

Study

(F)2350
24 March 2022

Study on the compliance of ELIA TRANSMISSION BELGIUM with the requirements related to the transmission capacity made available for cross-zonal trade in 2020

Done in accordance with article 59, paragraph 1, h) of Directive (EU) 2019/944 of the European Parliament and the Council of 5 June 2019 on common rules for the internal market for electricity

Non-confidential

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EXECUTIVE SUMMARY

The Electricity Regulation (part of the *Clean Energy Package*) imposes a set of obligations on European transmission system operators with the aim to increase the transmission capacities made available for cross-zonal exchanges. These increases in capacities were identified as an efficient means to facilitate cross-zonal trade and to further integrate the electricity markets into the European Internal Energy Market.

This obligation is translated into a minimal margin to be offered to cross-zonal trade: this margin amounts to 70% of the transmission capacity, for all network elements. Regulatory authorities may grant a derogation from this obligation, when requested by transmission system operators in order to ensure operational security at all times.

In this study, the CREG investigates the extent to which Elia has complied with the provisions in article 16 of the Electricity Regulation. The CREG performs this analyses for all network elements in the considered period between 1 January and 31 December 2021. This analyses follows a stepwise approach: in a first step the compliance with the 70% threshold is assessed during the considered hours and across all observed network elements. Subsequently, the observed available margins are compared to the minimum margins in application of the derogation from the 70% threshold, granted to Elia. These results are compared, later on in this study, to the results for the period between 1 April and 31 December 2020, which were calculated according to the same methodology in the previous compliance report of the CREG. Finally, some additional considerations are identified, related to the circumstances under which the margins on the network elements have been observed, either in compliance or not with the legal obligations.

He analyses performed show that Elia has respected the legal requirement related to the minimum margins, between 1 January and 31 December 2021, during **62,2% of the considered period** and on **99,2% of all observed network elements**, taking into account the approved derogation from the 70% requirement. In terms of respecting the compliance per hour, this result marks a decrease compared to last year, when Elia met the legal requirements during 81,3% of all hours.

Notwithstanding the derogation, Elia has offered a margin equal to at least the 70% threshold on 93,5% of all observed network elements. The number of hours during which all network elements respect the 70% threshold, nevertheless, only amounts to 2,1% of the hours in the considered period.

This study demonstrates that the observed loop flows from neighbouring bidding zones have a significant impact on the ability of Elia to respect the 70% requirement at all times. Given the granted derogation, which contains a methodology for considering excessive loop flows above an acceptable threshold, the compliance of Elia with the legal requirements is ensured. The CREG observes that the level of loop flows and, hence, the impact of the derogation for excessive loop flows, has decreased slightly in 2021 compared to 2020, in line with expectations. The CREG expects this impact to reduce further, leading to higher capacities that may be offered to the cross-zonal markets.

Finally, the study shows the strong impact of the grid situation on the axis Zandvliet – Doel – Mercator on Elia's results. The CREG describes the consequences of the grid reinforcements on this axis, leading to increased import flows in 2021 which, in combination with a high availability of the nuclear generation capacity on the site in Doel, currently and in the next year appear pose challenges related to their compatibility.

INTRODUCTION

The COMMISSION FOR THE REGULATION OF THE ELECTRICITY AND THE GAS (hereafter “CREG”) investigates, via this study, the compliance by ELIA TRANSMISSION BELGIUM SA (hereafter “Elia”) with the legal obligations in article 16 of Regulation (EU) 2019/943 of the European Parliament and the council of 5 June 2019 on the internal market for electricity (hereafter “Electricity Regulation”).

In this study, the CREG investigates the extent to which the margins on transmission network elements which are offered by Elia comply with the minimum margins set by article 16 of the Electricity Regulation. These margins amount to 70% of the maximum capacity of these network elements, corrected – whenever relevant – for the acceptable reductions in application of the approved derogation request from Elia.

The monitoring of the compliance with this obligation is performed by the CREG for the second time since the entry into force of the Electricity Regulation. In a first version of this study, the compliance for Elia in 2020 has been investigated, according to the same methodology.

This study contains six chapters. In the first chapter, the legal basis which contains the competence of the CREG with regards to the monitoring of Elia’s compliance, is described. The second chapter describes the earlier proceedings and the context leading up to this study. The third chapter elaborates on the methodology used, the analysed data and the considered period while the fourth chapter presents the observed results. In the fifth chapter, these results are discussed in a general manner and the sixth chapter, finally, concludes this study.

This study has been approved by the CREG’s Board of Directors during its meeting of 24 March 2022.

LIST OF ABBREVIATIONS

CCR	Capacity Calculation Region
CWE FBMC	Central-West Europe Flow-Based Market Coupling
(c)NTC	Coordinated Net Transfer Capacity
CEP	Clean Energy Package
EIC	Energy Identification Code
F_{\max}	Maximum capacity
FRM	Flow Reliability Margin
IEM	Internal Energy Market
IF	Internal Flow
JAO	Joint Allocation Office
LTA	Long-Term Allocation
LF	Loop Flow
MACZT	Margin Available for Cross-Zonal Trade
MCCC	Margin for Coordinated Capacity Calculation
minMACZT	minimal Margin Available for Cross-Zonal Trade
MNCC	Margin for Non-Coordinated Capacity Calculation
MTU	Market Time Unit
PST	Phase Shift Transformer
PTDF	Power Transfer Distribution Factor

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1. LEGAL BASIS

1. This chapter summarizes the legal obligations which are applicable to Elia and the CREG with regards to the maximization of interconnection capacities offered for cross-zonal exchanges. These obligations are laid out in the European legislation (the Electricity Regulation and the Electricity Directive) on the one hand, and national legislation (the Electricity Law) on the other hand.

1.1. EUROPEAN LEGAL FRAMEWORK

1.1.1. Regulation (EU) 2019/943 of the European Parliament and the Council of 5 June 2019 on the internal market for electricity

2. Article 16 of the Electricity Regulation lays out the modalities with regards to the minimum margins which Elia needs to offer to the cross-zonal markets. In paragraph 8, it defines this minimum margin as 70% of the capacity. Upon the approval of the CREG and in compliance with paragraph 9, Elia may request a derogation from this obligation, to be applied under specific circumstances.

Article 16

General principles of capacity allocation and congestion management

(...)

4. The maximum level of capacity of the interconnections and the transmission networks affected by cross-border capacity shall be made available to market participants complying with the safety standards of secure network operation. Counter-trading and redispatch, including cross-border redispatch, shall be used to maximise available capacities to reach the minimum capacity provided for in paragraph 8. A coordinated and non-discriminatory process for cross-border remedial actions shall be applied to enable such maximisation, following the implementation of a redispatching and counter-trading cost-sharing methodology.

(...)

8. Transmission system operators shall not limit the volume of interconnection capacity to be made available to market participants as a means of solving congestion inside their own bidding zone or as a means of managing flows resulting from transactions internal to bidding zones. Without prejudice to the application of the derogations under paragraphs 3 and 9 of this Article and to the application of Article 15(2), this paragraph shall be considered to be complied with where the following minimum levels of available capacity for cross-zonal trade are reached:

(a) for borders using a coordinated net transmission capacity approach, the minimum capacity shall be 70 % of the transmission capacity respecting operational security limits after deduction of contingencies, as determined in accordance with the capacity allocation and congestion management guideline adopted on the basis of Article 18(5) of Regulation (EC) No 714/2009;

(b) for borders using a flow-based approach, the minimum capacity shall be a margin set in the capacity calculation process as available for flows induced by cross-zonal exchange. The margin shall be 70 % of the capacity respecting operational security limits of internal and cross-zonal critical network elements, taking into account contingencies, as determined in accordance with the capacity allocation and congestion management guideline adopted on the basis of Article 18(5) of Regulation (EC) No 714/2009.

The total amount of 30 % can be used for the reliability margins, loop flows and internal flows on each critical network element.

9. At the request of the transmission system operators in a capacity calculation region, the relevant regulatory authorities may grant a derogation from paragraph 8 on foreseeable grounds where necessary for maintaining operational security. Such derogations, which shall not relate to the curtailment of capacities already allocated pursuant to paragraph 2, shall be granted for no more than one-year at a time, or, provided that the extent of the derogation decreases significantly after the first year, up to a maximum of two years. The extent of such derogations shall be strictly limited to what is necessary to maintain operational security and they shall avoid discrimination between internal and cross-zonal exchanges.

Before granting a derogation, the relevant regulatory authority shall consult the regulatory authorities of other Member States forming part of the affected capacity calculation regions. Where a regulatory authority disagrees with the proposed derogation, ACER shall decide whether it should be granted pursuant to point (a) of Article 6(10) of Regulation (EU) 2019/942. The justification and reasons for the derogation shall be published.

Where a derogation is granted, the relevant transmission system operators shall develop and publish a methodology and projects that shall provide a long-term solution to the issue that the derogation seeks to address. The derogation shall expire when the time limit for the derogation is reached or when the solution is applied, whichever is earlier.

(...)

1.1.2. Directive (EU) 2019/944 of the European Parliament and the Council of 5 June 2019 on common rules for the internal market for electricity

3. In application of article 59, paragraph 1, b) and h) of the Electricity Directive (transposed in Belgium into the Electricity Law and the Federal Grid Code), the CREG is competent to monitor the compliance by Elia with the obligations in the Electricity Regulation in general, and article 16 of the latter in particular.

Article 59

Duties and powers of the regulatory authorities

1. The regulatory authority shall have the following duties:

(...)

(b) ensuring the compliance of transmission system operators and distribution system operators and, where relevant, system owners, as well as the compliance of any electricity undertakings and other market participants, with their obligations under this Directive, Regulation (EU) 2019/943, the network codes and the guidelines adopted pursuant to Articles 59, 60 and 61 of Regulation (EU) 2019/943, and other relevant Union law, including as regards cross-border issues, as well as with ACER's decisions;

(...)

(h) ensuring that transmission system operators make available interconnector capacities to the utmost extent pursuant to Article 16 of Regulation (EU) 2019/943;

(...)

1.2. NATIONAL LEGAL FRAMEWORK

4. In application of article 59, paragraph 1, b) and h) of the Electricity Regulation (transposed in Belgium into the Electricity Law and the Federal Grid Code), the CREG is competent to monitor the compliance by Elia with the obligations in the Electricity Regulation in general, and article 16 of the latter in particular.

Art. 23. § 1. A commission for the regulation of the electricity and the gas, in German “Elektrizitäts- un Gasregulierungs-kommission” and abbreviated “CREG”, is established. The commission is an autonomous organism with legal personality, having its registered offices in the administrative arrondissement of Brussels-Capital.

(...)

§ 2. The commission is charged with an advisory task towards the government in matters related to the organisation and functioning of the electricity markets, on the one hand, and with a general task of supervision and control of the application of the relevant laws and regulations, on the other hand.

To this end, the commission shall:

(...)

8° exercise supervision on the compliance by the network operator and the electricity undertakings with the obligations vested in them by this law and its implementing decrees, as well as all other legal and regulatory obligations relevant for the electricity market, in particular with regards to cross-border problems and matters as described in Regulation (EC) No. 714/2009;

(translation by the CREG)

2. CONTEXT

5. The obligations with respect to the margins to be offered to cross-zonal trade are the direct result of the entry into force of the Electricity Regulation. Since the entry into force in June 2019, European regulatory authorities have, in cooperation with ACER on the one hand and with TSOs' on the other hand, discussed, defined and formalised the application of article 16 into different processes, on the European and national levels.

6. This chapter describes the cooperation with ACER and the other regulatory authorities firstly, and with Elia secondly. The approved derogation for the year 2021 is highlighted and reference is made to the previous compliance report, for the year 2020.

2.1. COOPERATION WITH ACER AND REGULATORY AUTHORITIES

7. The minimum margins to be offered and the potential derogations from these obligations have been discussed, at several occasions, between regulatory authorities and ACER. The absence of a formal, legal obligation for coordination between regulatory authorities and ACER with regards to the monitoring of the TSOs' compliance did not prevent the general endorsement and approval of some general observations with regards to article 16:

- A non-binding recommendation by ACER with regards to the implementation of article 16, paragraph 8 of the Electricity Regulation. This recommendation described, in particular, the calculation method for the minimum margin for cross-zonal trade (hereafter: "MACZT" or *Margin Available for Cross-Zonal Trade*).¹
- A position paper by all regulatory authorities with regards to the criteria for granting a derogation to TSOs', as foreseen in article 16, paragraph 9 of the Electricity Regulation.²

Both documents describe the way in which TSOs should strive to comply with the obligations in article 16 and which the tasks of ACER and the regulatory authorities in this context are.

8. ACER has published several reports³ to monitor the available margins of all TSOs in Europe, in 2020. These biannual reports are published in application of the task of ACER, described in article 15, first paragraph of the ACER Regulation,⁴ to monitor the electricity and gas wholesale and retail markets.

9. The relevance of this report by ACER for this study may be illustrated in several ways.

- ACER focuses its analyses on the compliance with the 70% threshold in article 16, paragraph 8 of the Electricity Regulation. To the extent where a derogation from this threshold is approved and applied, temporarily or not, each regulatory authority (in casu the CREG) needs to supervise the compliance with the legal obligations in article 16,

¹¹ Recommendation No 01/2019 of the European Union Agency for the Cooperation of Energy Regulators 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

² Attached as [Annex 3](#) to Decision (B)2136

³ Decision (B) [2136](#) relating to the request for approval, made by ELIA TRANSMISSION BELGIUM SA, of a derogation from Article 16, paragraph 8 of Regulation (EU) 2019/943, relating to a minimum capacity available for exchanges between areas

⁴ Regulation (Eu) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators

paragraph 8 and paragraph 9. The analyses of ACER and the CREG are therefore complementary.

- The reporting by Elia of the offered margins is done according to the guidelines set out by ACER, among others in its non-binding recommendation see also paragraph 7). The CREG uses the same MACZT-values, calculated as the sum of the MCCC and MNCC.
- Elia has added to the reported datasets a number of other data that allows an efficient supervision of the application of the loop flow derogation (in ANNEX 1 and section 4.4). All other datasets are identical to those reported to ACER and have been made available by ACER to the CREG.

10. The chapter on the compliance with the legal obligations by Elia is, as described in chapter 1, a national competence attributed to the regulatory authority. This report is to be read from this angle.

2.2. DEROGATION REQUEST BY ELIA

11. In application of article 16, paragraph 9 of the Electricity Regulation Elia has submitted at the end of 2020 a request for a derogation from the obligation to offer, at all times, 70% of the F_{max} to cross-zonal trade, at least for network elements introduced in the CWE FBMC. The CREG has approved this derogation request. In contrast to the derogation for the year 2020, the request for the year 2021 which is covered in this study, only contains a derogation to take into account loop flows above a certain threshold.

12. This derogation prescribes that the minimum margin, when the observed loop flows are above a certain threshold, are calculated as follows:

$$\min MACZT = 70\% - \max [0; LF_{calc} - LF_{accept}]$$

In this equation, LF_{calc} represents the calculated, observed loop flows while LF_{accept} represents the acceptable threshold for loop flows. Two thresholds are defined: one for internal and one for cross-zonal network elements.

$$LF_{calc} \text{ on internal network elements} = \frac{[30\% - FRM]}{2}$$

$$LF_{calc} \text{ on cross - zonal network elements} = 30\% - FRM$$

On internal network elements, the available margins are divided arbitrarily between loop and internal flows, so that the acceptable threshold for loop flows on internal network elements is lower than on cross-border lines. Hence, the minMACZT is, when loop flows are equal, higher on internal network elements than on cross-zonal network elements.

2.3. COMPLIANCE REPORT 2020

13. The CREG published a first report with regards to the compliance with article 16, for the year 2020, in early 2021.⁵ In this report, where this analysis has been performed for the first time, the CREG calculated that Elia complied with the legal obligation (with regards to the minMACZT) on 99,2% of all network elements or during 81,3% of the considered period.

14. For the period between 1 January 2020 and 31 December 2020, a derogation was applicable for three underlying reasons:

- **Derogation D1**, for excessive loop flows, similar to the derogation that applied in 2021 (see section 2.2);
- **Derogation D2** to address a lack of redispatch potential, in case of planned unavailabilities due to grid reinforcements; and
- **Derogation D3** to develop the necessary operational and technical processes and tools to implement the 70% rule, during the first quarter of 2020.

Due to the application of Derogation D3, the observed period of the 2020 compliance report was limited to the period from 1 April to 31 December 2020.

15. In this report, the methodology, datasets and calculation method (according to ACER's recommendations) were elaborated. The current compliance report repeats these analytical methods, for the year 2021.

⁵ Study (F) [2183](#) on the compliance of ELIA TRANSMISSION BELGIUM SA with the requirements related to the transmission capacity made available for cross-zonal trade in 2020

3. METHODOLOGY

16. This chapter starts with an overview of the used datasets, followed by an explanation on the observed period and the methodology that was applied.

3.1. DATA

17. In the context of the monitoring of the available margins from TSOs, performed by ACER, Elia submits on a semi-annual basis a number of parameters to ACER. For this purpose and for each day of the considered period, a file is created including the following information for all CNECs:

- the MTU or Market Time Unit;
- the considered timeframe for capacity calculation (in casu only day-ahead);
- the codes of the observed CNEs and Cs and their considered direction;
- the coordination zone, the TSO and the Member State associated to the CNEC;
- the manner by which the F_{\max} is limited (in casu only thermal limitations);
- the F_{\max} (in MW);
- the minMACZT (in MW⁶);
- an indication of any possible unspecified minMACZT as a result of a derogation (“yes/no”);
- the MCCC and MNCC, including and excluding 3rd country flows (in MW);
- whenever relevant, the shadow price (in € / MW);
- other remarks made by the TSO;
- the PTDF's or Power Transfer Distribution Factors associated to the CNECs.

18. This dataset, however, lacks certain elements which should allow the CREG to correctly and efficiently monitor the compliance with article 16 of the Electricity Regulation. In particular, the CREG has asked Elia to add the following elements to the data provided to ACER for the considered period (cf. paragraph 17):

- the so-called minRAM Justification, where an overview is given of the calculation method for the minMACZT in function of the eventual application of the derogation for loop flows;
- the loop flows (in MW) and internal flows (only on internal CNE(C)s, in MW);
- the threshold for acceptable loop flows, as defined in the approved derogation request, being $\frac{1}{2} * [30\% - FRM]$ or $[30\% - FRM]$ (in MW).

⁶ In order to take into account the different values for F_{\max} (between different CNEC's or for one CNEC during the considered period), values such as minMACZT, MCCC, MNCC are analysed in % of F_{\max} , even though they are reported in MW.

19. These characteristics are assigned to the unique combinations of a CNEC, the considered direction and the relevant MTU. In order to simplify the analyses, EIC-codes have been linked through JAOS' translation tables⁷ to the human readable names of the observed CNEs and Cs. This allows the distinction between internal and cross-border CNE(C)s. Finally, publicly available datasets from the *Entso-E Transparency Platform* on the observed prices on the CWE day-ahead markets (in €/MWh) are used.

20. Two remarks need to be made on the used datasets:

- The reported data encompass both absolute values with regards to the margins on CNECs (in MW) as well as values relative to the F_{\max} (in %). To avoid any rounding errors, either in this study or in the internal reporting tools of Elia, tolerance margins are applied. Concretely, a CNEC with an MACZT higher than or equal to 69,5% of its F_{\max} is considered to be compliant with the 70% threshold. Additionally, the minimum margin is considered to be respected when the MACZT on a CNEC is higher than or equal to 99,5% of its minMACZT. These tolerance margins are also applied in the analyses performed by ACER.
- The reported datasets only contain the unique CNEC combinations for each MTU. This implies that the CNECs on which LTA inclusion has been applied, have already been filtered out by Elia, as recommended by ACER (see section 2.1). Until halfway through December 2020, LTA inclusion was applied in the CWE region via a method based on “*virtual branches*”, where each CNEC that fell outside of the LTA domain was replaced by a set of constraints with the same RAM value but different PTFDs. This method resulted in a multiplication of the number of CNECs as input to the market coupling algorithm *Euphemia* and was no longer tenable in light of the introduction of the new CWE bidding zone border DE/LU – AT via the ALEGrO interconnector. From December 2020 onwards, the LTA inclusion was applied via the *Extended LTA inclusion* method, yet the method based on (*Improved*) *Virtual Branches* was kept for reporting and transparency purposes.

3.2. OBSERVED PERIOD

21. The observed period spans the entire year 2021, from 1 January until 31 December. During several days however, problems have appeared in the CWE FBMC, either on a local or regional level, that have had an impact on the results.

- At the regional level, issues led to the application of so-called *default flow-based parameters* during three days: 11 March (all hours), 13 March (5 hours) and 10 November (all hours). During these timestamps, no CNECs nor associated margins were reported.
- At the local level, issues led to the unavailability of minMACZT values during two days (5 January and 11 August). Elia's approach leads, in these situations, to the application of the minimum 20% RAM margin for CWE exchanges.
- The derogation for excessive loop flows could not be applied, on 6, 13 and 14 September, on 15 and 21 October and on 27 November. As an alternative, Elia implements in these timestamps a minMACZT of 70%. These values are considered in the 8.616 hours mentioned below, but lead to a non-compliance (given that the capacities have been reduced compared to the minMACZT during the individual validation step).

⁷ <https://www.jao.eu/news/messageboard/view?parameters=%7B%22NewsId%22%3A%22e7de98dc-af34-4efd-82a1-aad90081fb13%22%2C%22FromOverview%22%3A%221%22%7D>

As a consequence, in combination with a number of missing timestamps throughout the year, only **8.616 hours** (instead of 8.760) have been considered when calculating the results.

22. Per hours, about 3.000 unique combinations of critical network elements and contingences in a given direction are reported, leading to a total dataset encompassing **20.378.999 CNECs**.

3.3. STEPWISE ANALYSIS

23. The monitoring of the compliance by Elia with the obligations in article 16 of the Electricity Regulation is done through a stepwise approach. The analysis is performed on the level of the individual CNECs reported by Elia. During the different steps of the assessment, the most limiting CNEC (i.e. the lowest MACZT per MTU) is considered on the one hand, while all CNEC's across all MTUs are considered on the other hand. The advantages and disadvantages of considering – or not – the entire dataset have been described in Study (F) 2183, in section 3.4 (paragraph 24 and Table 1).

24. In a **first step**, the observed MACZT values are compared to a threshold equal to 70% of the CNECs' F_{max} . This lower threshold is set as a target in article 16, paragraph 8, and applies to network elements who are observed in a flow-based capacity calculation approach (FBMC) and in a capacity calculation approach based on coordinated net transfer capacities (NTC). This comparison provides a general impression with regards to the capacities offered to cross-border trade but fails to take into account the exception for excessive loop flows which applies in the context of the approved derogation request from Elia for 2021.

25. Because of this reason, in a second step, the observed MACZT values are compared to the CNECs' minMACZT value. These latter establish, for Elia, the legally binding lower threshold with regards to the margins for cross-zonal trade on all CNECs. The minMACZT is calculated by Elia and reported in line with the approved methodology, elaborated in section 2.2.

26. If, after the analyses in the first two steps, a network element shows a margin below these established thresholds, the non-compliance with the legal obligations in article 16 of the Electricity Regulation may be established.

27. In order to provide a complete picture of the circumstances under which such violations may occur, some additional considerations are identified with regards to the observed shadow prices, congestions in the CWE in a **third step**.

28. This process is shown schematically below, in **Figure 1**.

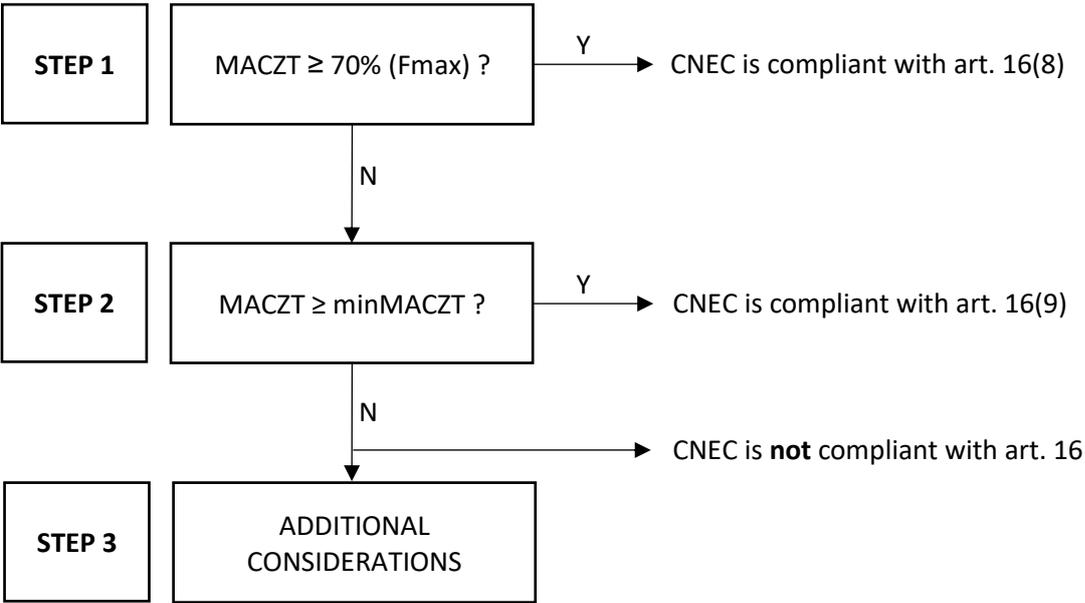


Figure 1 Overview of stepwise approach for the performed analyses

4. COMPLIANCE WITH ARTICLE 16

4.1. STEP 1: COMPLIANCE WITH THE 70% THRESHOLD

29. Figure 2 below shows the density curves of the margins each all network element, per type (internal, cross-border or PST) in function of its F_{\max} . The full lines show the values for the MNCC including third country flows, the dashed lines show the values excluding third country flows.

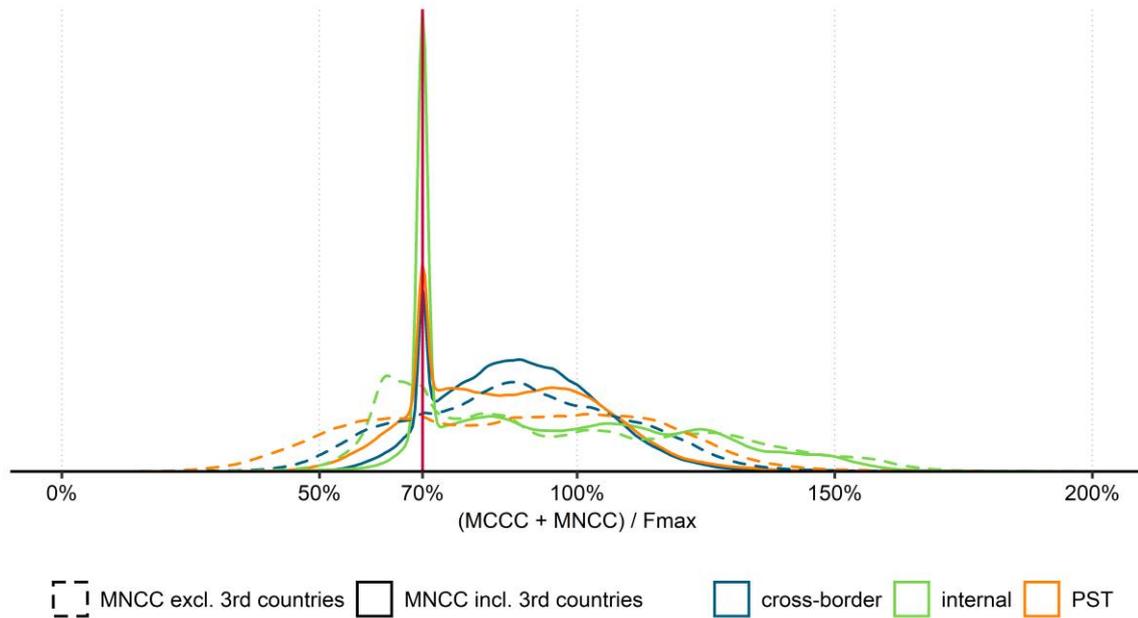
- The MNCC excluding third country flows relate to the transmission capacity that is used by commercial exchanges over EU bidding zone borders that are not part of the CWE region, for example between France and Italy.
- The MNCC including third country flows relate to the transmission capacity that is used both by commercial exchanges over EU bidding zone borders as on bidding zone borders with third countries, such as Switzerland and – since 1 January 2021 – also Great-Britain.

In contrast to 2020, the difference between the MCNC including third countries and the MNCC excluding third countries, and hence the resulting MACZT, is relatively large. This is due to the relatively large share of the transmission capacity on Belgian CNECs that is used for exchanges with Great Britain, notably via Nemo Link, IFA and BritNed.

When assessing the compliance with the minMACZT requirements, the CREG considers the MCNC including third country flows. The CREG has, however, ensured that this MNCC is calculated based on the best available information on the expected market direction and the volume of these exchanges.

30. Figure 2 shows that, for the largest part of the observed CNECs, the MACZT values are observed around the 70% threshold, which seems to suggest that these margins are optimised by Elia in this direction. The outliers (both to the left as well as to the right) are remarkable, even though these latter are, in reality, less relevant given the fact that they are observed mostly in the direction of the observed CNEC that is not relevant for the market.

Compliance with 70% threshold of all CNECs (STEP 1)
 Density plot of MACZTs for each CNEC compared to 70% of Fmax

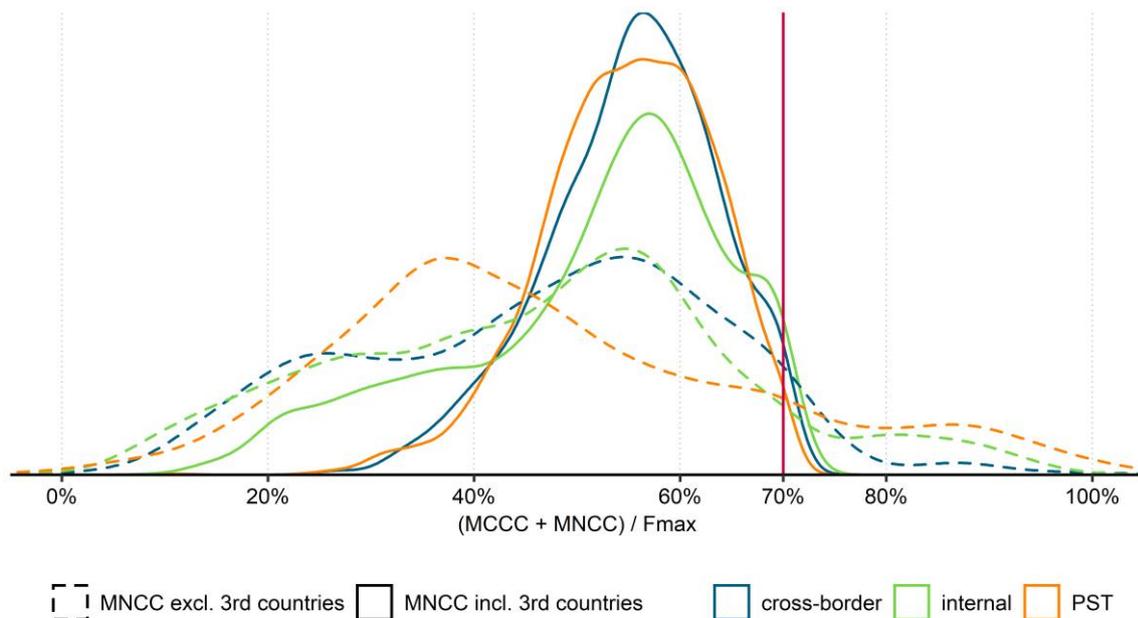


Source: calculations CREG based on data Elia
 (Number of observations:20.378.999)

Figure 2 Compliance with 70% threshold of all CNECs (STEP 1)

31. The same analyse is repeated in **Figure 3**, albeit by focusing the analyses on the CNEC with the lowest MACZT value per hour (MTU). It is clear that only in a very limited number of hours the lowest observed MACZT value exceeds the 70% threshold. The major share of the MTUs shows CNECs with a lowest value in the range of [40% - 70%] of the F_{max} .

Compliance with 70% threshold of CNECs with lowest MACZT per MTU (STEP 1)
 Density plot of MACZTs for CNEC with lowest MACZT per MTU compared to 70% of Fmax



Source: calculations CREG based on data Elia
 (Number of observations:8.616)

Figure 3 Compliance with 70% threshold of CNECs with lowest MACZT per MTU (STEP 1)

32. The global results for both analyses are summarized in Table 1 where also, to serve as comparison, the results for 2020 are repeated.⁸ On average, the 70% rule was respected on more network elements and during more hours in 2021 than in 2020 (respectively **93,5% of all CNECs** compared to 91,8% on the one hand, or **2,1% of all MTUs** compared to 1,5% of MTUs on the other hand).

These (slight) improvements considering the number of CNECs is mostly the result of the increase in the number of internal network elements that respect the 70% threshold: these have – through their higher absolute count – a larger weight in the dataset compared to other categories. Expressed per MTU, the increase is mostly due to the improvement during hours where the CNEC with the lowest margin is a cross-border one or a PST.

	2020		2021	
	All CNECs	Per MTU	All CNECs	Per MTU
Cross-border CNEC	94,0%	0,5%	93,0%	2,4%
Internal CNEC	91,8%	2,2%	95,1%	2,2%
PST	87,4%	0,3%	85,8%	1,8%
GLOBAL	91,8%	1,5%	93,5%	2,1%

Table 1 Global results with respect to the compliance with the 70% rule (STEP 1)

33. in the context of the monitoring of the compliance with the legal obligations by Elia it is crucial to stress that these results do not provide an answer to this question. For this purpose, the MACZT values are compared to the minMACZT in a second step later on.

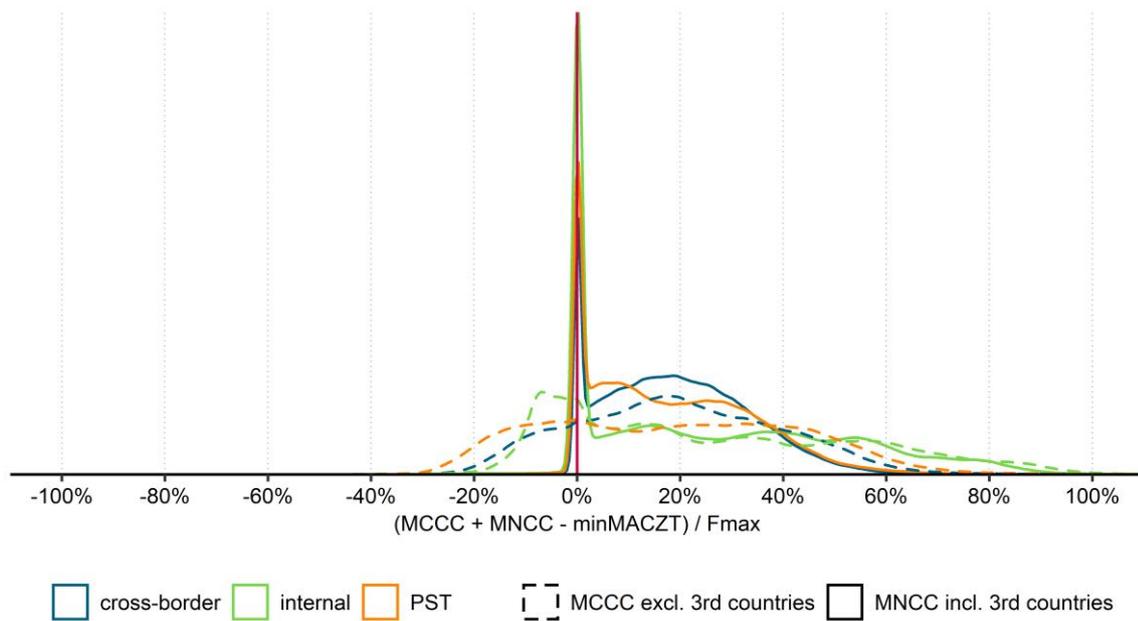
34. It is however important, and relevant, to perform and publish the analyses in this section. The difference between the extent to which Elia is compliant with the 70% threshold on the one hand, and the minMACZT on the other hand, is linked exclusively to the degree to which loop flows from other bidding zones burden the Belgian network elements. In other words, constraining the loop flows within the allowable margin $\frac{1}{2} * (30\% - FRM)$ or $(30\% - FRM)$ would theoretically yet at all time allow Elia to provide margins of 70% to the cross-zonal market. Additionally, calculating the impact of the loop flows in 2021 compared to the same analysis in 2020 allows assessing whether this impact decreases. This would logically be expected following the increase in the minimal margins in the linear action plans in the neighboring countries.

4.2. STEP 2: COMPLIANCE WITH THE MINIMUM MARGINS

35. In a second step, the actual legal compliance with regards to the minimum offered margins (i.e. the minMACZT) is assessed. Given the individual minMACZT values for each CNEC, the difference between MACZT and minMACZT is calculated. **Figure 4** shows, for all possible combinations of observed CNECs per MTU, these differences. It is immediately evident that the major share of the CNECs respects the legal obligations, at least when the MACZT including third country flows is considered.

⁸ It is important to note that the analyses for 2020 did not span an entire year: because of the application of a derogation in the first quarter to develop the necessary IT tools and operational procedures, the analyses for that year were limited to the period between 1 April and 31 December.

Compliance with minMACZT threshold of all CNECs (STEP 2)
 Density plot of MACZTs for each CNEC compared to the minMACZT



Source: calculations CREG based on data Elia

(Number of observations: 20.378.999)

Figure 4 Compliance with minMACZT threshold of all CNECs (STEP 2)

36. In Figure 5, the same analysis is repeated for the selection of CNECs with, per MTU, the lowest delta between the MACZT on the one hand and the minMACZT on the other hand, according to the same rationale as in the first step. Given the high concentration of observations around the critical threshold of 0% of F_{max} , another visualization is chosen: the individual observations are plotted per type of network element. It is clear that a significant share of the observations are located to the left of the red line: these are MTUs where the CNEC with the lowest delta does not comply with the legal obligations. The largest proportion of MTUs are, however, observed around 0%. Via the consideration of a tolerance margin of 0,5%, a relatively large share of the observations are considered to be compliant with the legal obligations.

Compliance with minMACZT threshold of CNECs with lowest MACZT-minMACZT per MTU (STEP 2)
 Point cloud of MACZT of each CNE with lowest MACZT-minMACZT per MTU compared to the minMACZT

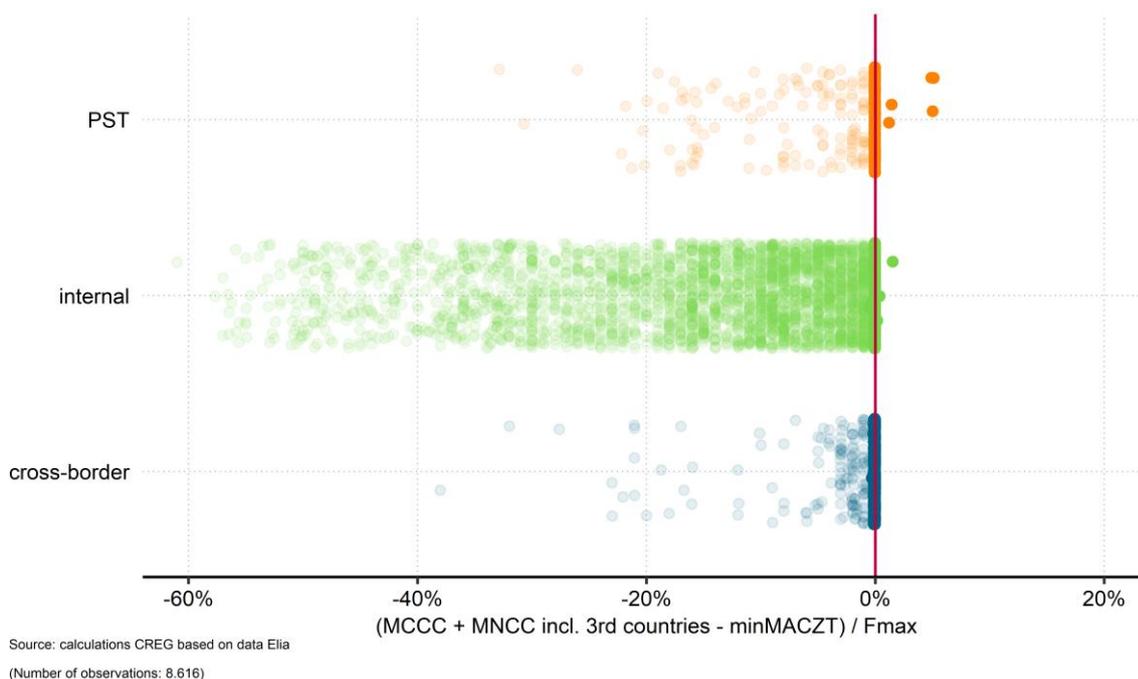


Figure 5 Compliance with minMACZT threshold of CNECs with lowest MACZT - minMACZT per MTU (STEP 2)

37. **Table 2** summarizes the results for the second step in the analysis. Globally speaking in 2021, Elia offered at least the minimum margins on **99,2% of all CNECs** and during **62,2% of all MTUs**. At the level of all CNECs, this matches exactly the score from 2020. Considering only the number of hours where the legal obligations are met, a clear worsening of the results is perceived: this score was still 81,3% in 2020.

	2020		2021	
	All CNECs	Per MTU	All CNECs	Per MTU
Cross-border	99,8%	95,0%	99,7%	90,9%
Internal	98,8%	77,2%	99,0%	50,6%
PST	99,7%	97,0%	99,6%	86,9%
GLOBAL	99,2%	81,3%	99,2%	62,2%

Table 2 Global results with regards to the compliance with minMACZT (STEP 2)

38. Just as in 2020, the difference between complying with the 70% threshold and the minMACZT including the loop flow derogation is rather high in 2021. Especially at the level of the CNEC with the lowest value per MTU, this difference is striking: during only 2,1% of the MTUs the 70% threshold is respected on all CNECs while during 62,2% of the hours the minimum margin is respected. This demonstrates, again, the impact of the derogation for excessive loop flows.

39. The degradation in the scores in 2021 compared to 2020 need to be framed in the specific circumstances that impacted the market functioning and the network of Elia in the previous years. In the subsequent section STEP 3: Additional considerations, these circumstances are presented and discussed.

4.3. STEP 3: ADDITIONAL CONSIDERATIONS

4.3.1. Considered period

40. The period under consideration in the previous report is not the same as in the current report: the year 2020 has only been taken into account between 1 April and 31 December. This was done to avoid that the derogation which was applicable between 1 January and 31 March would influence the results. Seasonal effects, where the winter months would see a more intensive use of the transmission network and the market coupling could lead to worse results with regards to the compliance with article 16, have therefore been analysed by the CREG. To this end, the global results (see also Table 1 and Table 2) have therefore been recalculated for the period between 1 April and 31 December 2021. The results are summarized in Table 3.

	Mét Q1 2021 1.1.2021 – 31.12.2021				Zonder Q1 2021 1.4.2021 – 31.12.2021			
	STAP 1: 70%		STAP 2: minMACZT		STAP 1: 70%		STAP 2: minMACZT	
	Per CNEC	Per MTU	Per CNEC	Per MTU	Per CNEC	Per MTU	Per CNEC	Per MTU
Grensoverschrijdend	93,0%	2,4%	99,7%	90,9%	92,5%	2,7%	99,8%	93,2%
Intern	95,1%	2,2%	99,0%	50,6%	95,8%	3,3%	99,3%	64,2%
PST	85,8%	1,8%	99,6%	86,9%	85,6%	2,0%	99,7%	93,0%
GLOBAAL	93,5%	2,1%	99,2%	62,2%	93,8%	2,7%	99,5%	73,8%

Table 3 Global results with and without Q1 2021

41. The scores in Table 3 show different observations, depending on whether the first quarter of 2021 has been taken into account in the analyses. When all CNECs are considered, the compliance score differs only very little. When, however, the CNEC with the lowest margin per MTU is considered (especially in step 2 of the methodology, which is after comparing to the minMACZT), the score rises significantly: from 62,2% to 73,8%. Taking into account the winter months effectively impacts the reported numbers. A little more than half of the difference with last year's score (2020: 81,3%) can be attributed to not taking into account the first three months in 2020.

4.3.2. Active constraints in CWE day-ahead market coupling

42. Notwithstanding the legal obligation for Elia to offer the minimum margins on all its CNECs during all MTUs, it is interesting to investigate the impact of possible violations of these margins on the outcomes of the CWE FBMC. For this purpose, Elia reports the shadow price of all CNECs to ACER and the CREG. These measure the impact of a theoretical additional margin of 1 MW on the considered CNEC on the total created welfare in the CWE FBMC (expressed in € per MW). Positive observations of the shadow price are associated to congestion in the network, on that specific CNEC (as no welfare can be created additionally by increasing the margin if there is no congestion). This CNEC is then considered to be the "active constraint" in the CWE FBMC.

43. This analysis is explicitly not considered in the framework of assessing the compliance with the legal obligations, in the second step of the methodology, for multiple reasons:

- The obligation to comply with the minimum margins in article 16 of the Electricity Regulation is valid, irrespective of the considered network element or its impact on the market coupling.
- The impact of a possible violation of the minimum margin is not limited to the CNEC on which it is observed. It is possible that a CNEC with a reported MACZT value below the minimum threshold does not constrain the market clearing or does not cause a positive

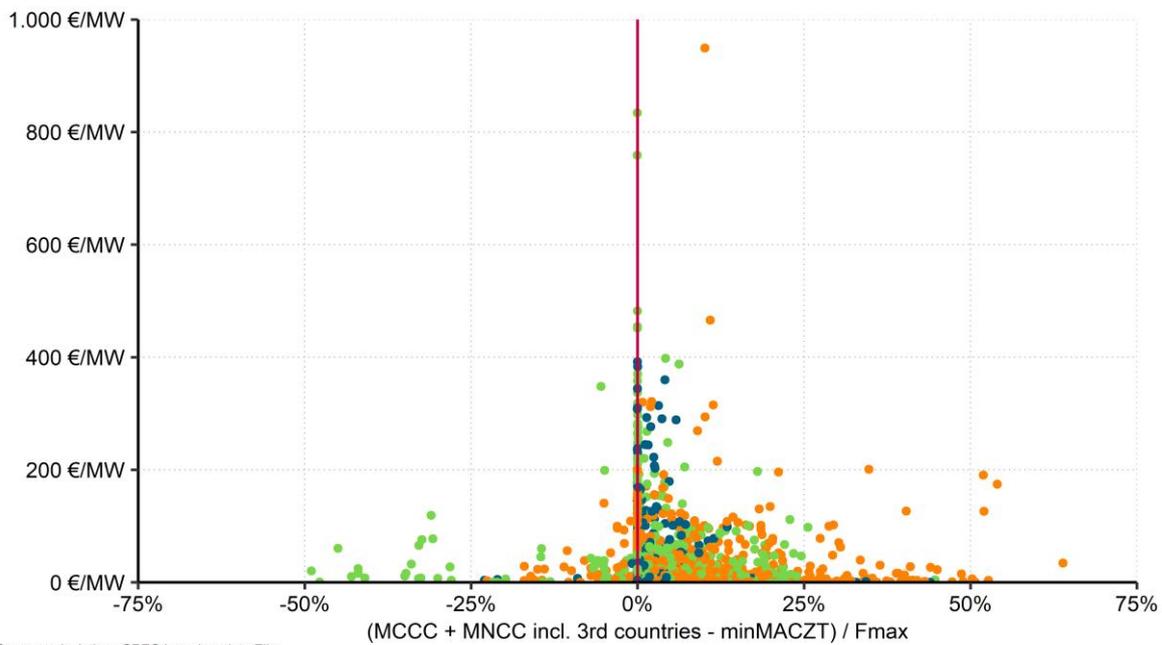
shadow price on another CNEC in the network of Elia. The impact of such violation may manifest itself in the network of a neighbouring TSO through congestions (caused by high loop flows). This reasoning is investigated further in paragraph 45 and Figure 7.

44. **Figure 6** shows, for all observed CNECs with a positive shadow price (on the y-axis) the extent to which the minimum margins have not been respected (on the x-axis, to the left of the red line). 100 observations are considered in this case, against a total of 1.786 CNECs with a positive shadow price. These 100 CNECs were observed during 96 different MTUs. This means that during 96 hours of the year Elia has caused congestion in the CWE FBMC – and therefore price differentials and a decrease of the producer or consumer surplus – by not respecting the minimum margins on a certain network element.

45. The average margin on all network elements during hours where congestion is observed (irrespective of what caused the congestion) are, as shown in Figure 7, usually above the stated threshold (either 70% (left) of the minMACZT (right)) during hours where prices converged than during hours where prices differed. This suggests that higher margins generally lead to more price convergence. The differences in the average scores are, however, relatively small in light of the large dataset (all observed CNECs).

Margins on active CNEs

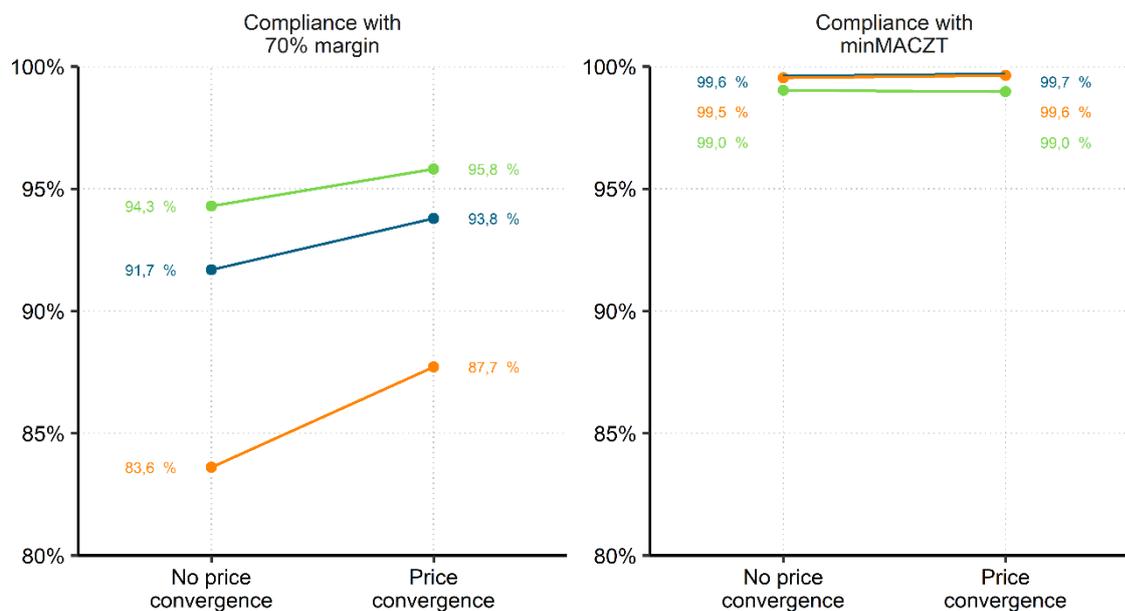
Relation between Δ (MACZT - minMACZT) and shadow price (in €/MW)



Source: calculations CREG based on data Elia
(n = 1.786)

Figure 6 Margins on active CNEs

Observed compliance with 70% threshold and minMACZT according to market outcome
 Average score for all CNECs (per type) when prices converge or diverge



Source: calculations CREG based on data Elia

Note: Convergence is observed when the spread between the highest and lowest prices in CWE bidding zones does not exceed 1 €/MWh

Figure 7 Observed compliance with 70% threshold and minMACZT according to the market outcome

4.3.3. Specific situation on Doel-Mercator axis

46. The Brabo I and Brabo II project⁹ have, between 2017 and 2021, reinforced the network around the Port of Antwerp significantly, in particular the axis Mercator – Doel – Zandvliet and the additional loop around Lillo. This was achieved by installing additional PSTs and replacing existing 150 kV lines by 380 kV lines. The goal of these works was to reinforce the Belgian north-to-south axis and the interconnection with the Netherlands. By installing HTLS conductors in the connection between Zandvliet – Rilland and Brabo III (Liefkenshoek – Mercator), more of these reinforcement works are planned between 2023 and 2025.

47. These works were planned in the context of the planned nuclear phase-out between 2022 and 2025, where 3 GW of nuclear generation capacity from the site in Doel would be decommissioned gradually. Both evolutions (grid reinforcements and nuclear phase-out) are summarized in Figure 8.

⁹ <https://www.elia.be/en/infrastructure-and-projects/infrastructure-projects/brabo>



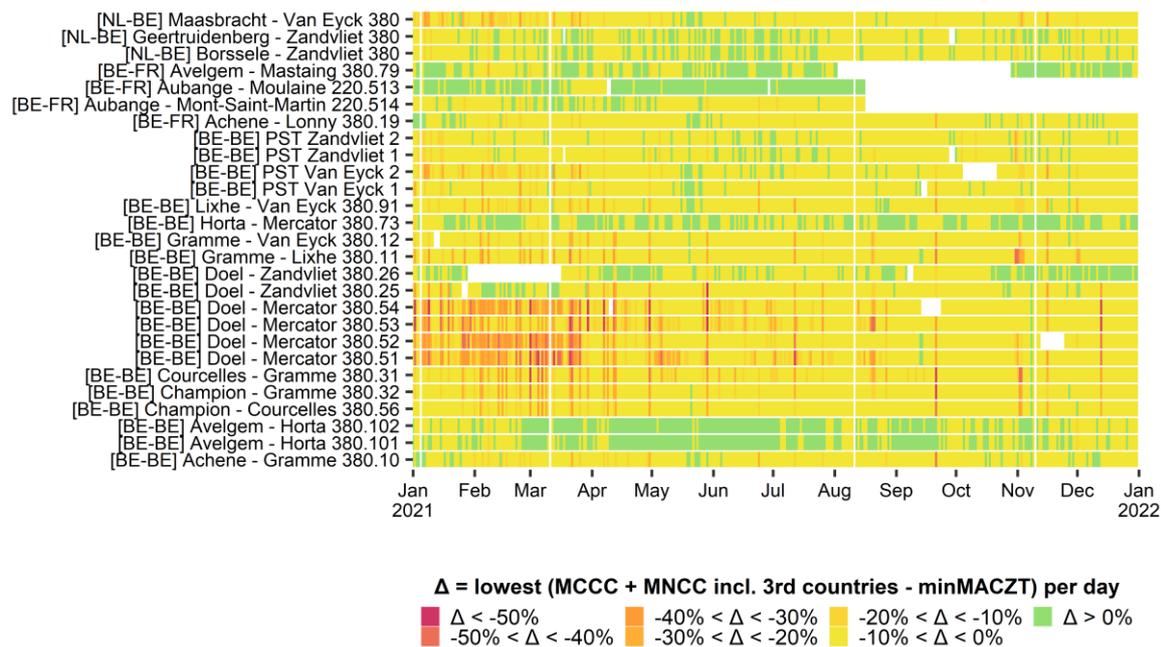
Figure 8 Evolution of the network in the context of the nuclear phase-out

(source: presentation Elia to the CREG on 05.10.2021)

48. The combined effect of the increased import flows on the northern border (as a result of Brabo I and II) and the full availability of the nuclear production capacity in Doel has, in 2021, led to congestions on the axis Doel – Mercator. It is to be expected that this effect will keep on manifesting itself in the short to medium timeframe (during the gradual decommissioning of the nuclear capacity in Doel). This will be particularly the case when, by installing HTLS lines on the axis Zandvliet – Rilland in 2022, the import capacity is further increased, and three out of four reactors are still operational in Doel (keeping 2GW of nuclear capacity in the network).

49. In order to assess and explain this problem, the CREG investigated the compliance per individual network element in 2021. For this purpose, Figure 9 shows the lowest observed delta between MACZT and minMACZT per network element and per day. Only the green observations show days where, on that CNE and for each of the 24 hours, the legal obligations were respected. The yellow, orange and red observations show, relative to the severity of the minMACZT violation, days where at least one CNEC during at least one hour did not respect the minimum margin.

Compliance with minMACZT per observed CNE in 2021
Heatmap of daily lowest observed MACZT - minMACZT values per CNE



Source: calculations CREG based on data Elia

Figure 9 Compliance with the minMACZT per observed CNE in 2021

50. The figure above confirms that this problem is mostly situated on the axis Zandvliet – Doel – Mercator. Very low margins are reported, with (negative) outliers to -60%. In other words: on these network elements, sometimes only 10 to 20% of the F_{max} is offered to the market, despite the fact that no excessive loop flows are observed. Furthermore, **Figure 9** shows that this problem is mostly observed during the first half of the year. In the second half of the year, this situation improved significantly,¹⁰ despite the occurrence of (short) periods where very low margins were observed. Some of these shorter periods are clearly linked to problems during the capacity calculation phase, where fallback values are reported (see also chapter 3 where these dates are listed).

51. In the figure above, the following observations can also be made:

- From the end of August 2021 onwards, no values are reported any more on Aubange – Moulaine and Aubange – Mont-Saint-martin. These cross-border 22° kV network elements were removed from the list of elements which can constraint the CWE FBMC at that point in time.¹¹
- For different CNEs, no values are reported during (medium to) longer periods: these periods correspond to interruptions in the network. Examples include Doel – Zandvliet 380.26 in February – March, or Avelgem – Mastaing in August – October. These periods are reported, when planned, on the web site of Elia.¹²

¹⁰ With respect to this, Elia confirmed that since June 2021, a bug fix for ALEGrO has been implemented which clearly impacts the results: “There was an unfortunate mistreatment of ALEGrO in the selection and processing of scenarios upon which the local validation is performed. This bug was fixed by Elia from BD Jun 19, 2021 onwards.”

¹¹ This was notified on 25 august 2021 at 17:12 by Elia on the JAO Message Board: <https://www.jao.eu/news>

¹² <https://www.elia.be/en/grid-data/transmission/unavailability-of-grid-components-380-220-kv>

52. Given the temporary nature of the incompatibility of the higher import flows and the full or partial nuclear production (until 2025), the CREG is, as Elia, of the opinion that additional investments in the network to ensure the compliance with the 70% and the minMACZT threshold on the axis Doel – Mercator, are economically hard to justify and therefore inappropriate. The no-compliance with the obligations in article 16 on this axis should, therefore, not be interpreted as if they would suggest the presence of long-term, structural congestions in the network of Elia.¹³

4.3.4. ALEGrO

53. The ALEGrO interconnector between Belgium and Germany entered into operation in November 2020 and was integrated in the CWE FBMC according to the conditions which were approved by the CREG in its Decision (B) 2106.¹⁴ After the commercialization of this direct current interconnector in the *day-ahead* timeframe, the offered capacities have been increased following a linear trajectory, in a first step to 500 MW and subsequently (from mid-December 2021 onwards) to the total F_{\max} which reaches 1.000 MW.

54. From 1 January 2021 the commercial capacity on ALEGrO reached 1.000 MW in both directions during 92,5% of all hours. In 7,5% of all hours the full capacity was not offered on ALEGrO. These hours, where only 250 MW has been offered in both directions, correspond to the hours in January 2021 where problems have arisen with the operational processes, for which evidence is found in the reporting of Elia via the JAO web site.¹⁵ The moments where these capacities reached zero, correspond to planned outages.¹⁶

¹³ With regards to the possible prolongation of one or more nuclear reactors, Elia noted the following in its presentation to the CREG: *“Frequent reduction for maintaining operational security is temporary; after realization of BRABO III in 2025 it is expected CEP targets can be met, also in case of extension of Doel 4 (1 GW)”*

¹⁴ In French (also available in Dutch): Décision (B) [2106](#) relative à la demande d'approbation de la proposition de la SA ELIA TRANSMISSION BELGIUM relative à l'adaptation apportée au couplage de marchés dans la région Europe Centre-Ouest (Central West Europe - CWE) faisant suite à l'introduction de la frontière entre les zones de dépôt des offres allemande/luxembourgeoise et belge à la suite de la mise en service de la liaison DC ALEGrO et aux adaptations consécutives à l'entrée en vigueur du règlement (UE) 2019/943

¹⁵ <https://www.jao.eu/news/cwe-fbmc-risk-decoupling-bd-1801-additional>

¹⁶ <https://opendata.elia.be/explore/dataset/ods029/information/>

Available margins on ALEGrO interconnector
Share of observed NTC values in each direction, per month

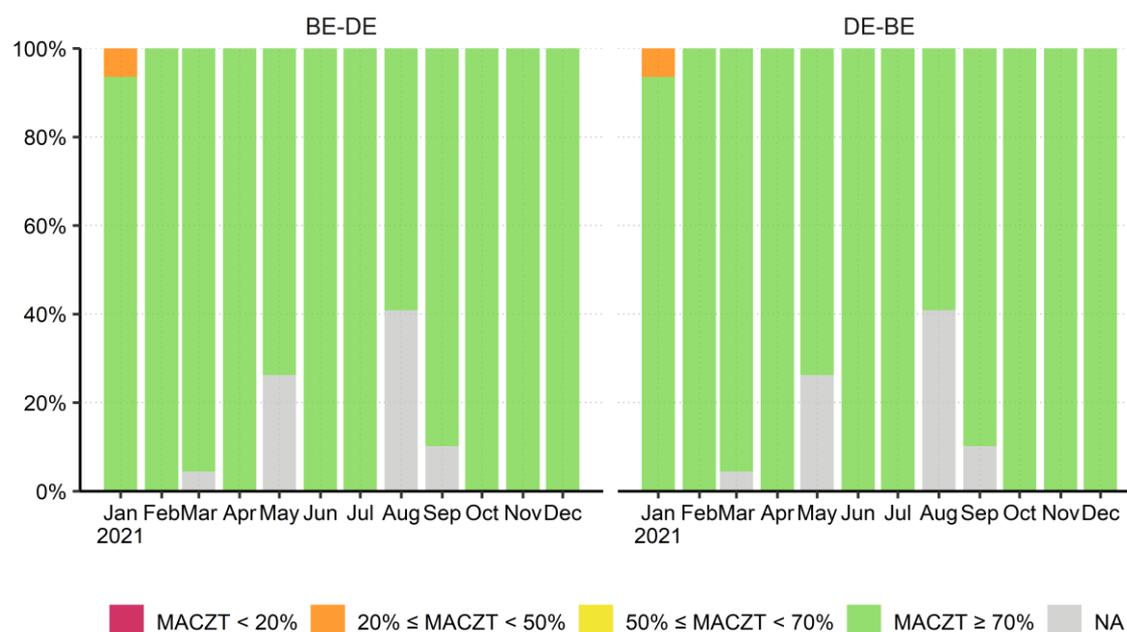


Figure 10 Available margins on ALEGrO interconnector

4.3.5. Nemo Link and third country exchanges

55. The Nemo Link interconnector between Belgium and the United Kingdom was serviced in January 2019. The available capacities were, initially, calculated according to a cNTC-based calculation, together with the other TSOs of France, the Netherlands and the United Kingdom. This cNTC-based approach was approved by the CREG and the other relevant regulatory authorities.

56. Since 1 January 2021 and the end of the so-called “*transion period*” in the Brexit negotiations between the United Kingdom and the European Union, the United Kingdom (at least the bidding zone Great Britain) is no longer a part of the single Internal Energy Market (IEM). The provisions in the European legislation are therefore no longer applicable on the United Kingdom and its interconnectors with the European mainland. Therefore, the obligation to offer at all times 70% of transmission capacity no longer applies to the Nemo Link interconnector, as since 1 January 2021 it constitutes an external border (i.e. between a Member State and a third country).

57. This does however have an indirect impact on the reported MACZT values on Elia’s other network elements. By categorizing the exchanges over Nemo Link as “third country exchanges”, there is an impact on the MNCC calculation. This MNCC represents the margin on Elia’s network elements for exchanges that fall outside of the scope of coordinated capacity calculation (*in casu* the CWE FBMC). The MNCC is calculated including and excluding third countries.

58. The CREG has indicated in the past that, as a result of the United Kingdom leaving the IEM, it would consider the compliance of Elia with the legal obligations on the basis of the MNCC (and minMACZT) including exchanges with Great Britain (over the Nemo Link or other interconnectors).¹⁷

59. It is however interesting, and useful, to quantify the impact of the exchanges with Great Britain on the compliance with the minimum margins on other Belgian network elements. This is done below in Figure 11.¹⁸ This figure shows, for each network element (whereby the color, as in previous figures, is indicative for the type of element), the difference between the global compliance score including and excluding third country flows, for 2020 and 2021.

60. This figure demonstrates clearly that not considering the third country exchanges would have a strongly negative impact on the extent to which a network element respects the minMACZT. On the right-hand side of both figures, the high scores including third country flows are remarkable (both in 2020 as well as in 2021 this amounted to 99,2% across all CNECs). On the left-hand side, the CREG observes that the compliance scores are drastically lower, especially in 2021 (average compliance across all CNECs of 77,6%, compared to 91,1% in 2020). The average score of 77,6% is the result of very high scores but also very low scores, between 50% and 60%. These values are mostly observed on internal network elements on the axis Zandvliet – Doel – Mercator and Champion – Gramme – Courcelles.

It needs to be highlighted, for this figure, that they focus on the left side of the density curves shown before (Figure 2, Figure 3, Figure 4 and Figure 5). Obviously flows from and to third country can have a relieving effect, depending on the observed direction of these flows.

Impact of consideration of third country flows
Compliance with minMACZT per CNE, including and excluding 3rd country flows in MNCC

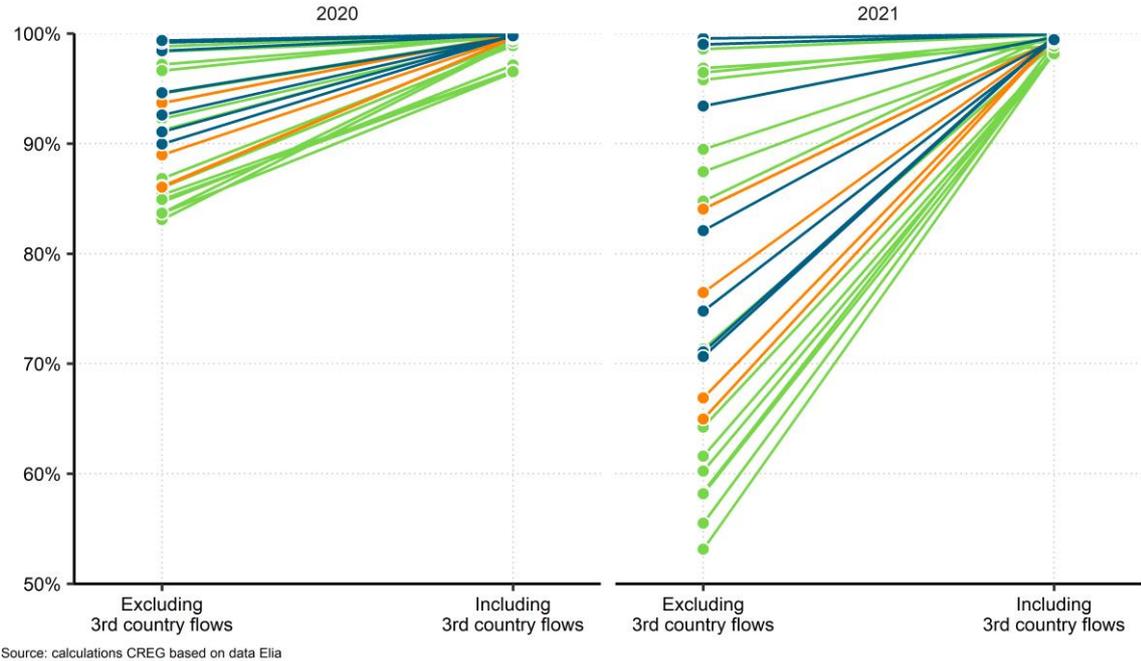


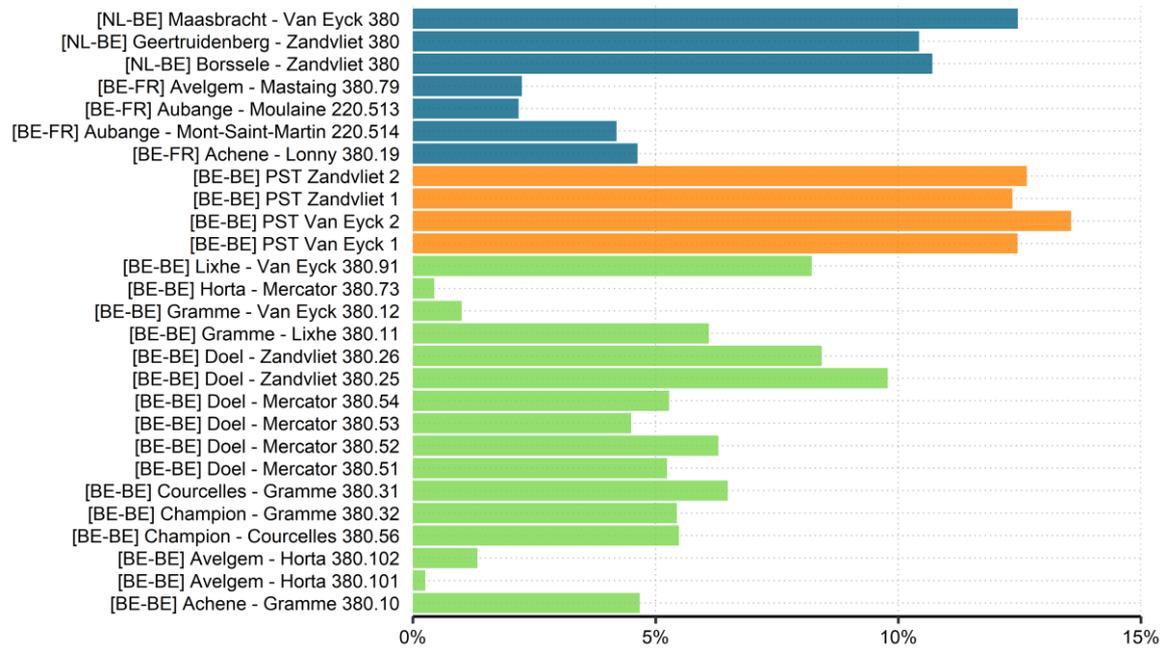
Figure 11 Impact of consideration of third country flows

¹⁷ Or other possible third countries, even though the impact of these flows (e.g. with Norway or Switzerland) is negligible.
¹⁸ This impact can also be deduced graphically by the difference between the solid and dotted lines in Figure 2, Figure 3 and Figure 4

61. The MCNC that is used specifically by the exchanges with the United Kingdom, is reported separately by Elia. On average, these exchanges had a significant impact on the margins that were offered on Belgian network elements in 2021. The highest average values are observed on PSTs and the cross-border network elements on the Dutch border (between 10% and 13% of F_{max} on those elements), as is shown in Figure 12.

Impact of exchanges over Nemo Link on Elia's network elements

Average MNCC for UK exchanges (3rd country) per CNE (in % of F_{max})



Source: calculations CREG based on data Elia

Figure 12 Impact of exchanges over Nemo Link on Elia's network elements

5. GENERAL DISCUSSION ON THE RESULTS

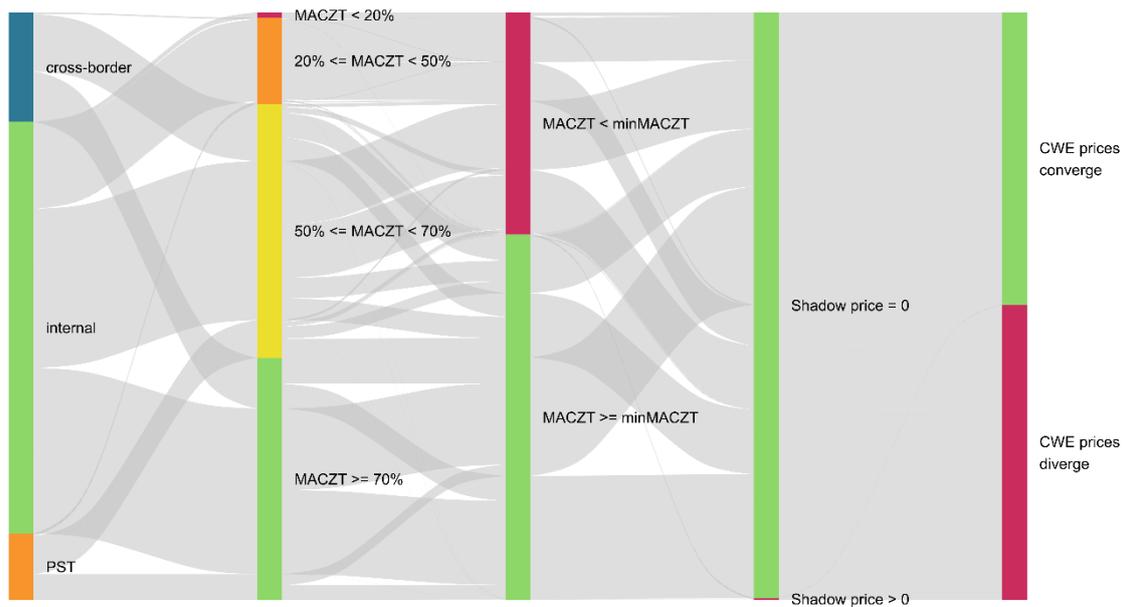
5.1. SUMMARIZING ANALYSIS

62. The results of the stepwise analysis in the first to the third step (sections 4.1, 4.2 and 4.3) are summarized in Figure 13. This *Sankey diagram* processes as input the dataset where, for each hour, the network element with the lowest margin between the MACZT and minMACZT was retained.¹⁹ Both the nodes (coloured) as well as the links (grey) summarize vertically to 100%, or 8.616 MTUs.

63. Firstly, the network elements are considered with regards to their type (internal, cross-border or PST). Subsequently, as in the **first step** of the earlier analyses, the second column with the nodes look at the category in which the MACZT is observed (compared to the F_{max}). the comparison is then made between the MACZT and minMACZT (as in the **second step**, where again a global compliance score of 62,2% of all MTUs may be observed). In the fourth and fifth column with nodes, finally, the degree to which the CNEC is the limiting factor (based on shadow prices) or generally congestion is observed (based on bidding zone price differences) is assessed – as in the **third step**.

Compliance of CNECs at different steps in the methodology

Sankey diagram showing characteristics of CNECs with lowest Δ (MACZT - minMACZT) per hour



Source: calculations CREG based on data Elia

Figure 13 Compliance of CNECs at different steps in the methodology

¹⁹ Just as in Figure 5.

64. The flows between these nodes allow further insight into how the different characteristics of the most limiting CNEC per MTU compare to each other.

- It is interesting to highlight that a number of CNECs where the observed MACZT is in the range $[20\% - 50\%] * F_{max}$, the minMACZT is still respected. This is shown, in the diagram above, by the fine grey flows between the orange and red nodes in column 2 towards the green node in column 3. This is the result of a strong reduction of the minMACZT for the excessive loop flows on those network elements.
- The comparison between the categories on the nodes in the second column do not mirror the results per MTU in the first step of the analyses: from high to low the observed percentages are: green – 41,2%, yellow – 43,2%, orange – 14,7% and red – 0,9%. These do not match the results in Table 1 – this latter was based on the CNECs with the lowest absolute MACZT per MTU and not the lowest delta between MACZT and minMACZT. On the other hand, the results in the third column do mirror the same percentages as in the second step, as shown in Table 2: green – 62,2% and red – 37,8%.
- Finally, we see that the complete fraction of CNECs with a positive shadow price are linked to situations with congestions in the CWE FBMC (i.e. price divergence in the last column). This is logical, as the congestion is caused by the CNEC where the positive shadow price is observed (during 0,4% of the considered MTUs).

5.2. DISCUSSION ON THE RESULTS

65. The results in chapter 4 show that Elia offers, on the major share of its network elements, margins that meet or surpass the minimum margins (either 70% in general or the minMACZT in application of the loop flow derogation). On **99,2% of all observed network elements** the observed capacities (MACZT values) were at least as high as the minimum margins (minMACZT values). At the same time, during **62,2% of the considered hours** all observed MACZT values on all network elements reached at least the minMACZT values.

66. These numbers indicate a retrogression of the number of hours where Elia met the legal obligations (from 81,3% in 2020 to 62,2% in 2021). These results need to be framed in a broader context, that was described already in more detail in section 4.3. In particular, the network situation on the axis Zandvliet – Doel – Mercator as a result of the grid reinforcements of the Brabo I and II projects have led to lower available margins on these elements due to the combination with a full availability of the nuclear production capacity in Doel.

67. Aside from the congestions on this axis, moments have been observed throughout 2021 where the minimum margins have not been respected on other network elements. The CREG observes in these cases, however, no structural deficits (across time) nor extremely low margins. In principle, the provisions of article 14 and article 15 of the Electricity Regulation prescribe that the identification of structural congestions need to lead to the development of action plans or bidding zone reviews. The CREG is of the opinion that, on the basis of its analyses of the available margins, such measures are not to be considered at this moment.

68. Given that the nature of the problems observed in section 4.3.3 and repeated in paragraph 66 is temporary because of the planned nuclear phase-out as well as the planned reinforcements of Brabo III, these actions and possible alternatives such as network reinforcements by installing HTLS lines on the axis Zandvliet – Doel – Mercator, seem disproportionate, from a societal and economic perspective.

69. The CREG however requests Elia to urgently strive for the implementation other possible measures that have a positive impact on the available margins, without delay and actively. The CREG considers, in particular:

- the implementation of the coordinated capacity calculation methodology for the day-ahead timeframe in the Core region (the so-called “Core DA FBMC project”);
- the implementation of the coordinated redispatching and countertrading methodology in the Core region, and the associated methodologies for sharing the costs of these remedial actions;
- the further development and refinement of Elia’s local validation tool in the capacity calculation;
- the further development of forecasts that serve as input to the local validation tool, as the expected day-ahead market direction and the expected non-coordinated commercial and non-commercial flows (MNCC, respectively loop flows), hence improving the quality of the inputs to the local validation tool; and
- the integration of a larger range of PST tap positions in the individual grid model and the coordination of a larger range of the PST tap positions in the coordinated capacity calculation process with the aim to reduce the excessive loop flows and to maximize the commercially available capacities.

70. The CREG wishes to stress the specific position and the role of Elia and Belgium in the coordinated market coupling in the CWE and Core regions. First and foremost, the compliance with the legal obligations is obviously a task assigned to Elia. There are, however, external elements such as the significant impact of loop flows from other bidding zones on the one hand, and the joint responsibilities between all TSOs to implement the projects in paragraph 69 on the other hand. The CREG is therefore a strong proponent of harmonizing the obligations with regards to the compliance with articles 14, 15 and 15 and its monitoring across different Member States. The CREG has defended this position at numerous occasions in the appropriate fora and also fully supports ACER in its initiatives to harmonize these elements.

71. Concretely, the CREG will continue to supervise that the compliance with the legal obligations by Elia on the one hand, and the transparency with regards to other TSOs’ compliance on the other hand (as reported by the relevant regulatory authorities), improve in the future. This may be ensured, among others, by integrating the reporting of these data in the broader framework of the functioning of the Core DA FBMC, of which the go-live is foreseen in the second quarter of 2022, based on currently available information.

6. CONCLUSION

The CREG investigated, in this study, the compliance of Elia with the legal obligation with regards to the transmission capacities offered to cross-zonal exchanges. These legal obligations follow from article 16 of Regulation (EU) 2019/943 of the European Parliament and the Council of 5 June 2019 on the internal market for electricity.

The conducted analyses show a global compliance with the minimum margins on **99,2% of the observed network elements**, during **62,2% of the hours** in the considered period between 1 January and 31 December 2021.



For the Commission for Electricity and Gas Regulation

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