
Explanatory note for the FCR dimensioning rules proposal

08.08.2018

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 CE (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 CE 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 CE.

Explanatory note for the FCR dimensioning rules proposal

08.08.2018

Explanatory note

Regarding Article 3:

The exchange and sharing of aFRR and mFRR between synchronous areas is a process TSOs do not foresee to be implemented, at least before the implementation of the corresponding balancing platform performing cross-border activation of aFRR and mFRR, according to EB GL. In this sense, TSOs at a first stage are not able to perform security assessment of such exchange or sharing. TSOs' intention is not to block any kind of initiative in future, this is why the only rules considered for exchange or sharing of aFRR or mFRR, where receiving synchronous area is synchronous area CE, are the same rules applied to LFC Blocks within the synchronous area CE itself: i.e. at least 50% of the FRR capacity resulting from the FRR dimensioning rules shall remain located in the LFC block in case of exchange. For the avoidance of doubt this limit is applicable to the sum of sharing and exchange with TSOs from within and outside the synchronous area.

When synchronous area CE is the reserve connecting synchronous area, no limits are foreseen at this stage.

This proposal relies on the fact that if such an exchange or sharing of aFRR and mFRR is going to be implemented in the future, specific security analysis studies will be needed in any case. Respective requirements and a corresponding notification process among TSOs as well as procedures for reservation of cross-border transmission capacities will have to be elaborated. Particularly, the ability of the synchronous area to comply with the frequency quality target parameters defined and the FRCE target parameters defined in accordance to Articles 176 and 177 of SO GL shall be considered. In this context additional requirements in terms of limited amount of mFRR might be necessary, leading to amendments of this proposal. In such a case, TSOs' concerns would be as anticipated as possible with national regulatory authorities.

Explanatory note for the FCR dimensioning rules proposal

08.08.2018

Explanatory note

Regarding Article 3:

The exchange and sharing of RR between synchronous areas is a process TSOs do not foresee to be implemented at least before the implementation of the corresponding balancing platform performing cross-border activation of RR according to EB GL. In this sense TSOs, at a first stage are not able to perform security assessment of such exchange or sharing. TSOs' intention is not to block any kind of initiative in future, this is why the only rules considered for exchange or sharing of RR where receiving synchronous area is synchronous area CE are the same rules applied to LFC blocks within the synchronous area CE itself: i.e. at least 50% of the RR capacity resulting from the RR dimensioning rules shall remain located in the LFC block in case of exchange.

When synchronous area CE is the reserve connecting synchronous area, no limits are foreseen at this stage.

This proposal relies on the fact that if such an exchange or sharing of RR is going to be implemented in the future, specific security analysis studies will be needed in any case and respective requirements and a corresponding notification process among TSOs as well as procedures for reservation of cross-border transmission capacities will have to be elaborated. Particularly, the ability of the synchronous area to comply with the frequency quality target parameters defined and the FRCE target parameters defined in accordance to articles 178 and 179 of SO GL shall be considered. In this context, additional requirements in terms of limited amount of RR might be necessary leading to amendments of this proposal. In such a case, TSOs' concerns would be as anticipated as possible with national regulatory authorities.