

# **Network Code Requirements for Generators**

*6 December 2011, Dusseldorf*

## **Report of bilateral meeting ENTSO-E (DT RfG) with EWEA (WG GCR)**

### **Agenda**

A delegation from EWEA (WG GCR) met with the drafting team DT RfG of ENTSO-E. The meeting agreed on the following priority issues to be discussed:

- Fault-ride through requirements
- Reactive Power requirements

In addition, and if time permits, the issues of

- Retroactive application of the network code
- Definition of significant users
- Choice of level of detail of requirements
- Deviations from existing standards

ENTSO-e stated that it will make a report of this meeting publicly available.

ENTSO-E provided an updated version of the FAQ in the meeting (dated 2 December 2011).

### **Fault Ride Through**

ENTSO-E clarified that all requirements in the Network Code are referred to the Connection Point; ENTSO-E declared that they deem the requirement as fulfilled at the connection point if the wind turbine shows the required behavior at its terminals and that the requirements on individual Generating Units of a Power Park Module can be subject to type testing. Detailed prescription of compliance tests is not considered a cross-border issue and therefore should not be included explicitly in the NC.

ENTSO-E clarifies that the Fault Ride Through requirements for Power Park Modules are “framework” requirements, i.e. the voltage-against-time-profile at the Connection Point is to be set by a TSO locally, within the limits defined in the Network Code (shaded areas). It is not to be understood that the Synchronous Generating Units or the Power Park Modules shall be able to withstand voltage recovery profiles within the limits defined in the Network Code, but rather withstand voltage recovery profiles as set by the TSO locally. The proper interpretation of these requirements shall be addressed in the explanatory documentation (F.A.Q.) of the Network Code. ENTSO-E states that details of the FRT requirements need to be further specified on a national level by the Relevant Network Operator / TSO.

ENTSO-E clarified questions from EWEA regarding the requirements for Power Park Modules to provide a reactive fault current. The drafted requirements refer to the absolute reactive fault current (and not to an additional current like in similarly drafted German codes).

### **Reactive power capability**

The parameters for the inner envelope of the U-Q/Pmax-profile of a Power Park Module (Table 7 of the Network Code) shall be clarified (corrected) in the NC to refer to maximum ranges. This will clarify that the U-Q/Pmax-profile of a Power Park Module cannot be arbitrarily large but lies within the limits of the inner envelope as defined per synchronous area.

There should be a clarification in the NC to the reference of Maximum Capacity of a Power Park Module; In particular, the requirement for maximum Reactive Power is limited to the case where all Generating Units of a Power Park Module are operating. If for any reason, a number of Generating Units of a Power Park Module are inoperational, the maximum Reactive Power that can be requested should be adapted proportionally. The overarching principle is that the Power Park Module shall be *designed* such as it shall be able to provide the maximum Reactive Power if all Generating Units are available; the procurement details of Reactive Power are outside the scope of the Network Code.

There is no agreement between the parties on the actual values for the reactive power capabilities in the present draft NC.

EWEA stated that the reactive power capability requirement should be different for Type C and Type D. As Type C will be connected to distribution system (< 110kV) and the power park module owner will have no influence on the HV transformers on load tap changer this will lead to more challenging requirements for Type C PPM than for Type D PPM.

### **Simulation models**

It is understood by ENTSO-E that confidentiality issues may rise with respect to simulation models that are not shared (in particular EMT). EWEA shall check if Art. 5 of the Network Code sufficiently protects intellectual property and propose amendments if necessary. In general, the Network Code does not refer explicitly to international standards on models as it may not delegate authority to adapt requirements to processes outside the specified process to update Network Codes (Reg. 714/2009). The Network Code is providing the framework within which standards are to be developed. Standardisation bodies should ensure that the standards reflect the requirements of the Network Code.

### **Retroactivity**

According to ACER Framework Guidelines on grid connection, the retroactivity of the requirements in the Network Code shall be determined at a national level. ENTSO-E clarified that, should a TSO decide not to propose retroactivity, then the Network Code shall not apply retroactively.