

CONNECTION OF WIND FARMS TO WEAK AC NETWORKS

Cigre Working Group B4.62

Workshop to be held in conjunction with the 46th Cigre Session,

8.30 am – 12.40 pm, Thursday 25th August 2016, Room 253, Palais des Congrès

Cigre working group B4.62 has addressed the issues which can arise when wind power plants (WPP) operate in weak AC systems and how to improve the performance of these systems.

Many countries are experiencing a fast growth of renewable generation in general, and wind based generation in particular, imposing significant stresses on transmission grids. It is expected that future wind power developments are more likely to utilise power electronic converters for converting either some or all of the power output from the generators and connect to remote and weak parts of the transmission and distribution grids.

The working group has investigated the factors which may limit the ability to connect WPPs to weak ac systems, including the fast dynamic response of wind generator converter systems following system disturbances, and the interactions between wind generator converter systems, power system, and other power electronic driven network assets (e.g. HVDC links and FACTS devices) in the vicinity. In this workshop, guidelines for screening of potential connection points, selection of WPP models, and possible avenues for mitigating these issues will be discussed.

The recommendations of the working group are based on the grid integration of the WPPs, but are also extendable to other types of generation connected via power electronic converters, such as photovoltaic generation.

Programme

- 8.30 am Welcome – Nalin Pahalawaththa (AU)
- 8.45 am Introduction - Katherine Elkington (SW)
- 9.00 am Power Electronics in WPPs - Davor Vujatovic (UK)
- 9.30 am Issues in connecting WPPs to weak grids - Andrew Isaacs (CA)
- 10.00 am How weak is a weak ac system? - Babak Badrzadeh (AU)
- 10.30 am Morning tea
- 11.00 am Modelling and simulation of performance of WPP connections - Udaya Annakkage (CA)
- 11.30 am Confirmation of the causes of issues and mitigations - Mark Davies (AU)
- 12.00 am Application guidelines - Charlie Smith (US)
- 12.30 pm Conclusion – Sebastian Achilles (US)
- 12.40 pm Adjournment