Innovation category
TRL 4

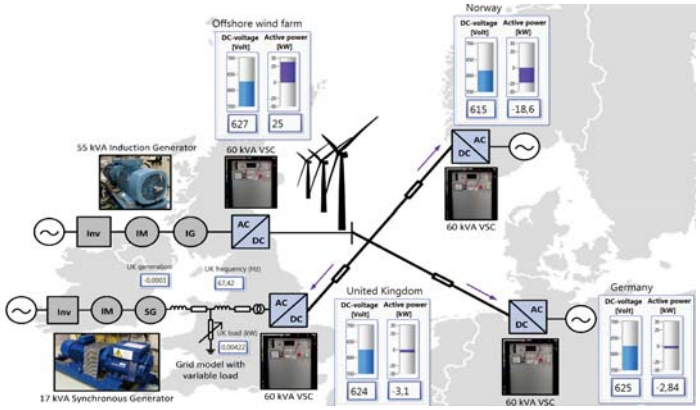
SINTEF
NTNU

Control of multi-terminal HVDC grids

Innovation description

Control concepts for multi-terminal HVDC (MTDC) grids have been developed in simulations and tested in the electrical laboratory, by SINTEF Energy Research and NTNU

- **Voltage droop control to control active power flow in the DC grid**
- **Robust control algorithms for HVDC converters**



Laboratory testing of voltage droop control for a multi-terminal HVDC grid

Impact

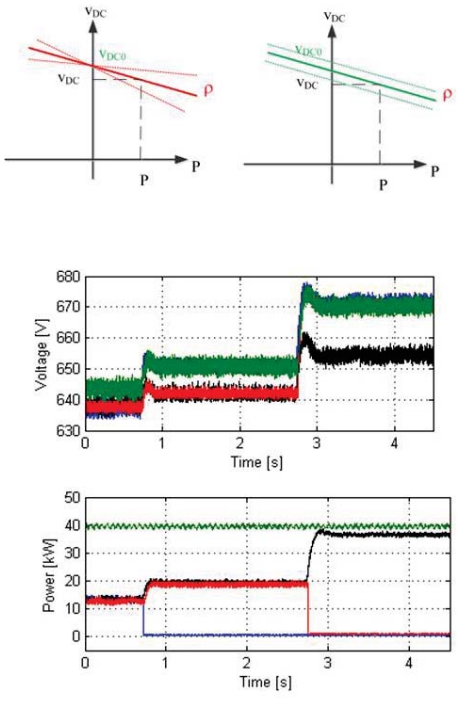
- **These strategies are relevant for far offshore wind farms requiring HVDC connection, and may give cost savings by allowing safe and reliable sharing of an offshore MTDC grid.**

Further development

More control concepts, such as virtual synchronous machine operation will be developed and tested in the laboratory

References

- **K Uhlen, H Støylen, AR Årdal, K Sharifabadi, EVER 2014, Monte-Carlo, DOI: 10.1109/EVER.2014.6844056**
- **RE Torres-Olguin et al., Energy Procedia 53 (2014), DOI: 10.1016/j.egypro.2014.07.219**



Test results