Explanatory note for the determination of LFC blocks proposal for the Synchronous Area of Great Britain

Date 27/11/2017

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Explanatory note

In relation to the Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation (hereafter referred to as "SO GL")

The operation of Load-Frequency Control (LFC) processes is based on operational areas, where every area has their individual responsibilities with respect to the LFC structure. The superior structure is the synchronous area in which frequency is the same for the whole area.

The Synchronous Area of Great Britain (GB) consists of one LFC Block, this LFC Block consists of one LFC Area, which in turn consists of one Monitoring Area. Thus for GB the hierarchy follows a 1:1:1:1 relationship. All responsibilities and rights defined in the SO GL in relation to this control hierarchy (Article 141(2)) in relation to the operational processes and operational security of the GB National Electricity Transmission System (NETS) is assigned to National Grid in its role as system operator, pursuant to the GB NRA (OFGEM) decision concerning the GB TSO assignment of obligations[1] as authorized by BEIS to undertake TSO allocations relating to SO GL.

This proposal does not represent a change from the regulated roles, responsibilities or defined control structure that pre-existed this regulation.

The above described hierarchy is illustrated in Figure 1. Each of these operational areas has their own obligations. A Monitoring Area has the obligation to calculate and measure the active power interchange in real-time in that area. A LFC Area has the additional obligation to fulfil the Frequency Restoration Quality target parameters by using the Frequency Restoration Process. A LFC Block is in addition responsible for the dimensioning of frequency restoration reserves (FRR) and replacement reserves (RR). The Synchronous Area has the obligation to fulfil the frequency quality target parameters [SO GL: Article 171(1); Annex III table 1] by using the frequency containment process (FCP) [SO GL: Article 142].

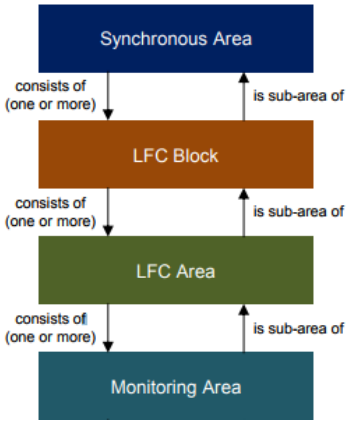

Figure 1. Types and hierarchy of areas operated by TSOs

According to the Article 141(2) of SO GL, by 4 months after entry into force of this Regulation, all TSOs of a synchronous area shall jointly develop a common proposal regarding the determination of LFC blocks, which shall comply with the following requirements:

- a monitoring area corresponds to or is part of only one LFC area;
- a LFC area corresponds to or is part of only one LFC block;
- a LFC block corresponds to or is part of only one synchronous area; and

[1] https://www.ofgem.gov.uk/publications-and-updates/decision-assignment-transmission-system-operator-obligations-under-guideline-electricity-transmission-system-operation-regulation-within-gb

- each network element is part of only one monitoring area, only one LFC area and only one LFC block.

It is important to note that Interconnectors between LFC Blocks can be part of more than one LFC Block without violating the previous statement requiring network elements to only part of one monitoring area, one LFC Area and one LFC Block. SOGL Article 3(18) states that the LFC Block is demarcated by points of measurement of interconnectors with other LFC Blocks. HVDC interconnectors between the GB LFC Block and other LFC Blocks (in other Synchronous Areas) are made up of several 'network elements'. The assets in GB, connected to the GB network including and up to the point of measurement are within the GB control hierarchy. At the far end of each HVDC interconnector are 'network elements' that are part of that other LFC Block, in another Synchronous Area.

Finally, and according to the Article 6(3)(g), this proposal shall be subject to approval by the NRA authority (ie OFGEM) of the Synchronous Area Great Britain.