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THE EUROPEAN WIND ENERGY ASSOCIATION

EWEA comments to the draft HVDC NC

ENTSO-E NC HV DC Third User Group Meeting Brussels 12 Sept 2013

General remarks

- Performance requirements shall be specified at the PoC
  - Draft NC does not clearly differentiate requirements from HVDC converter and PPM connected
- Requirements for DC connected offshore PPMs should be based on a much more detailed analysis than being adopted directly from the RfG
  - ENTSO-E took out requirements for offshore PPMs from the NC RfG due to the level of technology differences
  - With the EC holding the pen on modifications to the RfG, the NC HVDC should address the comments that the wind industry gave in 2012

General remarks

- Non-exhaustive requirements to be bilateral agreed as much as possible rather than be left for national TSO to be imposed
- "*Principle of optimisation between the highest overall efficiency and lowest total cost for all involved parties*"
  - How has cost optimisation from offshore PPMs been considered?

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Thank you

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Specific comments

- Requirements P and f control
  - Article 9, 1. Synthetic Inertia provision
  - Article 10 1.(a) FSM capabilities
- Requirements for Q and U control
  - Article 14 1. (a) Voltage ranges - too wide
  - Article 15 1. Short-circuit current -
  - Article 16 1. Q capability – rectangular envelope needed?
  - Article 38 – Q and U requirements same from AC to DC?
- Requirements for FRT
  - Article 26 Power oscillation damping capability – depending on wind availability

Specific comments

- Frequency ranges - Article 37

Synchronous Area	Frequency Range	Time period for operation	NC RfG
All ENTSO-E	47.0 Hz – 47.5 Hz	15 minutes	f ranges applicable only to UK but for 20 seconds. All other countries have no such ranges
	47.5 Hz – 49.0 Hz	90 minutes	
	49.0 Hz – 51.0 Hz	Unlimited	
	51.0 Hz – 51.5 Hz	90 minutes	
	51.5 Hz – 52.0 Hz	15 minutes	

Specific comments

- U ranges - Article 38.2
  - In accordance to Article 20.1 of the NC RfG?
- Q ranges – Article 38.3
  - PPMs & DC link same owner- In accordance to Article 16.3 a) the NC RfG?
  - All other PPMs - In accordance to Article 16.3 a), b) and c) the NC RfG?
- U stability
  - In accordance to article 15.2 of the NC RfG?
- Q control models
  - In accordance to article 16.3 d) of NC RfG?
- FRT
  - In accordance to article 11.3 of the NC RfG?

Specific comments

- Control requirements – Article 39
- Power quality – Article 42
  - Ensure PPM connection does not result in a level of distortion of fluctuation of the supply Voltage – Which levels?