

## **PhD Position within Transmission network topologies and control strategies employing multiterminal HVDC - VSC**

Within the programme Science without Borders, Aalborg University is offering a PhD position at the Department of Energy Technology, Pontoppidanstræde 101, DK-9220 Aalborg East.

The position is administrated by “Science without borders” and financed by stipends through CAPES. The overall theme is “Engineering and other technological areas”. Acceptance of employment is on condition of the grant from CAPES.

**Hypothesis:** The HVDC-VSC technology can be used to improve transmission network flexibility, controllability and reduce losses in networks with a large share of offshore wind energy. The HVAC network operation will be more flexible and reliable.

**Description:** The HVDC VSC multiterminal technology possesses a range of qualities which may contribute to increase the transmission network controllability. Hence, a coordinated effort between the grid owner and the supplier of the HVDC technology is necessary. The use of HVDC – VSC multiterminal technology for offshore interties opens up for many new transmission network topologies. The project should study the technological potential and how to select most feasible network topologies, reduce losses and examine black-start capabilities. Economic considerations should be included when analysing different grid topologies. The analyses should be made using a virtual, realistic network model.

**Results:** Practically applicable technical design guidelines for comprehensive usage of multiterminal HVDC – VSC in transmission networks and methods for topological selection.

### **Requirements:**

**Master Degree** in electric power systems.

**Language:** Good skills in oral and written english

**Other professional qualifications:** Strong analytical skills, experience with computer simulations and some power electronics knowledge

**Contact person:** Professor Claus Leth Bak, e-mail: [clb@et.aau.dk](mailto:clb@et.aau.dk)

To apply please see the link below:

<http://www.en.tek-nat.aau.dk/vacant+positions/Science+without+Borders/>