

European Connection Network Codes: Multiple TSOs Approach

Initial NGET view
November 2015

Multiple TSOs Clause

Article 8 Multiple TSOs

1. Where more than one TSO exists in a Member State, this Regulation shall apply to all those TSOs.
 2. Member States may, under the national regulatory regime, provide that the responsibility of a TSO to comply with one or some or all obligations under this Regulation is assigned to one or more specific TSOs.
- Each of the connection codes (RfG, DCC & HVDC) includes an article requiring Member States to set TSO responsibilities where more than one TSO exists in that member state (as shown for RfG – DCC & HVDC similar)
 - In each code there are also references throughout to requirements placed upon a 'relevant' TSO or 'relevant' system operator
 - Which TSO or system operator these requirements refer to needs to be determined by the Member State
 - GB is in a unique position having a number of TSOs but with very different roles

Assumptions/ground rules:

Applied in first pass of responsibilities & requirements

- Future offshore windfarms could be AC connected and therefore RfG does need to consider these (rather than all offshore PPMs being DC connected and hence covered under the HVDC code).
- A future OFTO or in theory interconnector could be AC or DC. This leads to a more inclusive list of TO responsibilities under RfG than would otherwise be the case if OFTOs and interconnectors were assumed to be DC.
- An offshore windfarm could be connected via an OFTO or (in theory) an interconnector.
- HVDC assets could be at sub-110kV levels (perhaps particularly if there is a growth in larger scale battery storage projects), so could be DNO connected.
- DSR is generally a service that would only be employed by the SO as it is seen as an aid to operating the system. It could potentially also be used in constraint management, which could also be useful to a DNO. This area is not really well thought out as yet.
- In each of the codes there are many instances where a requirement comes in two parts, being an action on the relevant System Operator to be fulfilled in coordination with the relevant TSO. In most of these cases the initial view is that the relevant TSO is NG but the relevant system operator is frequently any of the candidates. Also frequently there is a requirement upon whichever party holds a connection agreement – which is therefore the SO or (if distribution connected) the DNO.

BETTA Rules of Thumb

These were used in determining SO and TO responsibilities during BETTA implementation

SO activities

- Frequency Management / frequency elements
- Dynamic Performance
- Voltage control / Reactive capability
- Fault Ride Through
- Dynamic System Monitoring, ASB Monitoring, PMU
- Communications facilities
- Models and Simulations
- Operational metering
- Contracts
- CUSC obligations

TO Activities

- Asset related issues
- Protection
- Earthing
- Quality of Supply
- Electrical Standards at the point of connection
- Intertripping
- Synchronising
- Auto close schemes
- Interlocking

TO activities could be characterised as local issues to do with the stewardship of assets rather than potentially impacting cross-border trade/system operation)

There are also a number of areas where joint SO and TO requirements are necessary listed as in the SO camp but are also a TO area of interest – eg Control Telephony, Operational Metering and simulation models/data.

Connection Offer Process

- In many instances, the relationship that will facilitate the action described in the code is covered by the contract held between the user and the network operator
- All connection contracts are only between the User (ie Generator, DNO or HVDC Converter) and the System Operator (ie NGET) or a DNO
- There is no connection contract between the User and TO

NB For Embedded Generators is a connection contract with the DNO but below a threshold and if not a BM party there will be no NGET involvement

Connection offer example:

Directly connected generator in Scotland

- The Generator will apply for a connection to the SO
- The SO will check through the data and send it through to the TO.
- The TO will also check the data and once checked and deemed competent the clock will start (3 months).
- With the clock started, the Scottish TO have a System Design department similar to NGET
- The Scottish TO will then assess the application and prepare the TO's connection offer. These requirements are then placed in a contract called a Transmission Owner Construction Agreement (TOCA) which is then sent to the SO. This process is captured under the STC (System Operator Transmission Owner Code).
- The SO then takes the details of the TOCA and inputs this information into the Generator Offer. Any SO requirements are then superimposed onto the TO requirements and the offer is formally issued.
- At all times, the contract is only between the Generator and SO.

...and the interesting part is when the project reaches the compliance process as this defines which party (SO or TO) manages the process:

- The key point is that the SO manage the compliance process but any TO activities are still passed to the TO by the SO. In other words the SO act as a post box.
- So in terms of which activities fall to the TO and which to the SO - in general the SO will deal with all system, dynamic and market facilitation issues. The TO will deal with the site specific / connection non cross-border trade issues such as protection, earthing, synchronising, interlocking etc.