

Amended determination of ramping restrictions for active power output of all TSOs of the LFC block TNG+TTG+AMP+50HZT+DKW+CREOS in accordance with Article 137(3) and Article 137(4) of Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation

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50Hertz Transmission GmbH (50HZT), Amprion GmbH (AMP), Creos Luxembourg S. A. (CREOS), Energinet (EN), TenneT TSO GmbH (TTG), TransnetBW GmbH (TNG), taking into account the following

Whereas

- (1) This document is a common determination of ramping restrictions for active power output (hereafter referred to as “ramping determination”) developed by all Transmission System Operators of Danish-German-Luxembourgish Load-Frequency-Control block (hereafter referred to as “TSOs”) in accordance with Article 137(3) and Article 137(4) of Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation as amended by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021 (hereafter referred to as “SOGL”).¹ This document is an amended version of the document “Determination of ramping restrictions for active power output of all TSOs of the LFC block TNG+TTG+AMP+50HZT+DKW+CREOS in accordance with Article 137(3) and Article 137(4) of Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation based on the amendment proposal of 30.08.2024”, which was approved by the National Regulatory Authorities on 31.01.2025.
- (2) Article 6(3)(e)(i) of SOGL requires the approval by all regulatory authorities of the concerned region of the proposal by all TSOs of an LFC block concerning “[...] *ramping restrictions for active power output in accordance with Article 137(3) and (4)*”.
- (3) Article 137(3) of SOGL gives the right to all connecting TSOs of an HVDC interconnector “[...] *to determine in the LFC block operational agreement common restrictions for the active power output of that HVDC interconnector to limit its influence on the fulfilment of the FRCE target parameter of the connected LFC blocks by agreeing on ramping periods and/or maximum ramping rates for this HVDC interconnector. Those common restrictions shall not apply for imbalance netting, frequency coupling as well as cross-border activation of FRR and RR over HVDC interconnectors.*”
- (4) Article 137(3) of SOGL states: “*All TSOs of a synchronous area shall coordinate these measures within the synchronous area.*”
- (5) Article 137(4) of SOGL gives all TSOs of an LFC block the right “[...] *to determine in the LFC block operational agreement the following measures to support the fulfilment of*

¹ As amended by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021, amending Regulations (EU) 2015/1222, (EU) 2016/1719, (EU) 2017/2195 and (EU) 2017/1485 in order to align them with Regulation (EU) 2019/943.

the FRCE target parameter of the LFC block and to alleviate deterministic frequency deviations, taking into account the technological restrictions of power generating modules and demand units”.

- (6) This ramping determination fulfils the requirements of the SOGL by defining the maximum gradient for the HVDC interconnectors in Article 3(2) and (3).
- (7) The TSOs do not propose to introduce ramping restrictions in accordance with Article 137(4) of SOGL.
- (8) The coordination between the TSOs of the synchronous area required by Article 137(3) of SOGL is part of the synchronous area operational agreement.
- (9) This ramping determination fulfils the objectives of Article 4(1) of SOGL as follows:
 - (a) The ramping determination establishes common operational security requirements and principles for the ramping restrictions in the Danish-German-Luxembourgish LFC block.
 - (b) The ramping determination respects the responsibility assigned to the TSOs for system security by the national legislation.
 - (c) The transparency is ensured by definition of the ramping restrictions of the ramping determination.
 - (d) The ramping restrictions for HVDC interconnectors aim at limiting the influence on the fulfilment of the Frequency Restoration Control Error (FRCE) target parameter of the Danish-German-Luxembourgish Load-Frequency-Control block and the connected LFC blocks of the synchronous areas Nordic and Great Britain, by defining ramping periods and/or maximum ramping rates for the concerned HVDC interconnectors.
 - (e) The common ramping restrictions are not applicable for imbalance netting, frequency coupling as well as cross-border activation of FRR and RR over HVDC interconnectors. This ramping determination is only applicable for changes of active power output of HVDC interconnectors between the Danish-German-Luxembourgish LFC block and the synchronous areas Nordic and Great Britain, based on market results from day-ahead and intraday trading of scheduled energy at (wholesale) electricity markets.
 - (f) The ramping determination promotes the coordination of system operation since it is based on a joint proposal of all TSOs of the Danish-German-Luxembourgish LFC block as part of the LFC block operational agreement in accordance with Article 119 of SOGL. The coordination on the synchronous area level is part of the synchronous area operational agreement, as well as bilateral agreements between the HVDC connecting TSOs.
 - (g) According to Article 137(3) of SOGL, the ramping determination shall only refer to HVDC interconnectors between synchronous areas. HVDC interconnectors between the TSOs of the Danish-German-Luxembourgish LFC block and other LFC blocks of the synchronous area Continental Europe are not affected.

Article 1

Subject matter, scope and responsibility structure

- (1) This ramping determination is based on the LFC block and LFC area structure defined by the “Determination of LFC blocks for the Synchronous Area Continental Europe in amended version of 11 February 2022” in accordance with Article 141(2) of SOGL.
- (2) This ramping determination defines the ramping restrictions in accordance with Article 137(3) of SOGL and Article 137(4) of SOGL in the Danish-German-Luxembourgish LFC block.

Article 2

Definitions and interpretation

- (1) For the purpose of the ramping determination, the terms used shall have the meaning given to them in Article 3 of SOGL.
- (2) ‘DE area’ means the monitoring areas 50HZT, AMP, CREOS, TNG and TTG.
- (3) ‘DKW area’ or ‘DK1’ means the Western LFC area of EN, which is synchronously interconnected with the synchronous area Continental Europe.
- (4) ‘DKE area’ or ‘DK2’ means the Eastern LFC area of EN, which is part of the synchronous area Nordic.
- (5) ‘DE-LU-DK LFC block’ means the Danish-German-Luxembourgish LFC block comprising the DE area and the DKW area.
- (6) ‘MTU’ means 'market time unit' and refers to the shortest time interval for which the market price is established.
- (7) ‘NO2’ means the bidding zone NO2 in Norway, to which the HVDC interconnectors of DE-LU-DK LFC block are connected to.

Article 3

Ramping Restrictions for Active Power Output of HVDC Interconnectors in accordance with Article 137(3)

- (1) The scheduled exchange shall be realised with a ramping period beginning exactly 5 minutes before the MTU shift and ending exactly 5 minutes after the MTU shift.
- (2) The gradient of active power output of each HVDC interconnector between the DE-LU-DK LFC block and the synchronous area Nordic
 - (a) multiplied with the ramping period shall not be higher than the dimensioning fault of the area for which the dimensioning is performed and the HVDC interconnector is connected.
 - (b) In case the maximum ramping rates are set differently on each side of an HVDC interconnector or a combination of HVDC interconnectors, the lowest value shall prevail. Additionally, bilateral agreements can be used to apply smaller ramping rates on specific HVDC interconnectors or a combination of HVDC interconnectors.
- (3) The gradient of active power output of each HVDC interconnector between the DE-LU-DK LFC block and the synchronous area Great Britain:
 - (a) multiplied with the ramping period shall not be higher than the dimensioning fault of the area for which the dimensioning is performed and the HVDC interconnector is

connected.

- (b) In case the maximum ramping rates are set differently on each side of an HVDC interconnector or a combination of HVDC interconnectors, the lowest value shall prevail. Additionally, bilateral agreements can be used to apply smaller or higher ramping rates on specific HVDC interconnectors or a combination of HVDC interconnectors.
 - (c) if the change from one MTU to the next exceeds the product of “gradient of active power” multiplied with “ramping period” for the HVDC interconnector between the DE-LU-DK LFC block and the synchronous area Great Britain, the ramping period for this interconnector shall be increased symmetrically around the MTU shift to allow for the full change.
- (4) The ramping restrictions shall support the fulfilment of the FRCE target parameter of the DE-LU-DK LFC block defined in the synchronous area operational agreement in accordance with Article 128(1) of SOGL and Article 128(2) of SOGL.
 - (5) The ramping restrictions of the DKW area shall support the fulfilment of the FRCE target parameter of the DKW area defined in accordance with Article 128(4) of SOGL and shall not decrease the FRCE quality of the DE area.

Article 4 Implementation Timescale

This methodology is valid from [date of approval]. The relevant TSO shall strive to implement the usage of the values as defined in this methodology as soon as possible.

Article 5 Language

The reference language for this ramping determination shall be English. For the avoidance of doubt, where TSOs need to translate the ramping determination into their national language(s), in the event of inconsistencies between the English version and any version in another language, the relevant TSOs shall be obliged to dispel any inconsistencies by providing a revised translation of the ramping determination to their relevant national regulatory authorities.