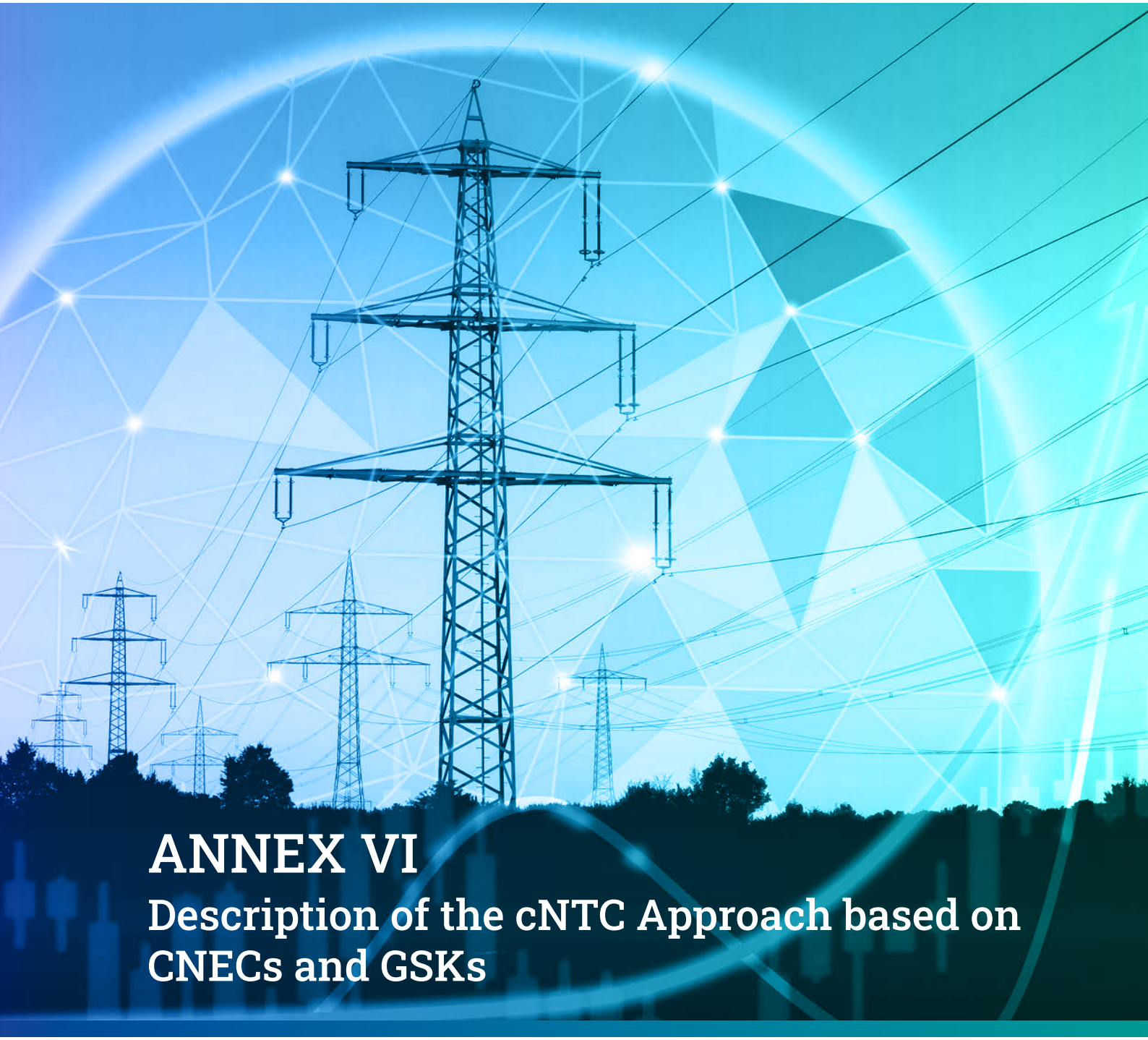
ENTSO-E Report

Bidding Zone Review of the 2025 Target Year

April 2025



ANNEX VI

Description of the cNTC Approach based on CNECs and GSKs

entsoe

Description of the cNTC Approach based on CNECs and GSKs

In this Annex, the cNTC approach based on CNECs and GSKs is described in more detail.

The cNTC approach based on CNECs and GSKs consists of the following calculation steps:

- In the first step, zonal PTDFs are calculated based on GSKs, as described in Article 6.13 of the BZR methodology.
- Subsequently, maximum zone-to-zone PTDF values in the considered CCR are calculated for all potential CNECs (e.g. a full set of considered network elements and contingencies). Based on this – internal CNECs are then filtered out, if their maximum "zone-to-zone" PTDF is lower than the PTDF threshold of 10 %, as per BZR methodology Article 6.8.
- After that, for each considered CNEC the remaining available margin (RAM) in the given CCR is calculated as described in Articles 6.13 – 6.16 of the BZR Methodology.
- The NTC value is then extracted using a linear optimisation algorithm, which maximizes the import / export to BZ Italy North and BZ Denmark West, subject to flow-based constraints in the given CCR / border. Four separate optimisations are conducted (export ITN, import ITN, export DKW, import DKW) which also consider available non-costly remedial actions (PST, HVDC) in the given CCR / border.
- Note that splitting factors are considered in the algorithm for the Italy North CCR, in line with the operational practice.
- In the final step, minimum / maximum cap values are applied on the calculated cNTCs. For example, a maximum cap is set to 4,000 MW for the border FR-ITN, while 3,500 MW is set for the border DE / LU-DK 1.

Duration curves of the calculated cNTC values for different BZ configurations are presented for the borders FR → ITN and DK 1 → DE / LU, in the figure on the next page.

For the border FR → ITN, it can be observed that the duration curves are very similar in SQ and NL2 configurations, while there is a slight increase in import capacity of IT-North for DE-split and combination configurations. However when splitting FR and ITN, a decrease of capacities is observed, especially in the ITN-split. This is due to the fact that smaller bidding zones lead to an increase in "zone-to-zone" PTDF and many new internal CNECs are introduced, especially in the western part of Italy. This leads to a more constrained domain and a decrease in capacities, respectively.

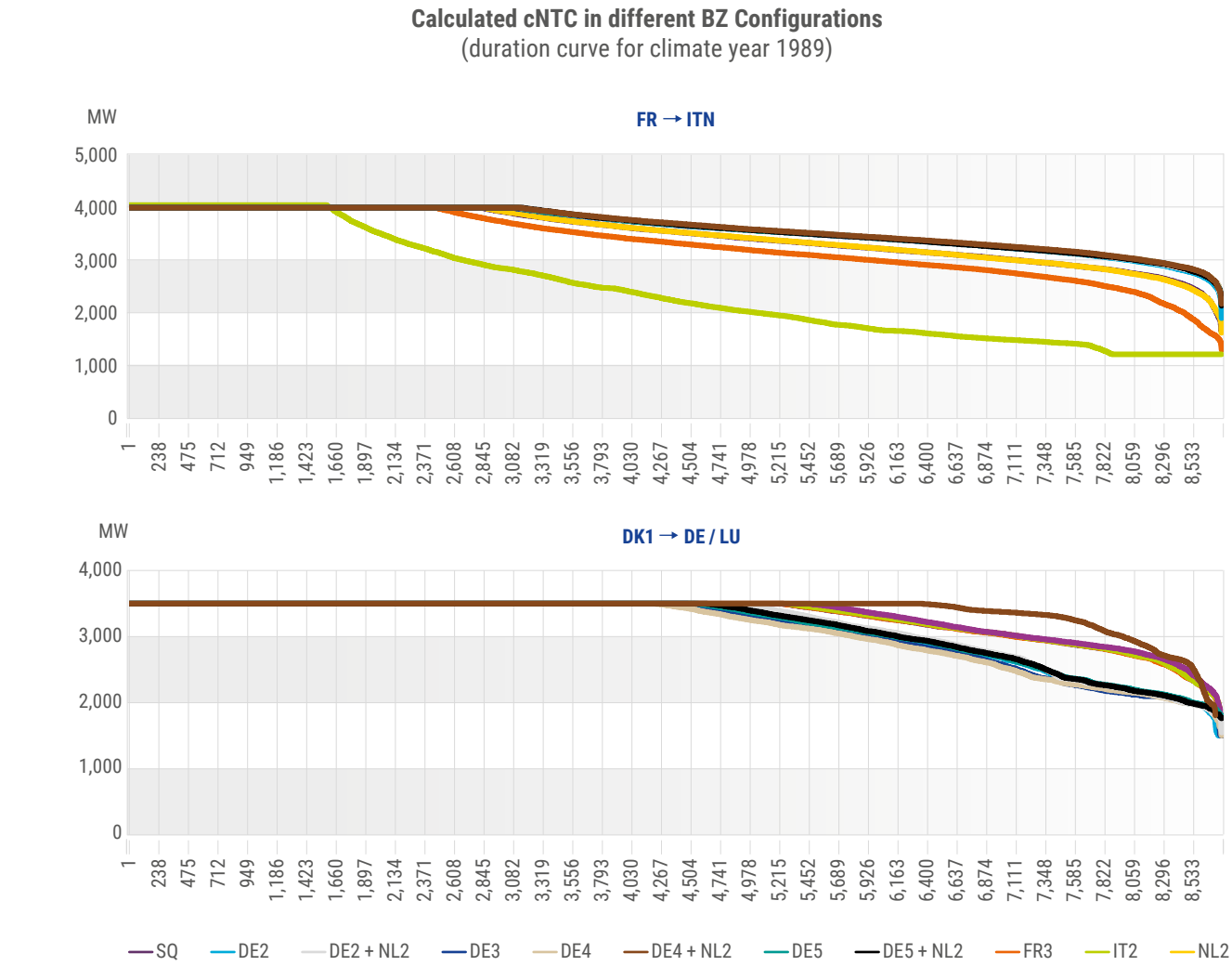


Figure 1: Calculated cNTC values for the borders FR – IT and DK1 – DE/LU

Publisher

ENTSO-E AISBL
8 Rue de Spa | 1000 Brussels | Belgium
www.entsoe.eu | info@ entsoe.eu

Design

DreiDreizehn GmbH, Berlin | www.313.de

Images

Cover: iStock.com / Lari Bat

Publishing date

April 2025