
Real time data and communication

ENTSO-E guidance document for national
implementation for network codes on grid connection

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DESCRIPTION

Code(s) and
Article(s)

NC RfG : Article 14.5 (d)

NC HVDC : Articles 31 and 51

NC DCC : Article 18

Objective

The three Connection Network Codes establish different requirements to the User Grids in terms of information to be sent to the relevant TSO or to the relevant system operator of the equipment connected to the network.

The relevant TSO or relevant system operator shall receive real time data in order to be aware of the network situation at every moment: adequate information exchange between system operators, either TSOs or DSOs, and Grid Users (understood here as all equipment subject to applicability of this requirements, i.e. generators, PPMs, HVDC systems and demand facilities) is a prerequisite for system operators to maintain system stability and security. System operators need to have continuously an overview over the state of the system, which includes information on the operating conditions of these Grid Users, as well as the possibility to communicate with them in order to direct operational instructions.

Taking the latter into account, the mere capability to exchange information is required for most Grid Users, except the smallest, like Type A PGMs. This is done in a non-exhaustive manner, because the details on the information to be exchanged depend on the operational strategies and communication infrastructure in the responsibility area of each relevant system operator and Relevant TSO, and therefore can be only specified at that level and also through implementation of the System Operation Guideline.

NC Frame

RfG Article 14.5 (d)- Requirements for Type B, Type C and Type D power generating modules:

(a) *with regard to information exchange:*

- (i) *power generating facilities shall be capable of exchanging information with the relevant system operator or the relevant TSO in real time or periodically with time stamping, as specified by the relevant system operator or the relevant TSO;*
- (ii) *the relevant system operator, in coordination with the relevant TSO, shall specify the content of information exchanges including a precise list of data to be provided by the power generating facility.*

HVDC- Article 51, It lists a number of minimum parameters to exchange with the relevant system operator, in both directions

(operational signals: commands, setpoints, measurements, etc... and alarm signals).

HVDC- Article 31, It states that DC connected PPMs shall comply with some articles of RfG, where Art 14.5 (d) applies.

DCC. Article 18- Information exchange

1. *Transmission-connected demand facilities shall be equipped according to the standards specified by the relevant TSO in order to exchange information between the relevant TSO and the transmission-connected demand facility with the specified time stamping. The relevant TSO shall make the specified standards publicly available.*
2. *Transmission-connected distribution system shall be equipped according to the standards specified by the relevant TSO in order to exchange information between the relevant TSO and the transmission-connected distribution system with the specified time stamping. The relevant TSO shall make the specified standards publicly available.*
3. *The relevant TSO shall specify the information exchange standards. The relevant TSO shall make publicly available the precise list of data required.*

The need and relevance of the requirements is justified as well by:

RfG Whereas (21):

Adequate information exchange between system operators and power generating facility owners is a prerequisite for enabling system operators to maintain system stability and security. System operators need to have a continuous overview of the state of the system, which includes information on the operating conditions of power generating modules, as well as the possibility to communicate with them in order to direct operational instructions.

Link to ACER
Framework
Guidelines

ACER Framework Guidelines establish:

Paragraph 3.1: “... The network code(s) shall set out the procedures and requirements to coordinate and ensure information sharing between ... System operator and significant grid user ...”

Paragraph 3.2: “... The network code(s) shall set the requirement for every significant grid user to be able and obliged to provide the necessary real-time operational information to the DSO and TSO that their connection has significant impact upon. The network code(s) shall set the requirement for every significant grid user to be able to receive and to execute the instructions sent by the TSO and/or DSO, on a contractual basis or in critical operating state.”

Further
information
(examples and
references)

ENTSO-E RfG and DCC Justification Outlines:
<http://www.acer.europa.eu/Media/News/Documents/121221-DCC%20-%20Justification%20Outlines.pdf>
<http://www.acer.europa.eu/Media/News/Documents/120626%20-%20NC%20RfG%20-%20Justification%20outlines.pdf>
 Requirements for data exchange are covered in System Operations Guideline.

INTERDEPENDENCIES

Within CNCs This file covers the current 3 CNCs.

In other NCs The requirements set by NC RfG, NC DCC and NC HVDC on system information exchange in real time are focused on ensuring that new Grid Users connected to the network have the capability to comply with the System Operation Guidelines (SO GL), with respect to the list of information to be exchanged in real time by the Grid Users and the system operator.
 In SO GL, the data exchange requirements and scope is covered in Title 2 where requirements in general, between TSOs, between TSOs and DSOs, between TOSs and plants connected to transmission system, between TSOs, DSOs and distribution connected PGMs, and between TSOs and demand facilities, are covered. More specifically the real time data exchange is defined in the System Operation Guideline Articles 41 – 53.

COORDINATION

TSO – MS- NRA

Encourage cooperation between effected parties

TSO – generator
owner – DSO-
CDSO

Cooperate to find practical effective overall least cost solutions to pass on required information.