

EV draft Request for Amendment

Request for amendment on the All TSOs' of the Nordic Capacity Calculation Region proposal for capacity calculation methodology in accordance with Article 10(1) of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation

On 16 January, the Regulatory Authorities (NRAs) of the Capacity Calculation Region Nordic¹ (CCR Nordic) and the Norwegian Regulatory Authority² (together the Nordic NRAs) received from the Transmission System Operators (TSOs) of the CCR Nordic³ and the Norwegian TSO (together the Nordic TSOs) a proposal for Capacity Calculation Methodology (CCM) in accordance with Article 10 of the Commission Regulation (EU) 2016/1719 establishing a guideline on forward capacity allocation (FCA GL).

According to Article 4 (7) (a) of the FCA GL, the proposal is subject to approval by all NRAs of CCR Nordic⁴.

The Nordic NRAs have in cooperation analysed the proposal and have reached a common conclusion that the proposed methodology needs to be amended before it can be approved at national level by each NRA. Therefore, according to Article 4 (11) of Regulation 2016/1719 the Nordic NRAs request the Nordic TSOs to submit an amended proposal that takes into account the comments given below.

Requests for amendment on the proposed Capacity Calculation Methodology

The approach for the capacity calculation methodology

The CCR Nordic NRAs emphasize that in line with FCA GL there are two alternative approaches for the FCA capacity calculation; Flow-Based and CNTC. The TSOs are free to select the chosen approach between the two options, provided that the methodology fulfills the requirements stated in the guidelines.

The NRAs find the proposed methodology to be nominated incorrectly as CNTC, and to follow the Flow-Based approach, because the methodology is based on using the elements of the Flow-Based approach, including PTDF matrices and RAMs. The following is a description of the changes required to fulfill the NRAs' requirements for both different possible approaches in line with the guidelines:

Flow-Based Approach:

If the TSOs choose to propose a methodology based on the Flow-based approach in line with the proposal, the TSOs should provide data in accordance with the conditions listed in FCA art. 10(5) to demonstrate that the approach leads to an increase in economic efficiency, and that the FB -results are accurate. According to FCA art. 10(5):

All TSOs in each capacity calculation region may jointly apply the flow-based approach for long-term capacity calculation time frames on the following conditions:

- (a) the flow-based approach leads to an increase of economic efficiency in the capacity calculation region with the same level of system security;*
- (b) the transparency and accuracy of the flow-based results have been confirmed in the capacity calculation region;*
- (c) the TSOs provide market participants with six months to adapt their processes*

¹ The Swedish Energy Markets Inspectorate (Ei), The Danish Utility Regulator (DUR) and The Finnish Energy Authority (EV)

² The Norwegian Water Resources and Energy Directorate (NVE)

³ Svenska Kraftnät (SvK), Fingrid, and Energinet (ENDK)

⁴ Until Regulation 2016/1719 applies in Norway, NVE and Statnett are not formally part of the process. NVE, will however closely follow the process and may approve the proposed methodologies from Statnett according to national legislation.

CNTC Approach:

Should the TSOs choose to opt for proposing CNTC, the methodology should be amended in line with the following details:

Paragraphs 1-3 of Article 8 of the proposal should be amended to read:

Mathematical description of the applied capacity calculation approach with different capacity calculation inputs

1. The capacity calculation approach for the long-term time frame shall be a CNTC approach. The capacity calculation shall follow the process as presented in Article 18.

2. Inputs to the CNTC approach shall be a security domain based on:

- a) CGM representing the forecasted state of the power system for the long-term time frame;
- b) GSKs in accordance with Article 6;
- c) Contingencies in accordance with Article 5; and
- d) Operational security limits in accordance with Article 4.

3. The security domain is defined by operational security limits such as thermal limits, voltage limits, short-circuit current limits, frequency and dynamic stability limits. The security domain is a multidimensional presentation of the acceptable operating boundaries for secure grid operation. The dimensions of the security domain shall reflect the bidding zone borders and are calculated as follows:

$$D_j = \min(I_j, V_j, S_j)$$

Where:

- D_j is the acceptable boundary for security dimension j i.e. the maximum acceptable flow on cut j while considering the contingencies,
- I_j is the maximum AC power flow on cut j without violating thermal limits,
- V_j is the maximum AC power flow on cut j without violating voltage limits,
- S_j is the maximum AC power flow on cut j without violating frequency and dynamic stability limits

Article 8(4) of the proposal should be further developed to specify the weighting and scaling functions i.e. the specific sharing rules for efficiently sharing the capacities. Zone-to-zone PTDF matrices may be used to evaluate on which bidding zone borders these sharing rules may be applied. The sharing rules shall ensure the maximization of cross-zonal trading possibilities. The following formulation presents a framework for this further development:

4. The maximum allowed power exchange on each bidding zone border TTC^n (where $TTC^n \in TTC$, and TTC is a vector of maximum allowed power exchange on all bidding zone borders) shall respect the security domain as determined in accordance with Article 8(3) and is calculated as:

$$\text{Maximize } f(TTC)$$

Subject to

$$TTC^n \leq D_j \text{ while } g_j(\sum TTC^n * PTDF_j^n) \leq h_j(F_{tmaxj}) \quad \forall j \in \{All\ CNEs\}$$

Where:

- f = a function defining the weight for each border in the optimization
- g_j = a function defining the weight of each trade in the total flow on CNE j
- h_j = a function defining the scaling of CNEs in non-relevant market directions
- TTC^n = maximum allowed power exchange on bidding zone border n
- TTC = a vector of maximum allowed power exchanges for all borders

$PTDF_j^n$ = zone-to-zone PTDF for bidding zone border n

F_{tmaxj} = maximum allowed physical flow on a CNE i.e thermal limit calculated by an AC load flow analysis

D_j = Acceptable boundary for security domain j coinciding with bidding zone border n

If the methodology is based on CNTC, the NRAs expect the methodology to not use PTDFs in anything other than the zone-to-zone calculation above.

Other requests for amendment

Article X

Should the NRAs find an agreement on the pivotal disagreement regarding the chosen FB/CNTC approach and its requirements, there are likely multiple other less disputed needs for amendment that would be listed here as the RfA is developed by the Capacity TF during spring.