



Annex 1:

Explanation of a request for a derogation in accordance with Article 16(9) of Regulation (EU) 2019/943 of the European Parliament and of the Council on the internal market for electricity

ČEPS currently makes calculations for transmission capacities according to the Methodology as published in the Transmission System Operation Rules approved by the ERO. The Methodology has not been coordinated within CORE following to the CACM Regulation, i.e. it employs neither a flow-based method, nor a coordinated net transmission capacity approach as referred to in Article 16(8) of the Regulation. Until such methodologies following to the CACM Regulation are implemented, ČEPS is unable to guarantee the required available transmission capacity level for cross-zonal trade.

1 Reliability margins to cover uncertainties and inaccuracies, loop flows and internal flows exceed 30% of the transmission capacity

The Czech transmission system is part of the Continental Europe (CE) highly interdependent synchronous area. A highly interdependent energy system contributes to increased security of supply, while causing the electricity flows arising from cross-border exchange to impact the use of cross-border capacities of other bidding zones. Individually calculated transmission capacities involve due to their very nature considerable uncertainties, given the fact that the input data from the neighbouring bidding zones and TSOs are but estimated as sufficient information of the respective local conditions is lacking. Moreover, an accepted assumption is that all of the Czech Republic bidding zone borders are considered as a single coordination area. This corresponds to the developments in the ENTSO-E working groups and the dialogue with ACER.

Currently, the neighbouring TSOs and ČEPS are not involved in the coordinated calculations of the cross-border capacities with the regional level data sharing, nor have they access to the grid models of the other TSOs, information on their system participation, the anticipated generation and consumption status and related distribution of generation and consumption, volumes of future trade exchange at the borders outside the Czech Republic, and access to other requisite parameters for the transmission capacity calculations. Uncertainties regarding the foregoing variable predictions amount to dozens of per cent of certain elements' capacity within the system.

ČEPS is forced to reflect such uncertainties in the transmission capacity calculations and add those to the standard reliability margins.

The very volume of the loop and internal flows at certain elements of the system amounts to dozens of per cent of the transmission capacity. The reliability margins, loop and internal flows taken as a whole amount to dozens of per cent of capacity at the critical elements, often exceeding 30% of their capacity. In order to prevent threats to operational security ČEPS is unable to guarantee in all the cases that the offered transmission capacity achieves the level meeting the obligations arising under Article 16(8) of the Regulation.

Such situations are hard to predict reliably. For these reasons, ČEPS is able to ensure only to a limited extent and time fulfilling the obligations arising under Article 16(8) of the Regulation. Regarding certain operational statuses of the system, however, the obligation fulfilling cannot be ensured at all.

2 Inexistent regional coordinated calculation and transmission capacity allocation

ČEPS itself is unable to reduce the foregoing uncertainties as those are mainly attributable to the unavailability of relevant business and technical data from the neighbouring bidding zones.

The CACM Regulation, Article 20, requires the CORE to implement a flow-based calculation methodology that takes into account that electricity can flow via different paths and optimises the available capacity in highly interdependent grids.

This transmission capacity calculation method, once implemented, should provide for considerable reduction of inaccuracies and uncertainties, while it is a necessary (if not sufficient) precondition to ensure fulfilling of obligations arising under Article 16(8) of the Regulation. Uniform procedures and methods shall be established as part of the flow-based coordination (such as setting up a common grid model) and should fundamentally reduce the uncertainties caused by the lack of information on the anticipated status of the neighbouring systems; a coordinated approach will be set up to the risks and reliability margins, or, shared and coordinated procedures at identifying remedial actions.

Until a flow-based coordinated capacity calculation is implemented and duly tested, ČEPS remains unable to provide for fulfilling the obligations arising under Article 16(8) of the Regulation, as no technical option exists how to reduce the uncertainties stemming from the insufficient data exchange and procedure coordination at the regional level.

3 Inexistent operational agreements with the neighbouring transmission system operators (TSOs), such agreements otherwise would enable loop flow reductions using coordinated remedial actions and provide for corresponding cost-sharing

The very volume of the loop and internal flows at certain elements exceeds 30% of the transmission capacity. Currently no contractual or legal frameworks exists based on which ČEPS could request its neighbouring TSOs to reduce loop flows on their elements. Moreover, ČEPS has only limited technical means available to make it (system reconfiguring, phase shift transformer switch-on, or business tools, such as redispatching or countertrading) able to contribute to increasing the transmission capacities. Still, these means and availability of sources suitable for redispatching are of limited effectiveness.

Article 16(4) of the Regulation requires complying with the safety standards of secure network operation and ensuring the minimum transmission capacity according to Article 16(8) of the Regulation. Countertrading and redispatching, including cross-border redispatching, are used to maximise available transmission capacities in order to achieve the minimum transmission capacity in accordance with Article 16(8) of the Regulation.

As regards the methodology for coordinated redispatching and coordinated countertrading within CORE according to Article 35 of the CACM Regulation, and, the redispatching and countertrading cost sharing methodology according to Article 74(1) of the CACM Regulation, relevant regulatory authorities did not reach an agreement by the set deadline, therefore the methodologies were submitted to ACER who will take decision on them by the set deadline.

Likewise, common provisions for separate transmission capacity calculation regions regarding regional operational security coordination in accordance with Article 76 of the SO GL Regulation have not been approved as yet and their approval process with ACER is in progress, too. Neither completed implementation of the foregoing documents can be expected in 2021, hence nor amended extent of coordination at the capacity calculation regions level.

Until the implementation of the said documents is completed, ČEPS may use cross-border remedial actions under a multilateral remedial action (MRA) agreement on Central Europe security cooperation of the transmission system operators. Under the cooperation, the maximum cost limit approved by the ERO applies to ČEPS. Once the limit is reached, ČEPS will automatically interrupt this portion of cooperation. Every TSO participates in this cooperation on a voluntary basis, therefore no way exists to review or predict in a medium term the resources available for achieving the required minimum transmission capacity at providing for operational security – as a result, the procedure cannot be used for transmission capacity calculations.

In the absence of signed operational agreements or binding regional methodologies that would enable loop flow reductions through coordinated remedial actions and provide for corresponding cost sharing, ČEPS is unable to ensure fulfilment of the obligations arising under Article 16(8) of the Regulation without putting the system operational security at risk.

4 Transmission capacity calculation cannot be additionally improved for further transmission capacity increases

ČEPS has been consistently analysing the abilities of the prediction and optimisation tools serving to determine the transmission capacities. Since mid-2019, ČEPS has worked on improvements to the transmission capacity calculation tools to include use of the state-of-the-art methods (such as artificial intelligence and machine learning). Resultant to that, offered transmission capacities have shown a distinct increase since May 2020, mainly owing to implementing more accurate predictions of unplanned flows. Tools currently in use are a technological maximum achievable by ČEPS given the existent capacity and availability calculation methods and system status data quality.

Due in particular to technological and time concerns, development of a separate new calculation methodology and implementation of a new way of transmission capacity allocation that would enable further increases of offered transmission capacities only on the ČEPS part, and, their proper testing and approval by the ERO is not feasible. In the context of the coordinated flow-based calculation being currently implemented in the CORE, any such approach could not be seen as effective.

Conclusion

In view of the foregoing, until the coordinated flow-based calculation is implemented in the CORE, ČEPS is able to ensure only to an extent fulfilling its obligations arising under Article 16(8) of the Regulation, subject to the below conditions:

- According to the Methodology for determining transmission capacities, fulfilment of obligations should be evaluated separately for the import and export directions as the cross-border capacity offered for each of the directions is constrained by other critical elements;

- During the market time units where the transmission capacity calculations include one or multiple statuses of the system described in Table 1, the system behaviour cannot be estimated at a standard reliability level. That would include in particular situations when the parallel cross-border lines or connected internal lines are switched off. PSTs enable to ČEPS fundamental reductions of risk arising from the size of the loop and internal flows and from the uncertainties at their prediction and at prediction of parallel flows. In the event that either one or both PSTs are unavailable, ČEPS has no effective means of reducing the risk. Such instances therefore cannot be included in an evaluation of fulfilling the obligations arising under Article 16(8) of the Regulation;
- The Methodology for determining transmission capacities runs on the 90% reliability interval at predicting input values. Except for the business hours during which one or multiple transmission network (TN) statuses described in Table 1 occur, ČEPS is able to ensure it will offer at least 60% of the transmission capacity in the export direction and at least 40% of the transmission capacity in the import direction. These limits ensue from the operational experience and evaluation of abilities of the tools and procedures currently in use at determining transmission capacities and the system operation.

Table 1

TN operational status	Explanation
V441 and V442 lines are simultaneously out of operation.	Unexpected status of the system, unplanned in 2021, while it may occur in theory.
V445 and V446 lines are simultaneously out of operation.	Unexpected status of the system, unplanned in 2021, while it may occur in theory.
V437 and V438 lines are simultaneously out of operation.	Considerable weakening of the CZ-AT profile. No expected in 2021, while it may occur in theory.
V404 and V424 lines or V404 and V497 lines or V424 and V497 lines or V443 and V444 lines are simultaneously out of operation.	Considerable weakening of the CZ-SK profile. In 2021, it is expected at no more than 5% of the market time units.
Line V460 is out of operation.	Status that occurred in 2020 due to V460 modernisation. However, it is not expected in 2021.
Any phase shift transformer (PST) is out of operation	The PST shift control ability reduction at the DE profile – reduced space for supply in the import direction. In 2021, it is expected at no more than 7% of the business hours.

Abbreviation list

ACER	Agency for the Cooperation of Energy Regulators
ČEPS	ČEPS, a.s.
ACER Recommendation	ACER Recommendation No 01/2019 of 08 August 2019 on the implementation of the minimum margin available for cross-zonal trade pursuant to Article 16(8) of Regulation (EU) 2019/943
ENTSO-E	European Network of Transmission System Operators for Electricity
ERO	Energy Regulatory Office
Flow-based	A cross-border capacity calculation methodology based on flows that takes into account that electricity can flow via different paths and optimises the available capacity
Method/Methodology	Methods applied to the cross-border capacity calculations based on the Rules for the Operation of Transmission Systems, Part III
MRA Regulation	Multilateral redispatching Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity
CACM Regulation	Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management
SO GL Regulation	Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation
TSO	Transmission system operator

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