

## **MEDOW Multi-terminal DC Grid for Offshore Wind**

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MEDOW is a European Commission funded Marie Curie Initial Training Network (ITN) under the seventh framework, consisting of 11 partners (five universities and six industrial organisations) with collective expertise on the manufacturing, design, operation, and control of multi-terminal DC grids.

The project entails the different aspects of power system with DC grids, with special attention to offshore grids. The multi-terminal voltage-source converter is a quickly emerging as the technology which is particularly suitable for the connection of offshore wind farms and the upgrade of the existing AC system.



Figure 1: MEDOW Project Kick-Off Meeting 2013

The project started on 1 April 2013 and will conclude on 31 March 2017. Twelve Early Stage Researchers (PhD) and five Experienced Researchers (post-doc) will work with the partner institutions to address a number of key areas of future power systems with VSC HVDC. The work is subdivided in 4 technical work packages: offshore wind power transmission through DC grids, VSC converter technology including DC power flow, DC relaying protection and interactions of AC/DC grids.

Researchers will carry out comparison of DC grid topologies and stability control strategies and will investigate DC grids for offshore wind power transmission and onshore AC grid interconnection. Operation and control will be evaluated using various simulation platforms and experimental test rigs. The project's anticipated results will greatly contribute to integrating offshore wind power into the onshore AC grids of European countries and to the European offshore 'Super Grid'.

Each institution in the consortium contributes various expertise on the manufacturing, design, operation and control of multi-terminal DC grids. Three visiting scientists of outstanding international stature (Prof Reza Iravani (University of Toronto), Prof Boon-Teck Ooi (McGill University) and Dr Norman MacLeod (Technical Director HVDC, Parsons Brinckerhoff)) have been appointed to further strengthen the work of the network.

Updates on the project's progress and outputs will be available on the website:  
<http://www.medow.engineering.cf.ac.uk/>



Figure 2: MEDOW will include a variety of training events/industrial site visits

MEDOW expects to be able to offer a number of training events to researchers from outside the MEDOW network. Furthermore, at this moment, the ESRs have been hired, but the vacancies for experienced researchers still need to be filled. Keep an eye on the website for future news!

### **Project partners**

- Cardiff University (UK; Co-ordinator)
- Universitat Politècnica de Catalunya (Spain)
- Control Intel.ligent de l'energia (Spain)
- Alstom Renovables España (Spain)
- Universidade do Porto (Portugal)
- EFACEC Engenharia e Sistemas (Portugal)
- Katholieke Universiteit Leuven (Belgium)
- Elia System Operator (Belgium)
- Danmarks Tekniske Universitet (Denmark)
- China Electric Power Research Institute (China)
- National Grid (UK; Associated Partner)

Three post-doctoral research associate positions are also available as part of the project:

<http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/33909364>

<http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/33908353>

References: [1] MEDOW Project website, <http://sites.cardiff.ac.uk/medow/>