
Explanatory note for the FCR dimensioning rules proposal

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DISCLAIMER

This document is released on behalf of all CE transmission system operators (“TSOs”), only for the purposes of the public consultation on the TSOs’ proposal for the FCR dimensioning in accordance with Article 153(2) of the Commission Regulation (EU) No 2017/1485 of 2 August, establishing a guideline on electricity transmission system operation (“SO GL”). This version of the FCR dimensioning proposal does not in any case represent a firm, binding or definitive TSOs’ position on the content.

Explanatory note

An appropriate amount of FCR available in the synchronous area is essential to stabilize the system frequency at a stationary value after any imbalance between generation and consumption.

The basic criterion used for FCR dimensioning is to withstand the reference incident in the synchronous area by containing the system frequency within the maximum frequency deviation and stabilizing the system frequency within the maximum steady-state frequency deviation.

The reference incident is defined as the maximum expected instantaneous power deviation between generation and demand in the synchronous area for which the dynamic behaviour of the system is designed. This expected instantaneous power deviation includes the losses of the largest power generation modules or loads, loss of a line sector or a bus bar, or loss of a HVDC interconnector. The SO GL (Article 153 (2b.i)) sets the reference incident for CE to 3000 MW in both directions.

This criterion assumes a balanced situation when the incident occurs. In order to consider prior imbalances derived from changes in demand, renewable generation or the market-induced imbalances, the dimensioning of FCR capacity can be calculated by combining the probability of forced instantaneous outages with the probability of used FCR due to the already existing frequency deviations (not associated with generation trips).

The SO GL (Article 153 2(c)) allows the possibility for the synchronous area CE to define and apply a dimensioning approach to calculate the reserve capacity on FCR that must at least cover the reference incident, and based on the principle of covering the imbalances in the synchronous area that are likely to happen once in 20 years. This probabilistic methodology assumes the following starting hypothesis such as full activation time of automatic FRR, tripping rates of the generation plants, patterns of load, generation and inertia (including synthetic inertia), which are difficult to estimate and have a strong influence on the results.

On the other hand, in the recent past, the FCR capacity dimensioned in Continental Europe (equal to the reference incident 3000 MW in both directions) has proven to be enough to ensure the conditions for maintaining the frequency quality level and respecting the operational security requirements.

For all these exposed above, the FCR dimensioning capacity in Continental Europe shall be equal to the reference incident for positive and negative directions.

According to the Article 153(2) of Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation, by 12 months after entry into force of this Regulation, all TSOs of a synchronous area shall jointly develop a common proposal regarding the dimensioning rules for FCR, which shall comply with the following requirement:

- The reserve capacity for FCR required for the synchronous area shall cover at least the reference incident and, for the CE and Nordic synchronous areas, the results of the probabilistic dimensioning approach for FCR carried out pursuant to point (c);
- For the CE and Nordic synchronous areas, all TSOs of the synchronous area shall have the right to define a probabilistic dimensioning approach for FCR taking into account the pattern of load, generation and inertia, including synthetic inertia as well as the available means to deploy minimum inertia in real-time in accordance with the methodology referred to in Article 39, with the aim of reducing the probability of insufficient FCR to below or equal to once in 20 years.

This proposal takes into account all the previous requirements.

Finally, and according to the Article 6(3) this proposal shall be subject to approval by all regulatory authorities of the synchronous area Continental Europe.