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Interim report and outlook on the implementation of the minimum threshold of 70% of interconnection capacity for cross-border trade at the French borders

CONTENTS

EXECUTIVE SUMMARY	3
1. CONTEXT OF THE IMPLEMENTATION OF THE 70% REQUIREMENT AT THE FRENCH BORDERS	4
1.1 THE IME REGULATION INTRODUCED THE 70% REQUIREMENT THAT MUST BE ENFORCED BY NATIONAL REGULATORY AUTHORITIES	4
1.2 CRE GRANTED THREE DEROGATIONS TO RTE IN 2020	4
2. ASSESSMENT ON THE FRENCH BORDERS FOR THE FIRST HALF OF 2020	5
2.1 MONITORING OF MARGINS ON THE FRENCH NETWORK LINES CONSIDERED IN THE INTERCONNECTION CAPACITY CALCULATION	5
2.2 CRITERIA FOR DETERMINING THE SHARE OF TIME STEPS IN WHICH ENSURING THE 70% IS RELEVANT	6
2.3 PERCENTAGE OF TIME STEPS DURING WHICH RTE HAS REACHED THE REQUIRED CAPACITY LEVELS IN ACCORDANCE WITH THE IME REGULATION	8
3. OUTLOOK FOR 2021.....	8
ANNEX	9

EXECUTIVE SUMMARY

In order to ensure that a significant share of the transmission capacities of interconnectors are made available to cross-border trade in the internal market for electricity of the European Union, Regulation 2019/943 (“IME Regulation”) introduced a minimum threshold of 70% of the capacity to be made available for cross-border trade. In France, the *Commission de Régulation de l’Energie* (“CRE”) is responsible for ensuring that the French transmission system operator RTE provides interconnection capacities in compliance with the 70% requirement on its borders.

CRE considers that maximum interconnection capacities must be made available for cross-border trade when this effectively increases such trade. Particular attention shall be paid to network elements that can constrain interconnection capacities for each capacity calculation region, as well as to the time steps during which interconnection capacities are fully used. Consequently, CRE focuses on time steps during which a French network element constrained interconnection capacities made available to cross-border trade and led to price discrepancies in the market zones in order to evaluate RTE’s compliance with the IME Regulation. These specific time steps are indeed instrumental to increase cross-border trade. Aside from those time steps, the activation of costly remedial actions in order to reach the 70% requirement would not create any value for the consumers and should thus be avoided. Therefore, CRE deems those time steps compliant.

In this context, CRE initiated a systematic monitoring of the network capacities made available for cross-border trade by RTE. This first implementation report is based on the aforementioned monitoring.

In the first half of 2020, interconnection capacity levels delivered by RTE were high. On average, 85% of the total capacity of the network lines considered relevant for coordinated capacity calculation were made available for cross-border exchanges at the Belgian and German borders (corresponding to the Core/Central-West Europe region), 96% at the Italian border (Italy North region), 90% at the Spanish border (South-West Europe region) and nearly 100% at the British border (Channel region).

CRE also notes that the French network is able to guarantee the 70% requirement for a very large part of the time where it allows for additional cross-border exchanges, as shown in the table below.

	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	First half 2020
Core/Central-West Europe	92%	85%	91%	90%	93%	94%	91%
Italy North	100%	99%	98%	100%	100%	97%	99%
South-West Europe	88%	75%	74%	88%	86%	89%	83%
Channel	100%	100%	100%	100%	100%	100%	100%

Table - Average monthly percentage of time steps during which RTE guaranteed capacity in accordance with the IME Regulation in the four capacity calculation regions of which France is a part

Source: RTE data, CRE analysis

These results highlight that the French network is correctly dimensioned in order to reach the high objective of interconnection capacities available to cross-border trade set in the IME Regulation. In particular, in the first half of 2020, RTE met the commitments made under the derogations granted to it for the current year in the Core/Central-West Europe (20% capacity on all network elements), Italy North and South-West Europe regions (70% on limiting network elements in 70% of the relevant time steps).

In 2020, RTE began to develop validation tools to check the operational feasibility of the 70% capacity levels when they do not result directly from the coordinated regional capacity calculation processes. Other tools to activate costly measures to meet the 70% requirement when relevant are under development and will be deployed in 2021.

After consideration of the high interconnection capacities levels made available for cross-border trade in the Core/Central-West Europe and Italy North regions in the first half of 2020, RTE did not request the renewal of its derogations in these regions. In the South-West Europe region, the derogation will be renewed for one year in order to consolidate the operational experience of coordinated capacity calculation and benefit from the input of the validation tools for costly measures when relevant.



1. CONTEXT OF THE IMPLEMENTATION OF THE 70% REQUIREMENT AT THE FRENCH BORDERS

1.1 The IME Regulation introduced the 70% requirement that must be enforced by national regulatory authorities

The IME Regulation, as revised under the Clean Energy Package adopted in 2019¹, introduced a minimum 70% threshold of the transmission capacity that shall be made available for cross-border trade (“the 70% requirement”). The European legislators set this prescriptive level because they deemed the use of electricity interconnections in Europe insufficient. It aims to increase the share of interconnection capacity market participants can use and thus to contribute to increase cross-border trade.

The 70% threshold is a paradigm shift in the approach to determine the interconnection capacities available for cross-border trade. Indeed, it transforms the capacity calculation process, for which the transmission system operators (“TSOs”) are responsible, by imposing a performance obligation on it.

Given the numerous factors involved in the operation of electricity interconnections, the interpretation of this performance obligation is not trivial. In the coordinated capacity calculation, TSOs need to analyse conditions on a set of network elements. They optimise the margins that can be made available for cross-border trade on these elements by taking into account the impact of expected generation and demand, and by ensuring that the operational limits of network elements are not exceeded.

At the request of the European Commission, the Agency for the Cooperation of Energy Regulators (“ACER”) recommended a method for assessing the level of interconnection capacities actually made available for cross-border trade in Europe². However, the responsibility for ensuring that this minimum threshold is applied by the TSOs lies within the national regulatory authorities. CRE is therefore responsible for ensuring that RTE guarantees interconnection capacities compliant with the IME Regulation at the French borders.

In this context, CRE considers that TSOs must implement all possible measures to increase interconnection capacities when they effectively lead to increased cross-border exchanges and thus create net value for the community. If this principle was not considered, there is a serious risk that increasing interconnection capacities could lead to unnecessary expenses without creating value for cross-border trade.

Consequently, specific attention is being paid to the network elements that can constrain the interconnection capacities for each capacity calculation region (the so-called “limiting network elements”) as well as the time steps during which interconnection capacity is fully used, resulting in price differences within the capacity calculation region.

The results of this monitoring for the first semester of 2020 are presented in section 2.

1.2 CRE granted three derogations to RTE in 2020

The 70% requirement came into force on 1 January 2020. However, the IME Regulation foresees that temporary derogations from this minimum threshold may be granted to TSOs by national regulatory authorities³ or that Member States may decide to launch an action plan to reach the 70% requirement by the end of 2025⁴.

Given the significant and swift changes caused by the introduction of the 70% requirement, CRE granted temporary derogations to RTE within the Core/Central-West Europe, Italy North and South-West Europe capacity calculation regions. These correspond respectively to the Belgian and German borders, the Italian border and the Spanish border⁵.

These derogations, covering the full year 2020, were intended to enable RTE to develop tools for monitoring the level of interconnection capacities and for identifying measures allowing the release of additional interconnection capacities when it is relevant from a technical and economic point of view. They all included minimum capacity thresholds to be made available for cross-border trade:

¹ Article 16(8) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the Internal Market for Electricity (revision), <https://eur-lex.europa.eu/legal-content/FR/TXT/HTML/?uri=CELEX:32019R0943&from=FR>

² ACER recommendation 01/2019 on the implementation of the minimum threshold for interconnection capacity pursuant to article 16(8) of Regulation (EU) 2019/943, https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Recommendations/ACER%20Recommendation%2001-2019.pdf

³ Article 16(9) of the aforementioned Regulation

⁴ Article 15 of the aforementioned Regulation

⁵ CRE deliberation of 12 December 2019 laying down a decision to grant derogations from the minimum capacity thresholds available for exchanges between areas in the Core, Italy North and South-West Europe capacity calculation regions, <https://www.cre.fr/Documents/Deliberations/Decision/derogations-aux-niveaux-minimaux-de-capacite-disponible-pour-les-echanges-entre-zones-dans-les-regions-de-calcul-de-capacite-core-italie-nord-et-e> (renewed on 18 June 2020 for the Core capacity calculation region)

- 20% on all network elements in the Core/Central-West Europe region for each time step, continuing the minimum margin threshold of 20% ("20% minRAM") introduced in spring 2018⁶;
- 70% on the limiting network elements in the Italy North and South-West Europe regions in 70% of the relevant time steps.

2. ASSESSMENT ON THE FRENCH BORDERS FOR THE FIRST HALF OF 2020

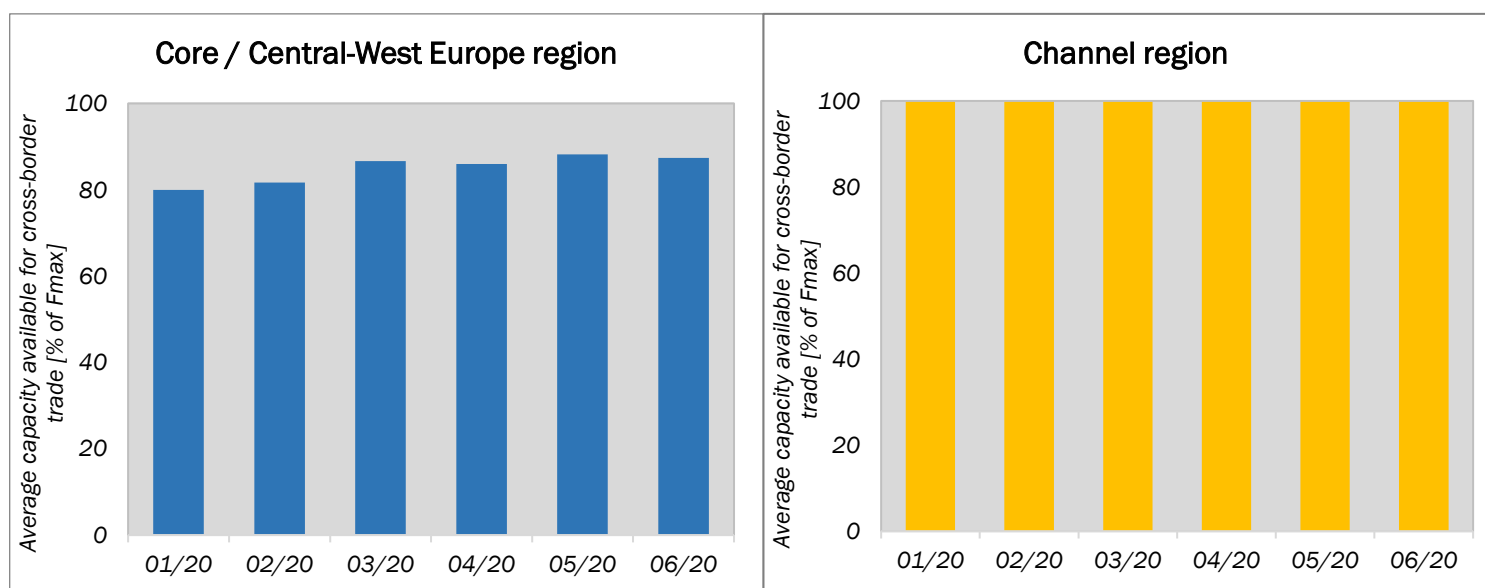
This section describes three analyses carried out by CRE in order to assess the compliance with IME Regulation of the interconnection capacities provided by RTE at the French borders.

Firstly, CRE examined the transmission capacities made available for the coordinated capacity calculation for French network lines within the different regions. CRE then focused on determining the portion of the time steps in which guaranteeing the 70% was relevant from a technical and economic point of view, based on several criteria. Finally, over these relevant time steps, CRE estimated the percentage of time in which the margins provided by RTE exceeded 70% of the network lines' capacity.

2.1 Monitoring of margins on the French network lines considered in the interconnection capacity calculation

Figure 1 displays the monthly average of the capacity available for cross-border exchanges on the French network lines considered in the coordinated capacity calculation for each capacity calculation region of which France is a part. The data corresponds to the margin made available for cross-border exchanges relative to the operational limit of each line (also referred to as the "maximum flow" or "Fmax").

This margin was determined through a process for estimating market flows inside and outside the capacity calculation region⁷. The underlying hypotheses are those used for the operational day-ahead capacity calculation process, taking into account the best estimate of the flows for countries outside the European Union.



⁶ CRE Deliberation of 6 September 2018 approving the methodology for calculating day-ahead capacity in the Central-West Europe region, <https://www.cre.fr/Documents/Deliberations/Approbaton/Methodologie-de-calcul-de-capacite-a-l-echeance-journaliere-dans-la-region-Centre-Ouest-Europe>

⁷ It therefore corresponds to the concept of *Margin Available for Cross-Zonal Trade* ("MACZT"), which is the sum of the *Margin from Coordinated Capacity Calculation* ("MCCC") and the *Margin from Non-coordinated Capacity Calculation* ("MNCC"), defined in ACER Recommendation 01/2019.

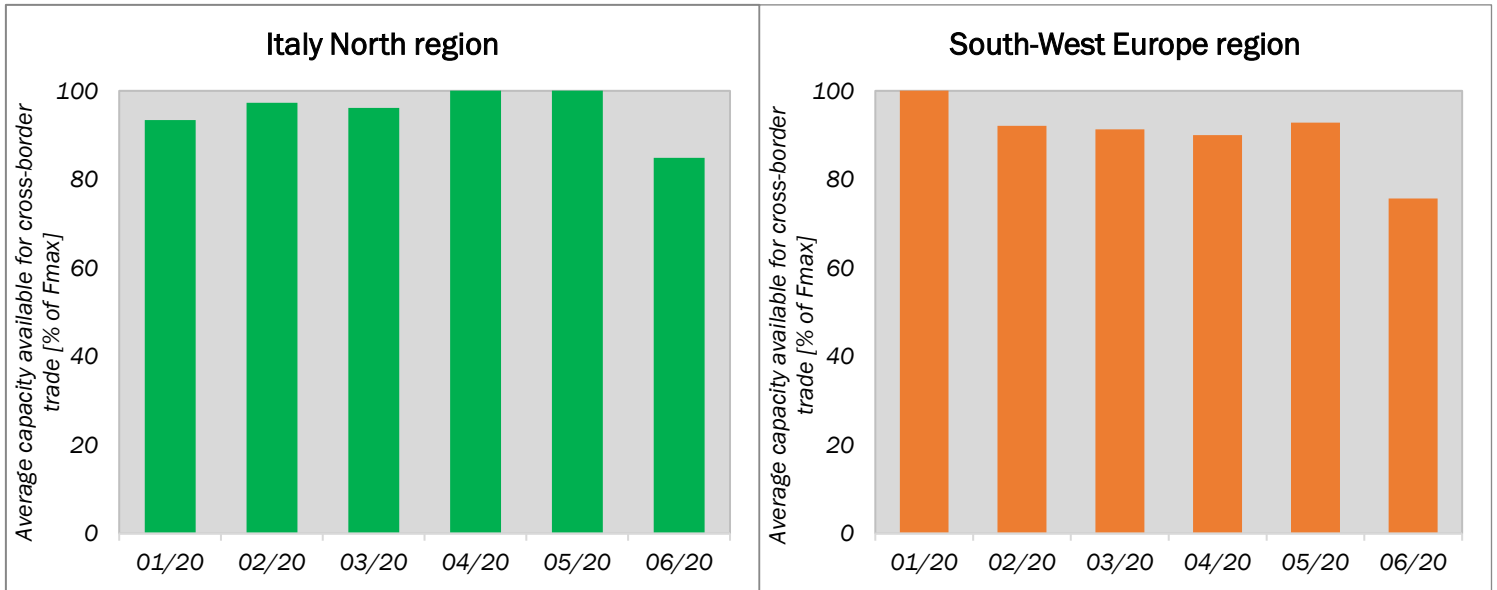


Figure 1 - Average monthly margin levels on the French network lines considered in the calculation of the capacities for the four regions of which France is a part

Source: RTE data, CRE analysis

CRE notes that the average margin levels available for cross-border trade are globally high, with average monthly values exceeding 70% for the first six months of 2020.

In the Channel region, consisting exclusively of HVDC cables, the margin available for cross-border trade is close to 100% of the maximum flow. This is due to the fact that the cables are controllable and are therefore not electrically influenced by the meshed network surrounding them.

In contrast, Core/Central-West Europe, Italy North and South-West Europe regions are connected to France through AC power lines. These lines are sensitive to the influence of various physical flows related to the significant meshing of the European electrical networks, which can make it impossible to provide cross-border exchanges with a margin corresponding to the maximum flow on these lines. In these regions, the margin available for cross-border trade is therefore lower than 100%, but the average capacity made available for the Day-Ahead allocation process remains significantly higher than 70% during the months of study. The French network is therefore sufficiently dimensioned to support high levels of cross-border trade.

Since the TSOs are required to ensure operational security under a wide range of conditions, a significant variability in the capacity levels available for cross-border trade has been observed beyond the average representation. A more complete plot of the statistical distribution of these margins may be found in the Annex to this document. CRE endeavours to follow up on this monitoring by analysing the situations where low margin levels are observed several times on the same network line, in order to identify potential issues and seek elements for improvement with RTE.

2.2 Criteria for determining the share of time steps in which ensuring the 70% is relevant

As introduced in section 1.1, CRE believes that in some network configurations an increase in the capacity available for cross-border exchanges (potentially costly if it requires the activation of remedial actions) would not yield any value for the community and would incur in unnecessary expenses.

Consequently, CRE determined the proportion of time steps in which guaranteeing the 70% was relevant from a technical and economic point of view, by excluding the time steps corresponding to the following criteria:

1. Non-saturated interconnection: in situations where market coupling delivers an optimal allocation where the allocated capacity is lower than the total interconnection capacity made available for cross-border trade, there is no value in further increasing cross-border capacity. This situation is fundamentally equivalent to a price equivalence in the capacity calculation region.
2. No French limiting network elements: non-limiting network elements have no direct influence on the interconnection capacity made available to the market. Although their margin still needs to be optimised by the TSOs, it is not appropriate to implement costly measures with the aim of increasing it to 70%.

3. Non-representative interconnection capacity levels: when errors in the coordinated capacity calculation process provoke the usage of degraded modes by the TSOs, it is not possible to know the precise status of the network lines and, consequently, assess their compliance with the minimum threshold of 70%. However, such occurrences should be kept to a strict minimum and are carefully monitored by CRE and its counterparts at the regional level.

CRE believes that the time steps covered by those three criteria should be considered as compliant with the provisions of the IME Regulation, since it is not possible within these time steps for the concerned TSO to achieve greater value for the community by increasing the capacity available for cross-border exchanges.

Figure 2 categorises the time steps in the first half of 2020 for each capacity calculation region of which France is a part, according to the criteria presented above.

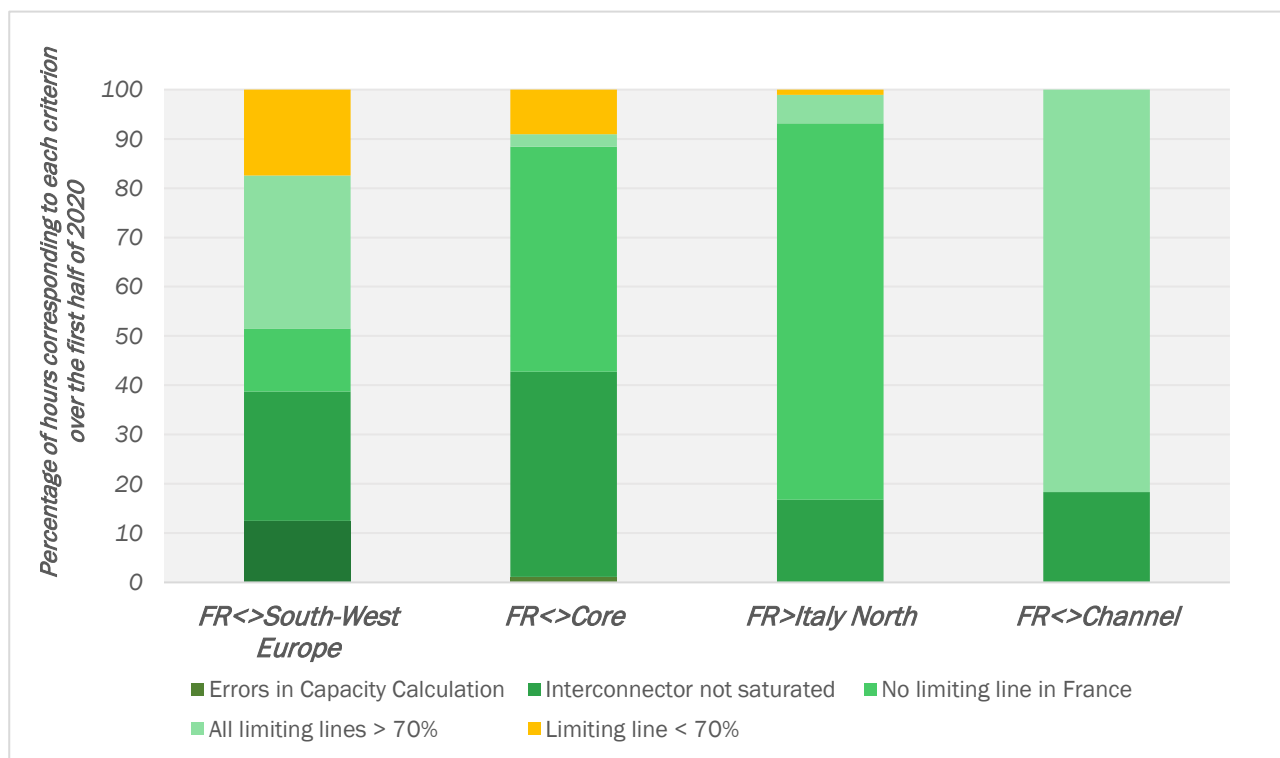


Figure 2 – Categorisation of time steps by criterion in the first half of 2020 in the four capacity calculation regions of which France is a part

Source: RTE data, CRE analysis

Note: In the Italy North region, only Italy's import direction from France is currently calculated in a coordinated way by the TSOs.

Interpretation: At the France-Spain border, approximately 13% of the time steps in the first half of 2020 corresponded to errors in the capacity calculation, 26% to a price convergence situation (unsaturated interconnection) and 13% to a situation where the capacity calculation was not limited by a French network line. These time steps are considered as compliant with the provisions of the IME Regulation. Consequently, CRE believes that RTE meets the 70% criterion in 83% of cases, and that during the remaining 17% of the time, the French limiting network elements provide a margin of less than 70% for cross-border trade. An analogous reading can be applied to the other borders.

The four capacity calculation regions illustrate the diversity of the situations described in section 2.1. The France-Core/Central-West Europe (region considered as a whole because of the flow-based capacity calculation approach) and France-South-West Europe borders frequently display price equivalence situations, confirming that the capacities made available from the coordinated capacity calculation are already sufficient for the cross-border exchanges that market participants want to perform.

Furthermore, in the Core/Central-West Europe and Italy North regions, the network lines of neighbouring TSOs seem to have a greater relative impact on the coordinated capacity calculation, resulting in a very small portion of time steps being limited by French network lines. Consequently, additional measures on RTE's side would not lead to

higher interconnection capacity levels. Notwithstanding, CRE closely cooperates with its regional counterparties with a view to jointly improving capacity calculation processes and collaboration between TSOs, thereby increasing inter-connection capacity levels that can be made available for cross-border trade.

2.3 Percentage of time steps during which RTE has reached the required capacity levels in accordance with the IME Regulation

Table 1 shows the average monthly percentage of hourly time steps during which RTE has reached the required capacity levels in accordance with the IME Regulation, taking into account the criteria presented in the previous section.

	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	First half 2020
Core/Central-West Europe	92%	85%	91%	90%	93%	94%	91%
Italy North	100%	99%	98%	100%	100%	97%	99%
South-West Europe	88%	75%	74%	88%	86%	89%	83%
Channel	100%	100%	100%	100%	100%	100%	100%

Table 1 – Average monthly percentage of time steps during which RTE has reached the required capacity levels in accordance with the IME Regulation in the four capacity calculation regions of which France is a part

Source: RTE data, CRE analysis

The results for the first half of 2020 are highly satisfying in the four regions to which France belongs, thus confirming that the French network is sufficiently well dimensioned to support high levels of cross-border trade.

In the Italy North and Channel regions, more than 98% of the relevant time steps comply with the IME Regulation, while in the Core/Central-West Europe region more than 90% are compliant. The South-West Europe region shows a slightly lower compliance rate, equal to 82% of the time steps⁸. RTE nevertheless complies with the levels of commitment defined in the derogations granted to the TSO in the Core/Central-West Europe, Italy North and South-West Europe regions for 2020.

3. OUTLOOK FOR 2021

RTE's efforts to develop, in 2020, tools to monitor interconnection capacities at the French borders have automated and improved the reliability of technical data. CRE uses this data to assess the compliance of the interconnection capacities made available for cross-border exchanges by RTE, as well as to identify areas for further progress in the optimization of cross-border capacities.

In 2020, RTE also began to implement tools to check whether the 70% capacity levels, when they do not directly result from the capacity calculation process, might cause operational limits to be exceeded on some of the network elements. If this is not the case, the 70% requirement could then be made available on these elements via a coordinated and systematic approach. Tools to activate costly measures to reach the 70% when relevant from a technical and economic point of view are under development and will be deployed in 2021.

Thanks to the aforementioned tools and after consideration of the high levels of interconnection capacity made available for cross-border trade in the Core/Central-West Europe and Italy North regions in the first half of 2020, RTE did not request the renewal of the derogations for 2021 in these regions.

In the South-West Europe region, coordinated capacity calculation is more recent, with less than one year of experience compared to several years in the Core/Central-West Europe and Italy North regions. Consequently, the development of the tools mentioned above (verification of the operational feasibility of 70% capacity levels and activation of costly measures) is still ongoing. This justifies the renewal of RTE's derogation for 2021 in this region, under which RTE committed to a minimum threshold of 70% on the limiting network elements in 80% of the relevant time steps, which is an incremental improvement from RTE's level of commitment for 2020.

⁸ This figure is mainly due to an uncoupling during the months of February and March, which were marked by Storm Gloria's impacts on the network in certain areas of Spain. During these two months, conservative assumptions were made on the capacity calculation to guarantee a secure supply in the most affected areas.

ANNEX

The graphs below represent the distribution of capacity levels on the French network lines considered in the coordinated interconnection capacity calculation (as margins relative to Fmax) for the Core/Central-West Europe, Italy North and South-West Europe capacity calculation regions.

They take the form of "boxplots", which can be read as follows:

- 50% of the values are contained within the box, with the lower and upper ends representing the 25th and 75th percentile of the statistical distribution respectively;
- The orange line corresponds to the median of the values; and
- The lower and upper ends ("the whiskers") correspond respectively to the maximum and minimum of the data for each month.

The values above 100% correspond to situations where network lines are considered to accommodate physical flows in the opposite direction to the market direction, and can therefore reach levels exceeding their maximum capacity.

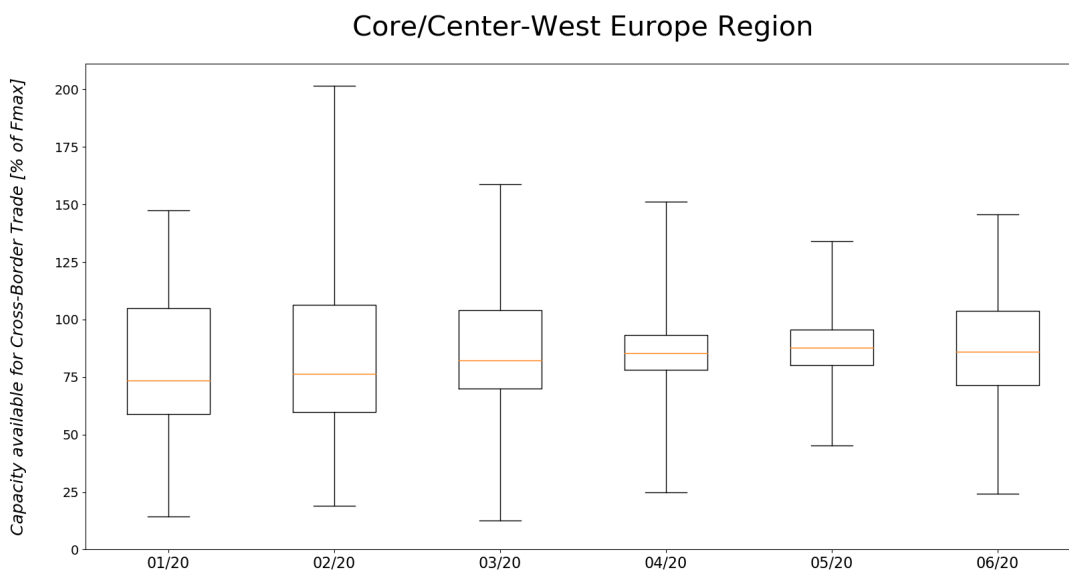


Figure 3 - Distribution of the margin level on the French network lines considered in the calculation of the interconnection capacity in the Core/Central-West Europe region

Source: RTE data, CRE analysis

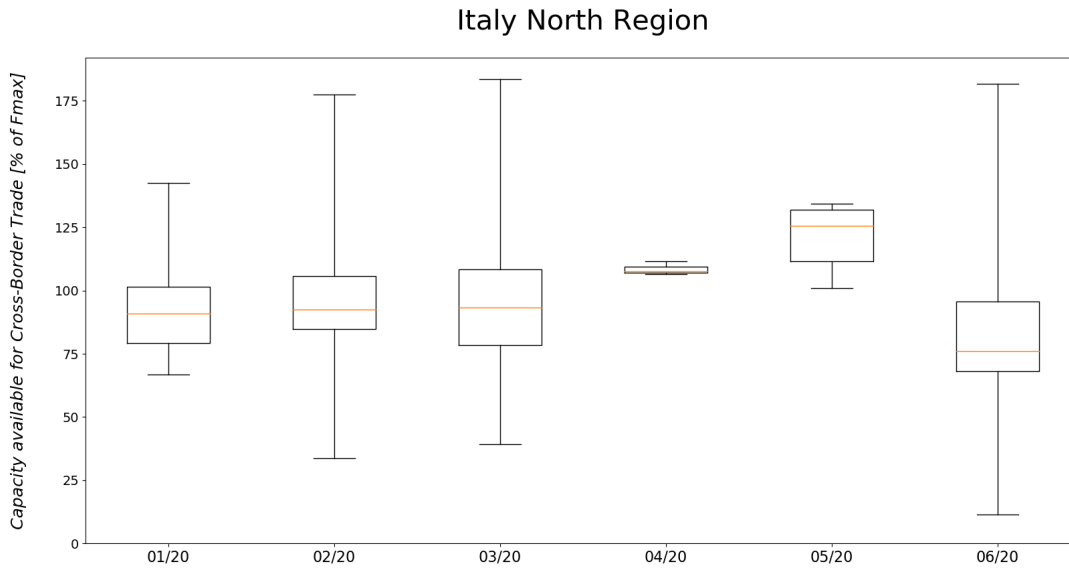


Figure 4 - Distribution of the margin level on the French network lines considered in the calculation of the interconnection capacity in the Italy North region

Source: RTE data, CRE analysis

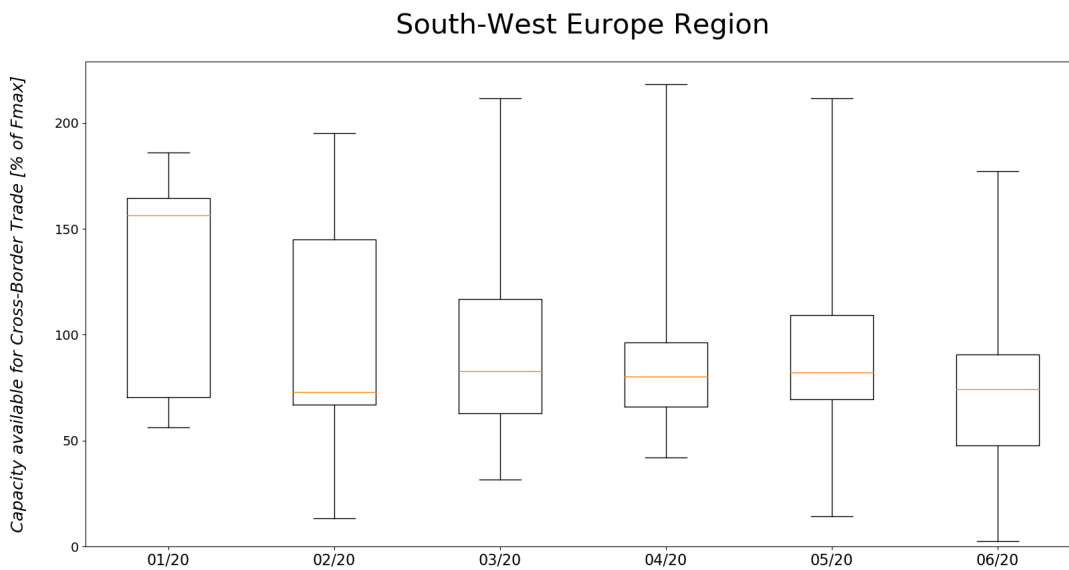


Figure 5 - Distribution of the margin level on the French network lines considered in the calculation of the interconnection capacity in the South-West Europe region

Source: RTE data, CRE analysis