system.

© Best Paths

The innovations are being designed and engineered within Demonstration 3 of Best Paths, the largest energy research project financed by the European Commission in the last decade. Transmission System Operator Terna Rete Italia is leading the Demo, coordinating the work of its project partners: Italian Electricity System research centre RSE and major industrial manufacturers Nexans, Toshiba and De Angeli Prodotti.

The workshop took place at the innovative Terna power substation of Codrongianos, which is the hub of the HVDC connection between the island of Sardinia, the French island of Corsica and continental Italy. This connection, called SACOI, is going to be totally rehabilitated after a record operational lifetime, also having been the first multi-terminal HVDC in the world.

SACOI has been chosen as a reference for the innovative components developed and tested in Best Paths due to its comprehensive structure, including three converter stations, overhead lines, land and submarine cables, sea electrodes, and power flows in any possible direction, which makes it an exemplary model for innovation in HVDC systems. It is also an important link, securing the energy supply and the flexibility of operation required by both islands. Its rehabilitation within the

current regulatory and territorial constraints is itself a big challenge, and will allow the introduction of more renewable generation plants in the European energy mix.

Antonio Iliceto, representing Terna as Chairman of the Best Paths Consortium, said: "We have deployed a robust collaboration pattern between public and private parties, thus ensuring the immediate replicability of its results. The full range of innovations for High Voltage Direct Current components developed in Best Paths can be applied in rehabilitating other existing interconnections as much as in newly built ones. This will substantially contribute to improve the capacity and the flexibility of European electricity infrastructures, which is key for the energy transition and for the welfare of millions of European consumers."

During four years of research and development, Best Paths Demonstration 3 experts achieved the following:
- Design, system studies, system performances, and techno-economic analysis of rehabilitating an existing 3-terminal HVDC link;
- Design, manufacture and testing of an innovative HVDC converter prototype with Voltage Source Converters (VSC) and advanced control functions;
- Development of HVDC Extruded Submarine and Land cables with improved performances for very high voltages and sea depth;
- Development of innovative High Temperature Low Sag conductors for DC overhead lines with improved performances both in Kevlar and Carbon Fibre;
- Design, manufacturing and testing of innovative insulators for DC overhead lines.

The international workshop was followed by a technical visit to Terna substation in Codrongianos, one of the most technologically advanced in Europe, in particular the HVDC facilities, synchronous condensers, and Storage Lab with large-scale electrochemical storage systems.

The Best Paths project, approaching its end in September 2018, is holding five technical workshops, one per Demo, for dissemination of the final results; information and details on past and future events can be found on:
- 11th May 2017 on "Real-time simulation of large offshore wind farms and interactions with power grids" in Trondheim (Norway)
- 5th April 2018 on "Innovative repowering of AC corridors" in Budapest (Hungary)
- 5th June 2018 on "Maximising multivendor interoperability in HVDC systems" in Paris (France)
- 5th July 2018 on "Developing superconducting technology" in La Spezia (Italy)

Parole chiave

technology, energy, transmission lines, power

Paesi

France, Hungary, Italy, Norway

Contributore

Contributo di

youris.com EEIG
Drève du Pressoir 38
B-1190 Brussels
Belgium
Sito web

Progetti correlati

PROGETTO

ARCHIVED

BEST PATHS

BEYOND STATE-OF-THE-ART TECHNOLOGIES FOR POWER AC CORRIDORS AND MULTI-TERMINAL HVDC SYSTEMS

4 Maggio 2023

Ultimo aggiornamento: 31 Maggio 2018

Permalink: https://cordis.europa.eu/article/id/123495-power-grid-interconnecting-sardinia-corsica-and-italy-is-laboratory-for-beyond-stateoftheart-/it