

Best Paths

INNOVATIVE NETWORK TECHNOLOGIES AND THE FUTURE OF EUROPE'S ELECTRICITY

BEST PATHS is part of a sea-change in energy technology innovation, from basic research right through to market take-up needed to tackle climate change and transform the energy system. After a year of operation, the project consortium, a range of international speakers and invited energy experts came together in Paris, France this 5th November to take stock of their ambition to deliver affordable and reliable renewable power to Europe.

The integration of decentralised renewable energy systems into the power grid is a principal driver for investment in electricity infrastructure. At the same time, grid operators and the whole electricity industry are facing major challenges in implementing this complete transformation of the way electricity is generated and transmitted.

BEST PATHS seeks to validate the technical feasibility, costs, impacts and benefits of [novel grid technologies](#), through [five large-scale demonstrations](#), to allow better integration of renewable energies into Europe's energy mix.

These demonstrations are working on the transition to high performance smart grids: from High Voltage Direct Current (HVDC) lines to HVDC grids, upgrading existing Alternating Current (AC) network to enlarge its transmission capacity and to integrating in it ultra high power superconducting DC links. The subsequent results are working to show scalable solutions able to be replicated across the pan-European power system.

Speaking at the workshop hosting nearly 100 participants, project coordinator, Mr. Vicente J. González-López of Red Eléctrica de España (REE) said "Developing and testing the performance of each of the five demo-sites provides an essential opportunity to understand the technology, manage operational and financial risk and experience hands on multi-partner delivery".

During the event, chaired by Italian Transmission System Operator, Terna, each demo-site gave an insight into the progress, challenges and innovations along the way. These included simulating links connecting offshore wind farms to improve access to HVDC technology; network topologies and specifications for innovative multivendor and multi-terminal links; less costly and more effective essential AC line upgrades and development of 3 Giga

Watt class superconductive cables amongst many more. Each of the different initiatives shared held a common theme – relevance and replication. Grid configurations in Europe and beyond are ripe for BEST PATHS solutions and technology to handle the next 40 years and more of electricity consumption.

If internal collaboration is key to such a vast project, BEST PATHS does not operate in isolation - and proved keen to interact and engage with a wide variety of initiatives pushing in the same direction. On the subject of standards, Frank Schettler, of Siemens presided over a lively discussion on [CENELEC](#) 'Guidelines and Parameter Lists for Functional Specifications for HVDC Grid Systems' and Henrik Dam of the European Commission made a number of links to the EU policy framework and initiatives such as the [Strategic Energy and Technology \(SET\) Plan](#), to which BEST PATHS is a clear contributor. Multiple participants also cited the concluding [e-Highway project](#), which outlines a vision for transmission infrastructure and investment as a reference point for the project.

Rounding off the event, an [insightful debate explored the relationship between market dynamics, policy and technology](#). Chaired by Roberto Vigotti, Secretary General of Res4Med, the panel included testimony from the International Energy Agency (IEA), European Wind Energy Association (EWEA), Statoil, the Joint Research Center of the European Commission and the Offshore Renewable Energy Catapult.

BEST PATHS will continue to hold regular public workshops and debates to share the project's progress with interested stakeholders on the journey to deliver innovative network technology. Project results will be integrated into European impact analyses to show the scalability of the solutions and will be made available as soon as 2018.

BEST PATHS stands for 'BEyond State-of-the-art Technologies for rePowering Ac corridors and multi-Terminal HVDC Systems'. It involves 39 partners and with a budget of 63 million Euros that will be 56% co-funded by the European Commission under the 7th Framework Programme for Research, Technological Development and Demonstration under grant agreement no. 612748. It is coordinated by Red Eléctrica de España (REE), and is set to run until September 2018. [@BestPaths eu](#)

