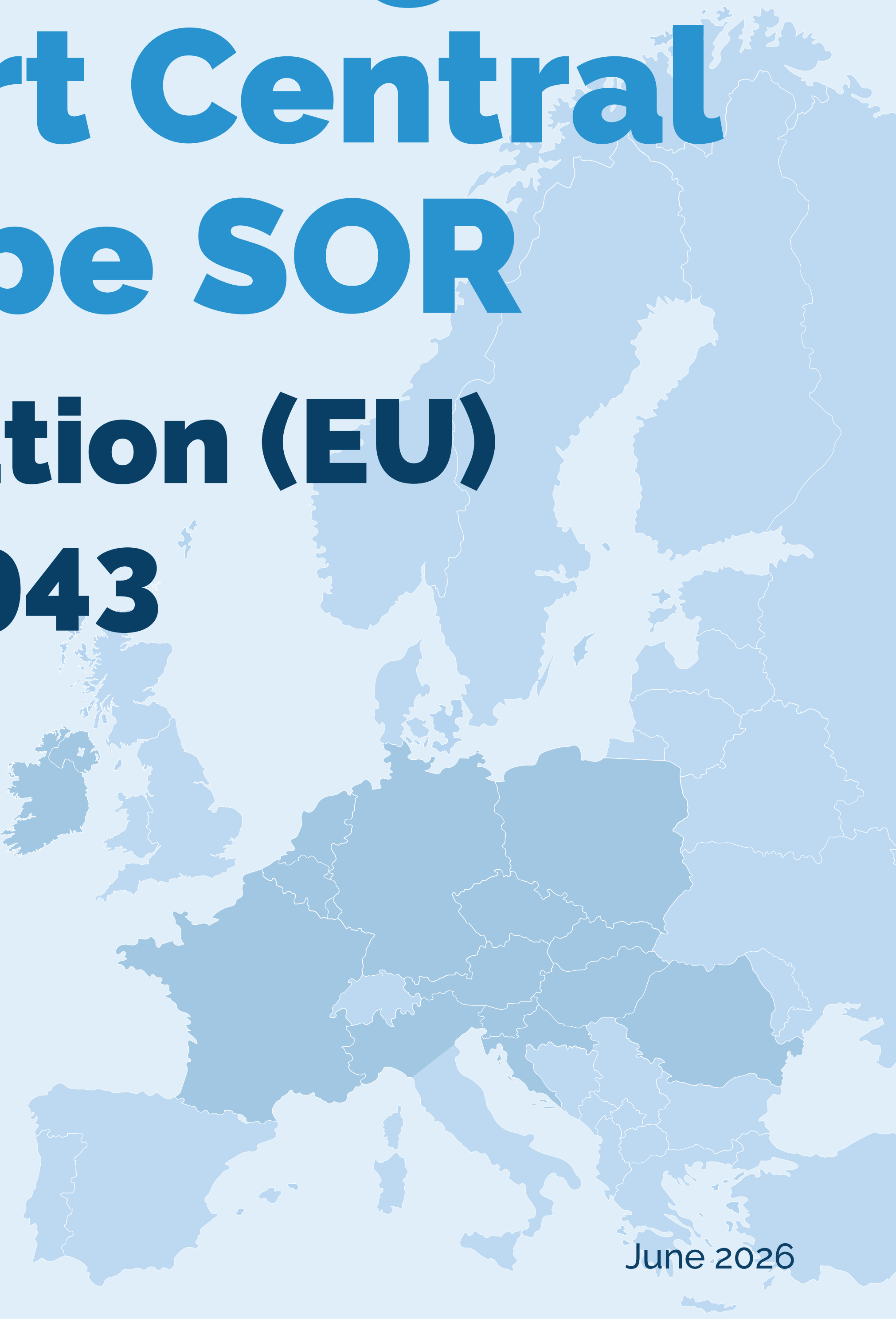
Coreso and TSCNET monitoring report Central Europe SOR

Regulation (EU) 2019/943 Art. 46

Year 2025



June 2026

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List of abbreviations

2D	Two-Days-ahead
ACER	Agency for the Cooperation of Energy Regulators
BD	Business Day
CCC	Coordinated Capacity Calculation
CCCt	Core Capacity Calculation tool
CCM	Capacity Calculation Methodology
CCR	Capacity Calculation Region
CCROSA	Coordinated Cross-Regional Operational Security Assessment
CE	Central Europe
CEP	Clean Energy Package
CGM	Common Grid Model
CGMES	Common Grid Model Exchange Standard
CM	Capacity Market
CorNet	A co-operation programme between Coreso and TSCNET
Core RD&CT CS	Redispatching and Countertrading Cost Sharing in the Core CCR
CROSA	Coordinated Regional Operational Security Assessment
CRM	Capacity Remuneration Mechanism
CSA	Coordinated Security Analysis
CSAm	Coordinated Security Analysis methodology
DA	Day-ahead
DACC	Day-ahead Capacity Calculation
DACF	Day-ahead Congestion Forecast
DC	Direct Current
DFP	Default Flow-Based Parameters

DOPT	Daily Operational Teleconference
ECG	Electricity Coordination Group
EMF	European Merging Function
ENS	Energy Not Supplied
ENTSO-E	European Network of Transmission System Operators for Electricity
ERAA	European Resource Adequacy Assessment
FB	Flow-Based
GCT	Gate Closure Time
ICS	Incident Classification Scale
ID	Intraday
IDCC	Intraday Capacity Calculation
IDCF	Intraday Congestion Forecast
IDOPT	Intraday Operational Teleconference
IGM	Individual Grid Model
IN	Italy North
IOP	Interoperability
IVA	Individual Validation Adjustment
KPI	Key Performance Indicator
LMS	Learning Management Systems
LTA	Long Term Allocated
LTCC	Long Term Capacity Calculation
LOLE	Loss of Load Expectation
MA	Month-ahead
MEC	Maximum Entry Capacity
MTU	Market Time Unit
NC ER	Network Code Emergency Restoration (Commission Regulation (EU) 2017/2196)
NRA	National Regulatory Authority

NRAA	National Resource Adequacy Assessment
NRAO	Non-costly Remedial Action Optimiser
NTC	Net Transfer Capacity
OCR	Outage Coordination Region
OPC	Outage Planning Coordination
OPDE	Operational Planning Data Environment
OPI	Outage Planning Incompatibility
PSE	Polskie Sieci Elektroenergetyczne S.A. (Polish TSO)
PTDF	Power Transfer Distribution Factor
RA	Remedial Action
RAA	Regional Adequacy Assessment
RAM	Remaining Available Margins
RAO	Remedial Action Optimiser
RCC	Regional Coordination Centre
RCOP	Regional Coordination Operational Procedure
RIAR	Regional Incident and Analysis Reporting
ROSC	Regional Operational Security Coordination
ROSCm	Regional Operational Security Coordination methodology
RSC	Regional Security Coordinator
RTE	Réseau de Transport d'Électricité (French TSO)
SDAC	Single Day-ahead Coupling
SO GL	Guideline on Electricity Transmission System Operation Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation
STA	Short-Term Adequacy
SOR	System Operation Region
SWE	South-West Europe
TS	Time Stamp
TSO	Transmission System Operator

TTC	Total Transmissible Capacity
TY	Target Year
TYNDP	Ten-Year Network Development Plan
UAT	User Acceptance Test
UCTE-DEF	Union for Co-ordination of Transmission of Electricity Data Exchange Format
WA	Week-ahead
WG RP	Working Group Risk Preparedness
XNE	Cross Border Relevant Network Element
YA	Year-ahead

1.

Introduction

Coreso and TSCNET have a long operational history in supporting the regional coordination of operational planning for their shareholders, the electricity Transmission System Operators (TSOs) in Europe. Collaboration between TSCNET and Coreso started over a decade ago as a voluntary cooperation of the TSOs. With the progress of the regulatory framework, Coreso and TSCNET were established formally as Regional Security Coordinators (RSCs). RSCs performed services for the TSOs, such as operational planning security analysis, outage planning coordination, coordinated capacity calculation, short-term and very short-term adequacy forecasts, and a common grid model with hourly updates.

In 2022, based on the Clean Energy Package (CEP), the RSCs evolved into **Regional Coordination Centres (RCCs)**. The RCCs shall **complement the role of TSOs** by performing the tasks of regional relevance assigned to them. The TSOs remain responsible for managing electricity flows and ensuring a secure, reliable, and efficient electricity system.

Coreso and TSCNET, the RCCs established in the Central Europe System Operation Region (Central Europe SOR), became regulated entities that will progressively have to meet the additional requirements set out in the European Regulation on the Internal Electricity Market (Regulation (EU) 2019/943). The geographical scope of the Central Europe SOR is visible in Figure 1.

According to Article 46 of the Regulation (EU) 2019/943, the RCCs monitor their own operational performance, coordinated actions issued, effectiveness and efficiency, and submit an annual report based on the outcome of this monitoring. This report, targeting the year 2025, is the fourth annual report prepared by Coreso and TSCNET.

The target audiences according to the legislation of this report are:

- European Network of Transmission System Operators for Electricity (ENTSO-E)
- European Union Agency for the Cooperation of Energy Regulators (ACER)
- National Regulatory Authorities of the Central Europe SOR (Central Europe SOR NRAs)
- Electricity Coordination Group (ECG)
- Other stakeholders as defined by Regulation (EU) 2019/943.

This report is also publicly available on the websites of Coreso and TSCNET. No confidential information is included.

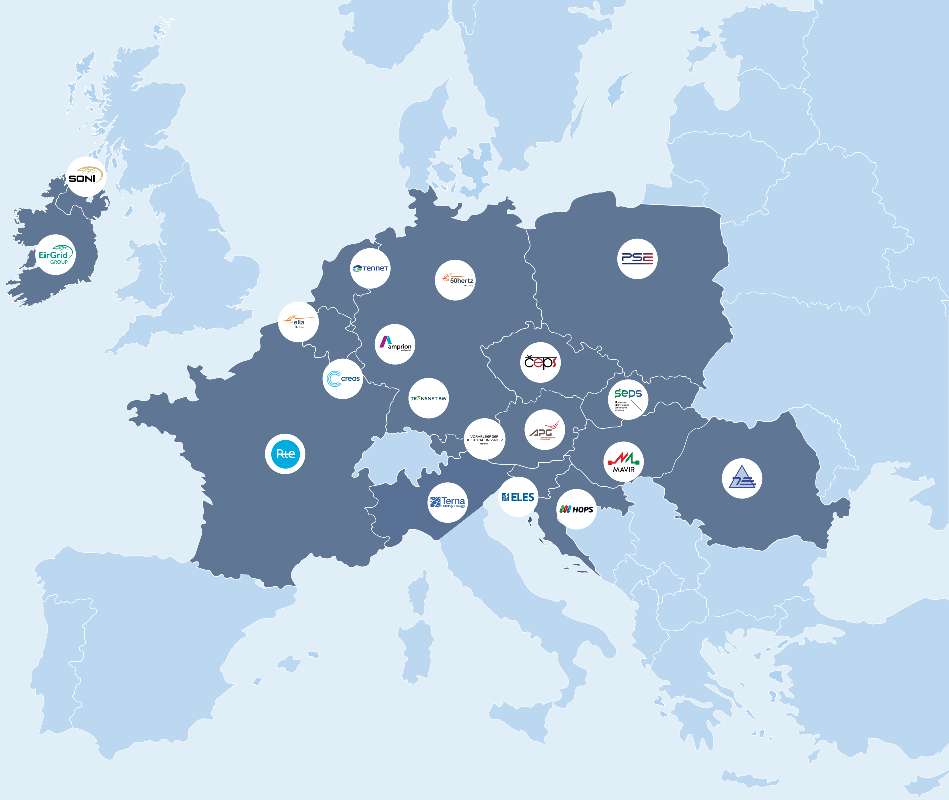


Figure 1: Overview of the Central Europe SOR[1]

[1] EirGrid and SONI participate in the Central Europe SOR, however, their obligations pertaining to the RCCs' tasks shall become effective only upon the start of operation of the Celtic Interconnector.

2.

Regulatory Context

Article 46

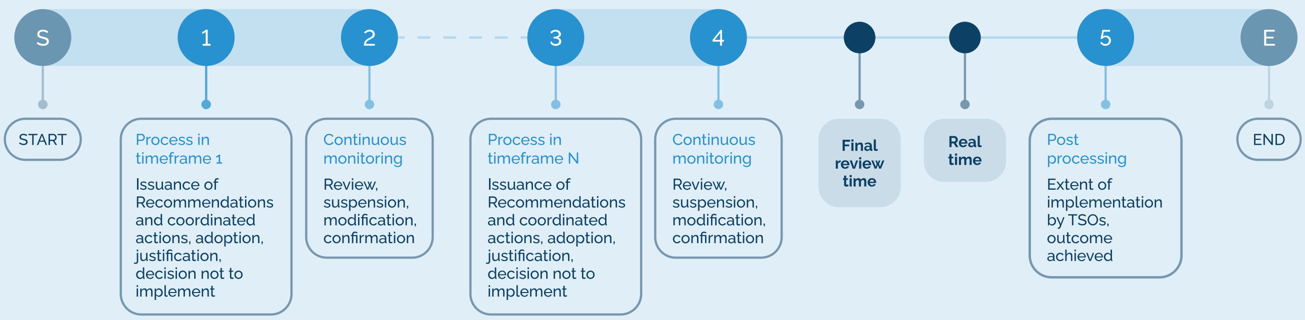
1. *Regional coordination centres shall establish a process for the continuous monitoring of at least:*
   - *(a) their operational performance;*
   - *(b) the coordinated actions and recommendations issued, the extent to which the coordinated actions and recommendations have been implemented by the Transmission System Operators and the outcome achieved;*
   - *(c) the effectiveness and efficiency of each of the tasks for which they are responsible and, where applicable, the rotation of those tasks.*
2. *Regional coordination centres shall account for their costs in a transparent manner and report them to ACER and to the regulatory authorities in the system operation region.*
3. *Regional Coordination Centres shall submit an annual report on the outcome of the monitoring provided for in paragraph 1 and provide information on their performance to ENTSO-E, ACER, the regulatory authorities in the system operation region and the Electricity Coordination Group.*
4. *Regional Coordination Centres shall report any shortcomings that they identify in the monitoring process under paragraph 1 to ENTSO-E, the regulatory authorities in the system operation region, ACER and the other competent authorities of Member States responsible for the prevention and management of crisis situations. Based on that report, the relevant regulatory authorities of the system operation region may propose measures to address the shortcomings to the regional coordination centres.*
5. *Without prejudice to the need to protect security and the confidentiality of commercially sensitive information, Regional Coordination Centres shall make public the reports referred to in paragraphs 3 and 4.*

The present report offers information about the performance of our tasks in line with Regulation (EU) 2019/943 Article 46.1, 3, 4 and 5.

The provisions of Article 46.1.b are based on the business process presented on Figure 2, showing the concepts used in this report.

The provisions of Article 46.2 are not considered in the present report. Coreso and TSCNET have individually submitted their cost report, which is the annual statutory report, to ACER and the NRAs of Central Europe SOR in 2026 in accordance with Belgian and German national regulations.

Figure 2: A high-level business process of the concepts used in this report. The terms used have the meanings defined in Articles 42 and 46 of Regulation (EU) 2019/943



3.

Content of the report

Coreso and TSCNET jointly serve the Central Europe SOR by performing coordination tasks either on a rotational basis or by task repartition. The Regulation (EU) 2019/943 Article 37 describes 16 tasks to be performed by the RCCs. Six tasks originate from Network Codes and Guidelines as RSC responsibilities and are continued in Coreso RCC and TSCNET RCC as part of the transition.

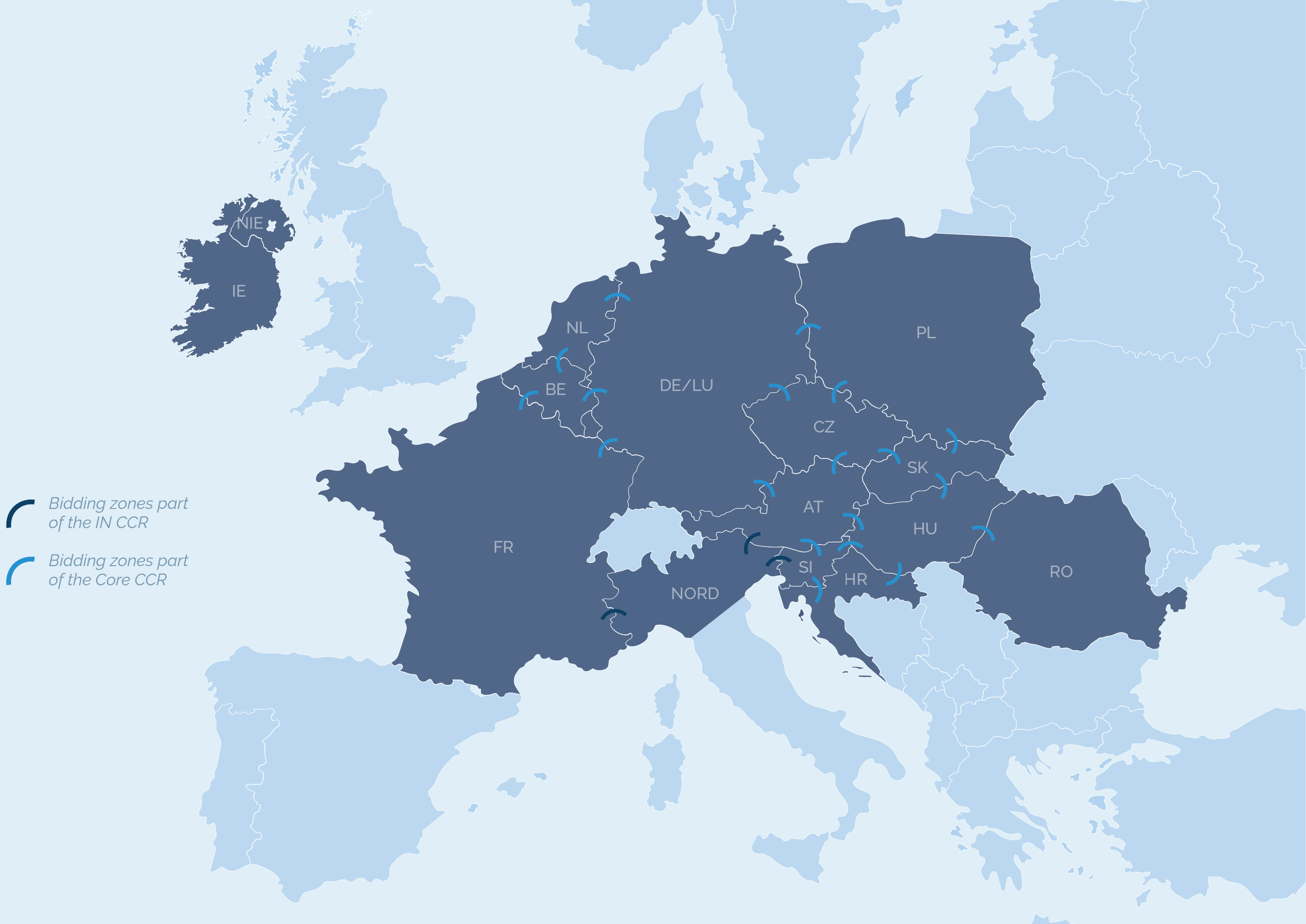


Figure 3: Bidding zones[2] that are part of the Central Europe SOR are indicated in dark blue and the additional bidding zones in light blue make up the pan-EU region[3]

[2] Central SOR RCCs calculate capacities for the Capacity Calculation Regions (CCRs) of Core and Italy North (IN). The CCRs consist of bidding zones' borders.
[3] EirGrid and SONI participate in the Central Europe SOR, however, their obligations pertaining to the RCCs' tasks shall become effective only upon the start of operation of the Celtic Interconnector.

RCCs report on the monitoring of the operational performance and this report covers RCC tasks for the reporting year 2025.

The different tasks are implemented to varying degrees and are still being developed.

ART.37.1	SERVICE/TASK	BP STATUS / EXPECTED GO-LIVE DATE	RCC PERFORMING THE TASK
a	CCC DA CORE	In operation and under further development	Rotation between TSCNET and Coreso
	CCC DA IN	In operation and under further development	Rotation between TSCNET and Coreso
	CCC ID Core	In operation and under further development	Rotation between TSCNET and Coreso
	CCC ID IN	In operation and under further development	Rotation between TSCNET and Coreso
	CCC LT Core	Under development / Go-live: Q4 2026	Rotation between TSCNET and Coreso
	CCC LT IN	In operation	Rotation between TSCNET and Coreso
b	CSA CE[4]	Under development / Go-live Common CSA process (Product A): 2029	Rotation between TSCNET and Coreso
c	CGM	In operation and under further development	Rotation between TSCNET, Coreso, SCC, Baltic RCC and SEleNe CC
d	Defence and restoration plans	In operation / Exercise every 5 years - Next exercise in 2029-2030	Each RCC drafts individual report related to their shareholders and ENTSO-E publish merged report
Not inc.	STA pan-EU	In operation and under further development	Rotation between Coreso, Baltic RCC, Nordic RCC, SEleNe CC and SCC
e	STA Regional	In operation and under further development	TSCNET and Coreso perform the task for their shareholders[5]
Not inc.	OPC pan-EU	In operation and under further development	Rotation between TSCNET, Baltic RCC, Nordic RCC, SEleNe CC and SCC
f	OPC Regional	In operation[6] and under further development	TSCNET and Coreso perform the task for their shareholders[7]
g	Training and certification of staff	In operation and under further development / Go-live certification: Q2 2026	Each RCC provides training to their operators
h	Regional restoration	Not yet started / Go-live: Awaiting methodology approval	TBD
i	Post-operation and post-disturbances analysis and reporting	In operation	ENTSO-E requests involvement of specific RCCs depending on the geographical area of the incident
j	Regional Sizing of Reserve Capacity	Under development / Go-live sub-task 1.1: Q3 2026 Go-live sub-task 1.2: Q4 2027	Rotation between TSCNET and Coreso
k	Facilitating the Regional Procurement of Balancing Capacity	Under development / Go-live sub-task 2.1: Q2 2027 Go-live sub-task 2.2: N/A	Rotation between TSCNET and Coreso
l	Settlements	Cost sharing calculation: Under development / Go-live: latest 1 year after CROSA go-live	Rotation between TSCNET and Coreso
m	Crisis scenarios	In operation / Exercise every 4 years – Next exercise in 2028-2029	All RCCs support ENTSO-E as a part of the WG RP
n	Seasonal adequacy assessments	Not requested by the TSOs / Go-live: -	N/A
o	MEC	In operation	TSCNET and Coreso perform the task for their shareholders
p	Support TYNDP	Not yet started / Go-live: Awaiting methodology approval	TBD

Table 1: Status overview of the RCC tasks in Central Europe SOR

[4] Legacy Security Assessment is currently in operation at Coreso and TSCNET for their shareholders. The expected go-live dates are referring to the future ROSC and cost sharing.

[5] Regional STA task is split between Coreso and TSCNET. TSCNET performs the task for TSCNET shareholders, while Coreso performs the task for Coreso shareholders.

[6] This refers to the legacy process. Regional Coordination Operational Procedure for OPC task is currently being developed.

[7] Regional OPC task is split between Coreso and TSCNET. TSCNET performs the task for TSCNET shareholders, while Coreso performs the task for Coreso shareholders.

STATUS	DEFINITION
In operation	The task is developed and implemented in line with the legal basis. There are no further functionalities to be added. The status includes recurrent tasks and tasks on demand.
In operation and under further development	The task is developed and implanted in a step wise implementation. Therefore, further developments are still ongoing.
Under development	The methodology is approved, and the development and implementation of the tasks are ongoing.
Not yet started	The methodology or proposal is under drafting or has been submitted but not yet approved by the NRAs or ACER.
Not requested by the TSOs	The RCCs are not required to provide the business process either because ENTSO-E/TSOs did not delegate the task, or the task is not involved in the rotational basis of a specific business process.

Table 2: Different statuses in task implementation process with descriptions

As not all tasks are implemented, monitoring is only possible for those tasks that are already live, either fully or partially. This operational report therefore analyses the following tasks that were in operation in 2025:

- Coordinated Capacity Calculation (CCC)
- Common Grid Model (CGM)
- Short-Term Adequacy (STA)
- Outage Planning Coordination (OPC)
- Training and certification of staff
- Post-operation and post-disturbance analysis and reporting (commonly known as Regional Incident Analysis and Reporting - RIAR)
- Maximum Entry Capacity (MEC).

Each task is first described followed by the outcome of the monitoring and identified shortcomings. The outcome of the monitoring follows the obligations in Article 46.1 on (a) operational performance, (b) issuance and implementation of coor-dinated actions/recommendations, and (c) effectiveness and efficiency. The identified shortcomings follow the obligations in Article 46.4.

The “Defence and Restoration Plans” and “Crisis Scenarios” tasks are in operation but triggered only every 4 and 5 years. Since both were last performed in 2024 and were not triggered in 2025, no KPIs are reported for this year.

4.

CCC - Core CCR

The Day-ahead and Intraday Capacity Calculation (DACC and IDCC) processes within Core CCR areas are overseen by Coreso and TSCNET on a rotational basis. Day-ahead Capacity Calculation is live since 8 June 2022. The CCC task within the Day-ahead time-frame is provided in the Core region as described in the latest version of the methodology approved by Core NRAs on 1 July 2024. For the Intraday time-frame, the CCC task is provided in the Core region as described in the latest version of the methodology approved by Core NRAs on 14 March 2024.

The DACC and the IDCC processes are under continuous monitoring by Coreso and TSCNET operators, who track and report incidents in real time. Additionally, computation files are stored in the Core Capacity Calculation tool (CCCt) database, allowing to perform post-operational analysis and compute historical KPIs. Within the Core IDCC process, different timeframes are evaluated individually, and results are provided for each timeframe. A key distinction exists between IDCC(a) and IDCC(b–e): IDCC(a) updates the cross-zonal capacities remaining after the SDAC without performing a flow-based re-computation, whereas IDCC(b–e) involve a flow-based calculation of intraday capacities.

The main differences between these processes lie in the input grid model, the MTUs covered by the computation, and the timing of capacity delivery to the market platform. In this report, KPI values are presented for IDCC(a), IDCC(b), and IDCC(c), as the other IDCC processes were not yet in operation during the reporting period.

Both for the Day-ahead (DA) and Intraday (ID) time-frames, the method used to calculate cross-zonal capacities is the flow-based (FB) approach. This approach determines the available energy capacity that can be exchanged between Core bidding zones based on power transfer distribution factors (PTDF) and the remaining available margins (RAMs) of critical network elements. PTDF values indicate how changes in the net position (imports or exports) of each bidding zone affects the power flow on critical network elements.

To meet the requirements outlined in the CEP, specifically the "70% requirement," capacities shall be increased when necessary. These increased capacities ensure that a minimum percentage of maximum cross-zonal capacities is available for trading assuming that remedial actions are available for mitigating eventual security violations. This percentage varies among TSOs, and it is aligned with derogations or action plans targeting for the implementation of the 70% rule from CEP. Subsequently, the market coupling algorithm seeks to optimize energy exchanges within the Single Day-ahead Coupling (SDAC) process.

Process Name	Used Grid Model	Hours Covered	Provision of capacities to the market	Subsequent allocation process
IDCC (a)	D2CF	00-24	D-1 15:00	IDA1 + Continuous trade
IDCC (b)	DACF	00-24	D-1 22:00	IDA2 + Continuous trade
IDCC (c)	IDCF	06-24	D 04:30	Continuous trade
IDCC (d)	IDCF	12-24	D 10:00	IDA3 + Continuous trade

Table 3: Core IDCC process details

4.1 Operational Performance

The Operational performance KPI for DACC and IDCC processes within Core CCR focuses on successful computation of the final cross-border capacities and delivering the results to participating TSOs within the agreed delivery deadlines. To display the operational performance of the process, the total number of timestamps successfully delivered (even if fallback procedures are applied), are divided by the total number of possible timestamps for the reporting period.

The two tables below show the operational KPI value of the process as defined above, for the reporting period (year 2025), for DACC and IDCC, respectively.

Operational performance KPI	DACC
Successful execution (total number of successfully computed and delivered final cross-border capacities)	100%

Table 4: Core CCR DACC Operational performance KPI for cross-border capacities execution

This KPI shows that in 2025, for the 98,63% of the total number of timestamps (TSs) in IDCC(b) process and 99,47% of the total number of timestamps in IDCC(c) after go-live in 2025 the cross-border capacities have been sent to Cross-Border Intraday platform. Due to technical issues in communication or file deliveries which are used in the process, capacities couldn't be provided for the rest of the TSs. These technical issues have been tracked and most of them have already been resolved.

A detailed description of the TS with fallback applied can be found in the JAO website under the Monthly Report section (link).

Operational performance KPI	IDCC(a)	IDCC(b)	IDCC(c)
Successful execution (total number of successfully computed and delivered final cross-border capacities)	100%	98,63%	99,47%

Table 5: Core CCR IDCC Operational performance KPI for cross-border capacities execution

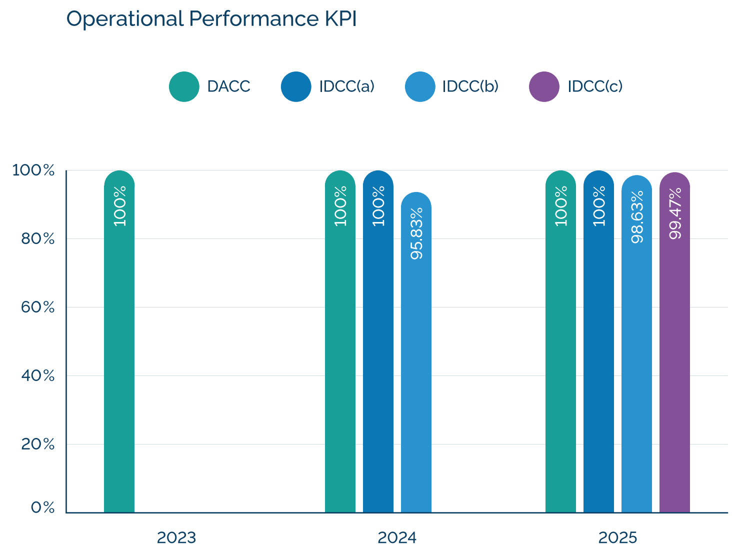


Figure 4: Evolution of Core CCC Operational performance KPI for DA and ID time-frames[8]

4.2 Coordinated actions and recommendations

There were no coordinated actions or recommendations issued in the Core region.

Coreso and TSCNET will report on coordinated actions and recommendations once the confirmation procedure is - as per Article 13 para. 2 "RCC Establishment Provisions" - implemented. The implementation of the coordinated validation will be done according to an implementation plan which is described in Article 20(4) of the 3rd amendment of the Capacity Calculation Methodology (CCM) DA for Core.

[8] *The Operational Performance KPI, as currently defined, has been monitored for DACC since 2023; therefore, 2022 is not included in the comparison. The IDCC(a) and IDCC(b) processes began in 2024 and the IDCC(c) process started in 2025, so data from previous years is not applicable for these.*

4.3 Effectiveness and efficiency

In contrast to Operational Performance KPI, which evaluates the overall number of timestamps where capacity results were delivered, the following KPIs focus on the quality of the delivered results. In this way, not only the availability of results is studied, but also the effectiveness and efficiency of the process to deliver results according to the defined methodology.

Firstly, the Effectiveness KPI analyses if any fallback procedure was applied in the calculation process in order to deliver the capacity results. Two fallback procedures are considered for DACC: Spanning and Default Flow-Based Parameters (DFP). For IDCC, DA domain AAC fallback and Zero capacity fallback are considered for IDCC(b). In addition to these fallback procedures, also IDCC(b) domain AAC fallback procedure is considered for IDCC(c).

On the other hand, the Efficiency KPI focuses on the amount of business days (BDs) for which the capacity results were delivered before the target end time.

4.3.1 Effectiveness

This section contains an overview of results related to the KPI monitoring of the capacity calculation process in Core CCR. The tables below show the operational KPI values from 1 January until 31 December 2025 for DACC and IDCC(a-b) processes. For IDCC(c), from go-live date which is 25 June 2025 until 31 December 2025. Tables below are displaying the percentage of timestamps for which the CCCt successfully performed the computation of the final cross-border capacities and delivered the computed capacities per border to all the participating TSOs within the agreed delivery deadlines without any fallback procedure divided by the total number of possible timestamps for the reporting period (hereinafter referred to as "Total Computation Rate").

4.3.1.1 DACC Effectiveness KPI

The total computation rate indicates successful computation of CCCt without any fallback procedure per year based on each timestamp.

Effectiveness KPI	DACC
Total computation rate (total number of timestamps where the final cross-border capacities were delivered without any fallback procedures applied, neither DFP nor spanning)	99,73%

Table 6: Core CCR DACC Effectiveness KPI

In the Core capacity calculation process, fallback scenarios are applied when the process is not able to deliver capacity values for the market in time. Applying fallbacks is part of the agreed business process.

The 2 types of fallback procedures in the Core DACC process, as described in the Article 22 of the DA CCM for Core:

- Spanning: the spanning calculation for the failed timestamp(s) is based on the intersection of previous and subsequent available flow-based domains. Spanning can only be applied for a maximum of 2 consecutive hours, and not for the last hour of the day.
- Default Flow-Based Parameters (DFP): the capacity values for the missing timestamp(s) are replaced with a default value for which the basis is the Long Term Allocated (LTA) capacity.

The general KPI above considers both fallback procedures combined, but in the table below the individual values for DFP and Spanning can be seen:

Fallback procedure	Yearly incidents (TS)
Spanning	0
DFP	24

Table 7: Fallback values on yearly basis for DACC

A detailed description of the TS with fallback applied can be found in the Core DA CC Annual Report – Annex 2, and in JAO website under the Monthly Report section (link).

4.3.1.2 IDCC Effectiveness KPI

The total computation rate indicates successful computation of CCCt without any fallback procedure per year based on each timestamp.

Effectiveness KPI	IDCC(a)	IDCC(b)	IDCC(c)
Total computation rate (total number of timestamps where the final cross-border capacities were delivered without any fallback procedures applied)	100%	96,94%	98,13%

Table 8: Core CCR IDCC Effectiveness KPI

In the Core capacity calculation process, fallback scenario is applied when the process is not able to deliver capacity values for the market in time. Applying fallbacks is part of the agreed business process. According to the Article 19 of the ID CCM, When the Intraday capacity calculation for specific ID CC MTUs does not lead to the final flow-based parameters, the Core TSOs and the CCC shall define the missing parameters by calculating the default flow-based parameters. The calculation of default flow-based parameters shall be based on previously calculated flow-based parameters for the same delivery market time unit.

The general KPI above considers all fallback domains for fallback procedure combined, but in the table below the individual values can be seen:

Fallback procedure	Yearly incidents (TS) for IDCC(a)	Yearly incidents (TS) for IDCC(b)	Yearly incidents (TS) for IDCC(c)
IDCC(b) domain fallback	0	0	46
DA domain fallback	0	148	0
Zero capacity fallback	0	0	0

Table 9: Fallback values on yearly basis for IDCC

A detailed description of the TS with fallback applied can be found in the JAO website under the Monthly Report section (link).

Effectiveness KPI

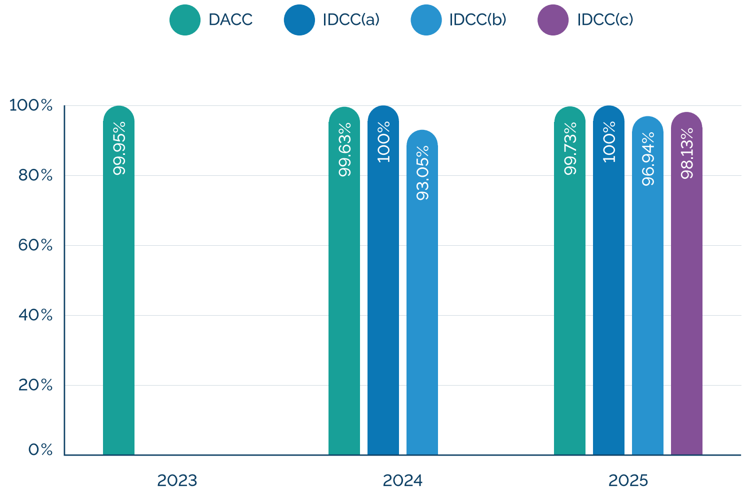


Figure 5: Evolution of Core CCC Effectiveness KPI for DA and ID time-frames[9]

4.3.2 Efficiency

For the CC processes within Core CCR, the efficiency KPI focuses on the efficiency of the process by analysing the amount of business days (BDs) for which the capacity results were delivered before the target end time.

In Core CC processes, there are two different end-time definitions for each step of the process:

- Target end time: Time limit to finish the process step and deliver the required documents, in a well-functioning situation. Any capacity calculation participant can deliver files at any time within the target end time with no further consideration.
- Critical end time: Additional time to mitigate unexpected situations that can be handled quickly. The process does not wait until critical end time, if it is not needed, and proceeds to the following step as soon as the blocking issue is solved. In this time window, the CCCt logic may unexpectedly close the gate for input files upload or update, if the process can already proceed to the following step without those files.

After critical end time, the process continues regardless of the missing input files, applying fallback solutions if needed.

This KPI considers the timings defined for the pre-coupling capacity calculation process as defined in the CCCt and the CC methodologies. These timings may differ from the market parties' internal process timings.

Efficiency KPI	DACC	IDCC(a)	IDCC(b)	IDCC(c)
Percentage of BD for which the Capacity results were delivered before target end time	96,74%	98,90%	96,99%	99,47%

Table 10: Core CCR Efficiency KPI

For the 96,74% of BDs for DACC, the 98,90% of the BDs for IDCC(a), the 96,99% of the BDs for IDCC(b) and 99,47% of BDs for IDCC(b), capacity results were delivered before target end time. Delays occurring in earlier stages of the relevant CC processes, or in any step of the preceding processes, have led to the capacity results being delivered later than target end time for the failed BDs according to this KPI.

Efficiency KPI

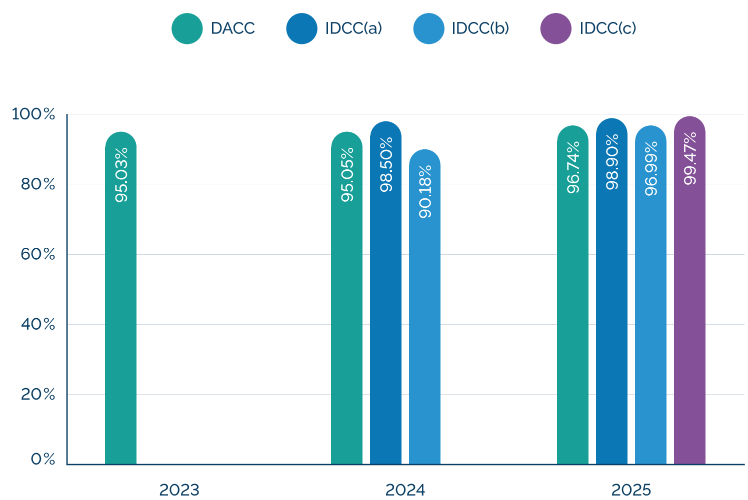


Figure 6: Evolution of Core CCC Efficiency KPI for DA and ID time-frames[10]

4.4 Shortcomings

There were no shortcomings identified for the reported period.

[9] *The Effectiveness KPI, as currently defined, has been monitored for DACC since 2023; therefore, 2022 is excluded from the comparison. The IDCC(a) and IDCC(b) processes began in 2024 and the IDCC(c) process started in 2025, so data from previous years is not applicable for these.*

[10] *The Efficiency KPI, as currently defined, has been monitored for DACC since 2023; therefore, 2022 is excluded from the comparison. The IDCC(a) and IDCC(b) processes began in 2024 and the IDCC(c) process started in 2025, so data from previous years is not applicable for these.*

5.

CCC - Italy North CCR

The Coordinated Capacity Calculation (CCC) process for Italy North (IN) CCR is jointly performed by Coreso and TSCNET. The process for IN CCR also includes the Swiss TSO, Swissgrid. The process to determine the cross-border capacities for both the DA and ID time-frames is based on the coordinated Net Transfer Capacity (NTC) methodology, while the Long Term Capacity Calculation (LTCC) time-frame capacities is computed following a statistical approach, based on historical cross-zonal capacity for Day-ahead or Intraday time-frames calculated in a coordinated manner within the CCR. The LTCC consists of the Month-ahead (MA) and the Year-ahead (YA) process.

According to the DA and ID methodologies approved by IN NRAs, import and export scenarios of NTC allocation for each border within the CCR are to be computed as the outcome of the CCC process. For the IDCC process, the full import scenario was upgraded in accordance with the IN CCM to consider capacities in the export direction with the go-live of the Export Corner computation on 29 November 2023. The Export Corner computation for the DACC process went live on 19 June 2024. To be compliant with the "70% requirement" described in the Clean Energy Package, capacities can be increased in the limit of redispatch potential to ensure that a minimum capacity of 70% of the max cross-zonal capacity is made available for trading.

Article 37.1(a) of Regulation (EU) 2019/943 was amended in 2024, requiring coordinated capacity calculation to be performed for all allocation time-frames. As a result, the responsibilities of the RCCs have been extended to include long-term time-frames.

5.1 Operational Performance

The operational performance KPI is defined as the total number of timestamps RCCs successfully computed the final cross-border capacities and delivered them to the participating TSOs within the agreed delivery deadlines, divided by the total number of possible timestamps for the reporting period (even if fallback procedure had to be applied).

Both Coreso and TSCNET are responsible for the IDCC process from the total transmissible capacity (TTC) calculation to the NTC calculation and delivery. The IDCC process consists of calculation for 4 timestamps (TS) at each business day but calculation of NTCs is performed for 12TS[11] due to an interpolation process, resulting in a total amount of 4392TS for the entire 2025 reporting period. The performance KPI for IDCC represents the percentage of TS where RCCs were able to deliver the NTC calculation results, within expected fallbacks.

The DACC operational performance represents the capacity of RCCs to deliver NTCs, including in fallback scenarios. It must be noted that as of BD 12/06/2025, TSCNET has joined the NTC delivery process. Both RCCs are responsible for the tool on a rotational basis and act as backup of each other, benefiting the process performance. As for 2025, the NTCs were delivered to TSOs in 100% of the timestamps.

Both Coreso and TSCNET are responsible on a Main/Backup RCC rotational basis for the operation of the tool used for the LTCC computation process. The responsibility of rotation for the MA process is done monthly, with TSCNET responsible for the even months, while Coreso is responsible for the odd months. The YA process responsibility rotates on a yearly basis, with Coreso acting as the main RCC for the 2025 YA computation covering the calendar year 2026.

The table below demonstrates that for the IDCC process, both RCCs were able to successfully deliver NTC or to apply fallbacks in 100% of timestamps, which implies that for all business days across the year 2025 operations, no backup NTC values were used by the TSOs, due to failure of the tool to deliver capacities to the TSOs. Such failure could occur when a mandatory input file for the process is missing, or due to an IT-related issue that impacts either the RCC or one of the TSOs. For the Italy North IDCC process, RCCs in collaboration with the TSOs have implemented an automated fallback input file replacement strategy for some TSO's input files, in order to ensure the successful computation of capacity if any of the TSO's input files are missing or are not delivered before the defined delivery deadline.

[11] With the go-live of the 15mins MTU in IN CCR, the final NTC result delivered to the market is adjusted to consist of 48 TS, for IDCC and 96 TS for D2CC starting from 22 January 2025. The calculated NTC for each MTU is duplicated across each quarter.

For the DACC process, RCCs achieved 100% KPI result, which implies that no additional fallback procedures according to methodology had to be applied by Terna.

Performance KPI	DACC	IDCC	LTCC_MA	LTCC_YA
Total number of successfully delivered TS (including TS where fallback procedures had to be applied)	100%	100%	100%	100%

Table 11: Italy North CCR Operational Performance KPI for DA, ID and LT time-frames

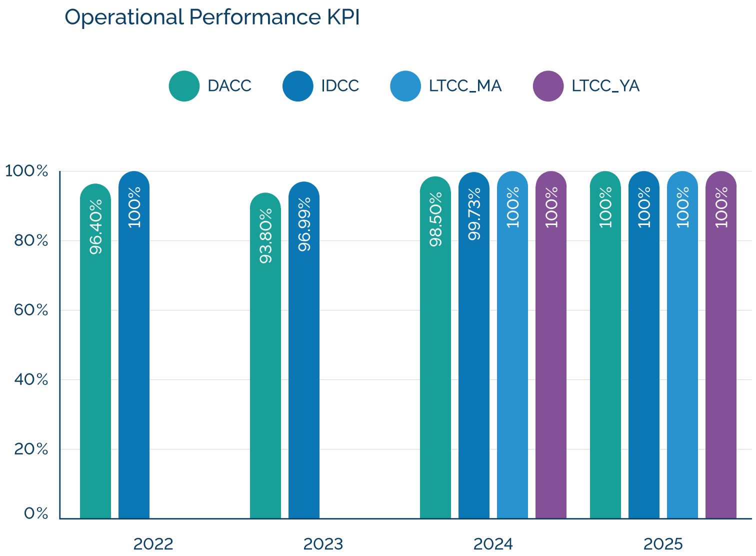


Figure 7: Evolution of the IN CCC Performance KPI

5.2 Coordinated actions and recommendations

A Coordinated Action for CC has been defined as a measure for reducing cross-zonal capacities that may be issued by RCCs to TSOs when minimum capacity requirements cannot be secured.

Not providing minimum capacity requirements in case of insufficient available RAs is currently required by the methodologies and hence implemented in the operational processes. Therefore, it is correct to state that the final objective of Coor-dinated Actions is already fulfilled in the IN CCR. However, there are currently no explicit Coordinated Actions issued by RCCs as the existing operational process and methodology do not require this. Potentially, this missing feature of coordi-nated actions will be implemented once IN CCR is merged with the Core CCR, and the Coordinated validation process will be applied by all TSOs of the IN CCR.

Additionally, no recommendations were issued for the reported period.

5.3 Effectiveness and efficiency

The Effectiveness KPI is defined as the ratio of the total number of timestamps for which the RCCs' CCC tools successfully performed the computation of the final cross-border capacities and delivered the computed capacities per border to all the participating TSOs within the agreed delivery deadlines, to the total number of possible timestamps for the reporting period (without applying of any fallback procedure).

For the effectiveness of KPI calculation, we use the timestamps when no fallback or backup procedures had to be applied as the CCC tools performed the computation effectively. The fallbacks include cases where the TTC calculation could not be performed or delivered because of missing/invalid TSO inputs or failure of RCC tools. Coreso only performs the DA TTC Calculation.

The Efficiency KPI is defined as the ratio of the total number of timestamps for which the TSOs used the computed TTC by the RCC without reduction to the total number of computed timestamps in the reporting period. The capacity reduction process could be triggered by any of the TSOs during the local validation step of the process; either as a bilateral reduction at a given border or as a global capacity reduction for the entire CCR. The local validation step occurs after the adjustment for minimum margins and the Low TTC threshold application and so the TTCs without reduction are also including TTCs fixed by those 2 process steps. For the LTCC process, the local validation step is performed on a bilateral basis between each of the relevant TSOs and Terna. A bilateral reduction with corresponding reason for reduction is indicated and agreed between the two TSOs in a coordinated approach for each of the borders.

The DACC robustness is represented by 84,30% in effectiveness, meaning that in 15,70% of the cases Coreso could not provide any computed results. For the DACC process, 3,90% of the fallback procedures triggered were due to missing or invalid inputs from the TSOs, and 9,40% were due to IT issues on RCC's tools side. The remaining corresponds to TS (2,40%) where No Secure TTC could be computed or a divergence in modelling was encountered, which are dependent on grid situations.

The combined effectiveness rate of 93,03% for 2025 in the IDCC between TSCNET and Coreso implies that for the 6,97% of TS, fallback or backup procedures were necessary to ensure that coordinated capacities were delivered successfully to the TSOs. For the reporting period, 2% of the fallback/backup procedures triggered within the IDCC process were due to missing or invalid inputs from the TSOs and 4,97% of the fallback procedures triggered were either due to IT issues on RCC's or TSO's tools and cases where no secure TTC was found due to grid constraints.

For the Day-ahead computation, we observe that in 80,70% of TSs, the validation phase was used by TSOs to reduce the TTC calculated. The initial computed capacity was directly used in only 8,60% of cases, while other mechanisms such as Low TTC (minimum applied when comparing TTC planned and TTC calculated), adjustment for minimum margins, smoothing ramps were determinant in the rest of the cases.

The combined efficiency rate of 44,84% for 2025 in the IDCC, between TSCNET and Coreso, implies that for 55,16% of the reported period, at least one of the TSOs requested for a capacity reduction of the initially computed capacity for the region, either bilaterally between a relevant border or for the entire region, due to a relevant security issue on their local grid from the initial computed value.

By comparing effectiveness results from previous years, we observe a significant improvement in the IDCC process - from approximately 50% in 2022 to over 90% in 2025. Regarding the efficiency results from 2022 to 2025, we observe a decrease in 2025 in DACC and IDCC processes which is discussed in 5.4.

Effectiveness KPI	DACC	IDCC	LTCC_MA	LTCC_YA
Total number of successfully delivered TS (excluding TS where fallback procedures had to be applied)	84,30%	93,03%	81,30%	87,50%

Table 12: Italy North CCR Operational Effectiveness KPI for DA, ID and LT time-frames

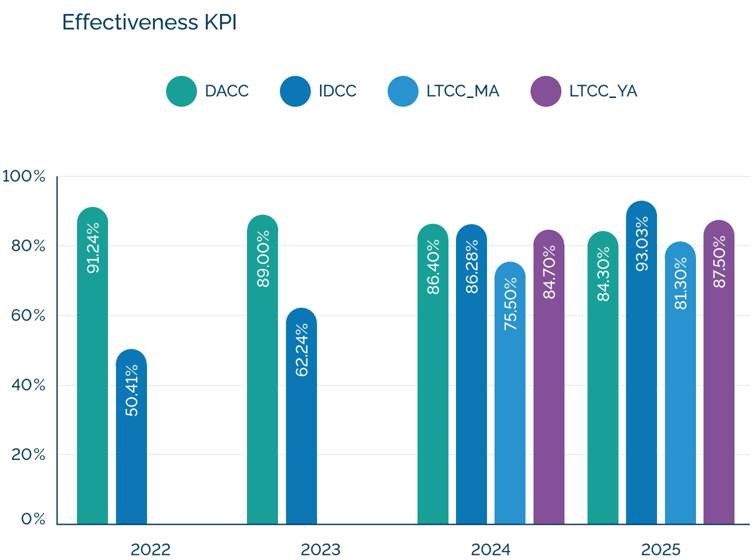


Figure 8: Evolution of the IN CCC Effectiveness KPI

Efficiency KPI	DACC	IDCC	LTCC_MA	LTCC_YA
Share of TS when no reduction by the TSOs was needed	19,30%	44,84%	81,30%	87,50%

Table 13: Italy North CCR Efficiency KPI for DA, ID and LT time-frames

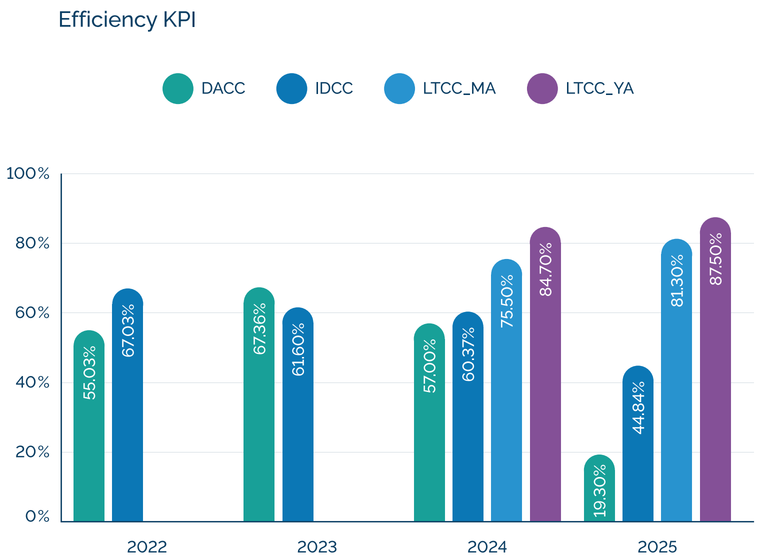


Figure 9: Evolution of IN CCC Efficiency KPI

5.4 Shortcomings

Contrary to the expectation, the use of a Net Position Forecast as the starting hypothesis of DACC has not reduced the amount of validation reduction provided by the TSOs to the TTC calculated by RCCs. The efficiency KPI may be underestimated because one or more TSOs deliver flags equal to the NTC values before validation which ends up appearing as a validation reduction but is not intended as one. Correction to the reporting is being implemented for 2026.

The effectiveness of both DACC and IDCC processes suffered from a recurring tense grid situation. Some limiting CNECs were not solvable with the available remedial actions due to very high grid constraints. This led to the RCCs' tool failing to deliver secure TTC results for the NTC calculation step, resulting in triggering the fallback or backup procedures, to continue with the final NTC calculation.

This grid situation may also be linked to the exceptionally high amount of validation flags sent by TSOs. When low results are computed by RCCs, a minimum is applied (LTTC) which is based on a delta to the backup values. In those cases, it was often assessed that this minimum was not representing actual risks and validation phase was used to decrease the NTCS.

A new calculation method of the LTTC will be in service in Q2 2026. Important maintenances at the FR-CH border and on APG's grid may have influenced the usage of reduction by TSOs as well.

6.

CSA

The CSA task is performed to ensure grid security, meaning that operational security limits shall be respected during normal operation conditions, including the consideration of ordinary and exceptional contingencies defined for the operational planning. The CSA task is based on the CGM in CGMES format input associated with additional specific inputs, specified in the Network Code Profiles, such as list available Remedial Actions (RAs). RCC operators with the support of CSA tooling then run an optimisation, followed by a coordination phase, where the proposed RAs are accepted or refused by TSO operators. The task as defined in the SO GL is not yet operational; instead, the legacy security assessment process is currently in place.

6.1 Legacy security assessment

Preceding the legal obligation of SO GL, TSOs have organised themselves, on a voluntary basis, to develop common security analyses, frequently including the creation of regional merged grid models in UCTE-DEF. However, these voluntary initiatives were not implemented based on a shared methodology; hence, these initiatives are only comparable to a limited extent.

For the Central Europe SOR area, TSCNET and Coreso are the RCCs performing steady state security assessments. For the TSC TSOs area, coordinated by TSCNET, it has been running since 2011, and Coreso since 2009. The coordination involves Day-ahead Congestion Forecast (DACF) and Intraday Congestion Forecasts (IDCF). The TSCNET TSOs comprise the Core TSOs and the Swiss TSO, except for the French and Belgian TSOs, which are closely coordinated by Coreso, together with the Italian TSO.

For both RCCs, each in coordination with their respective participating TSOs, the processes start with the creation of Continental Europe merge in UCTE-DEF. For the merge, TSOs are responsible for the delivery of their IGM by 18:00h. Then, with a merged model RCCs perform a security analysis, namely, load flow calculations for base case as well as simulating elements outages. Based on the security analysis results, TSOs and RCCs aim for an operation within the security limits by coordination of RAs.

At 21:00h CET, the Daily Operational Teleconference (DOPT) takes place, during the call the results from the latest results are discussed and relevant information is exchanged. Further, TSOs can ask for additional runs whenever elements are not within the operational limits or there is an update of the assumptions e.g., a RA is not available anymore or an unplanned outage took place during the DACF process.

Regarding the timings, the usual duration of the process is between 18:00h and 22:00h CET. In 2025, merged models were created and security analysis were performed for all the timestamps, i.e., base case and simulation outages were available.

For IDCF, the process is triggered automatically every hour at HH:15h, starting at 00:15h and the last run at 23:15h where the merged models and the security analysis results are made available for the TSOs. At each hour, the remaining timestamps of the day are calculated. The TSOs can provide new IGMs every hour to obtain updated results reflecting the changes in the grid, such as the implementation of RAs, market results, or unplanned outages. Coreso, additionally, runs a specific manual IDCF with RA coordination twice per day: once in the early morning and once in the afternoon. In case of further coordination, any TSO can request the Intraday Operational Teleconference (IDOPT), similar to the DOPT, to exchange relevant information and coordinate the implementation of RA.

6.2 Regional Operational Security Coordination

Regional operational security coordination is performed through coordinated security analysis (CSA) in accordance with Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation (SOGL). CSA includes coordinated regional operational security assessment (CROSA) and coordinated cross-regional operational security assessment (CCROSA).

The implementation of CSA is governed by two complementary methodologies. The methodology for coordinating operational security analysis (CSAm), developed pursuant to Article 75 of the SOGL, defines the common principles, processes and high-level requirements for coordinated security analysis. At regional level, each capacity calculation region (CCR) develops a regional operational security coordination methodology (ROSCm) pursuant to Article 76 of the SOGL, specifying the regional implementation details, organisational arrangements and coordination procedures for CROSA.

Within this framework, regional coordination centres (RCCs) perform CROSA and CCROSA based on the Common Grid Model (CGM) to support operational planning within operational security limits on cross-border relevant network elements, as defined in Article 2.8 of the CSAm. The process requires close coordination between TSOs and RCCs.

For each detected operational security violation, RCCs identify and recommend the most effective and economically efficient remedial actions, with the aid of a remedial action optimiser (RAO). All TSOs affected by a recommended RA participate in the coordination process to assess the impact of the proposed action on their systems before agreeing to its activation. If remedial actions agreed within one CCR significantly affect power flows in other CCRs, a cross-regional coordination process between the concerned CCRs is initiated in accordance with the CSAm.

In line with Article 76.1 of the SOGL, the common provisions define the criteria for identifying cross border relevant network elements (XNEs) for the purposes of CSA. Where the activation of remedial actions results in costs with cross border relevance, the allocation of these costs is addressed separately under the cost sharing provisions set out in Article 74 of Regulation (EU) 2015/1222 (CACM). In accordance with these provisions, such costs may either be shared among the involved TSOs or borne by the responsible TSOs, as further specified in the approved common methodology for Redispatching and Countertrading Cost Sharing in the Core CCR (Core RD&CT CS).

While ROSC is a daily process, and RD&CT CS an ex post, offline activity; nevertheless, coordination between TSOs and RCCs continues to apply in cost sharing.

As the CSA processes were not operational in 2025 according to the requirements of the SOGL, monitoring and reporting pursuant to Article 46 of Regulation (EU) 2019/943 are not yet available.

6.3 Core CCR and Italy North CCR

The regional operational security coordination methodologies of both the Core CCR and the Italy North CCR define the organisation of the CROSA processes and the allocation of responsibilities to the RCCs. In both regions, the CROSA processes are performed by the RCCs Coreso and TSCNET on a rotational basis.

To support the implementation of regional coordination services in these two regions, Coreso and TSCNET initiated the cooperative CorNet programme, aimed at developing common tools for the implementation of coordinated security analysis processes and other regional coordination activities. The programme was designed to support the implementation of these processes in both the Core CCR and the Italy North CCR.

In parallel with the development of the CorNet platform, the regulatory framework governing capacity calculation regions evolved. In ACER Decision 04/2024, the Core CCR and the Italy North CCR were merged for the purpose of day-ahead capacity calculation, establishing a new Central Europe (CE) CCR. ACER Decision 10/2025 extended this approach by providing for a further stepwise merger of the Core and Italy North CCRs into the CE CCR for additional processes, including regional operational security coordination (ROSC). The transition towards the CE CCR is therefore implemented progressively, with the transfer of the relevant obligations and methodologies from the Core and Italy North CCRs to the CE CCR over time. To support the future implementation of regional operational security coordination processes in CE CCR, the TSOs of the region have initiated the development of a regional operational security coordination methodology for the CE CCR.

During the reporting period, the implementation activities related to the CorNet programme were temporarily paused following the identification of a number of challenges during the initial implementation phase. As of beginning of 2026, a broader reassessment of the implementation approach was ongoing to address the identified issues and ensure alignment with the evolving regulatory framework and operational needs of the CE CCR. As a result of this ongoing reassessment, the future implementation approach and timeline for the coordinated security analysis processes in the region have not yet been confirmed.

7. CGM

Merging the individual grid models (IGMs) of the TSOs is a well-established process to create the common grid model (CGM) of the interconnected grid of Europe. For everyday operational procedures, it was first introduced two decades ago, when the Day-ahead Congestion Forecast (DACF) procedure was introduced by the TSOs of the Continental Europe synchronous area. This process was focused on exchanging IGMs in the UCTE-DEF and merging them into regional grid models in UCTE-DEF, to take the influence of the neighbouring networks into account. This format still serves as the basis for the legacy operational security assessment processes, provided by Coreso and TSCNET to their shareholder TSOs. These processes support regional coordination until the legally mandated tasks according to the CEP, Network Codes and Guidelines go-live.

The UCTE-DEF, however, does not provide enough flexibility to efficiently model the wide range of assets used in the European Grid. To fulfil the needs to model complex equipment and support the wide range of operational planning tasks, the TSOs and RCCs are preparing for the migration to the more advanced grid model format called Common Grid Model Exchange Standard (CGMES) in the operational process. Once fully implemented with the expected quality level, the resulting pan-European merged grid model called CGM will serve as the main and uniform data input for performing further grid analysis trough the processes in STA, OPC, CSA and CCC tasks.

The first step of the migration was the go-live of the CGM building process in CGMES format at the end of 2021. The CGM is created based on the relevant input data (IGMs, PEVF/CGMA, BDS) obtained via Common Grid Model and Operational Planning Data Environment (OPDE), a process that started in January 2022. CGMs are created for different time-frames (Two-Days-ahead, Day-ahead and Intraday were fully covered in 2025, while Year-ahead time-frame is still covered partially) based on an agreed rotational principle of the involved European RCCs and RSC (Baltic RCC, Coreso, SCC, SEleNe CC and TSCNET).

Before the go-live of the CGM task, ENTSO-E and the RCCs agreed on setting up an RCC rotational principle to perform the task. According to this principle, the CGM creation task is organised in groups (based on time-frames, e.g. Group 1 takes care of the DA and 2D time-frames while Group 2 takes care of the ID time-frame) and roles (Main and Backup role). At a time, one RCC takes one role of one group and performs the CGM creation accordingly. The rotation takes place every four weeks, when each RCC takes the next rotational step, according to the agreed schedule. The Main and Backup roles mean, that for the same time-frame, there are always two RCCs in parallel creating CGMs to guarantee that at least one CGM shall always be available. The agreed rotational calendar and handover process ensure that the process remains efficient, and no extra efforts are wasted.

With the goal to increase the commitment of the community on executing the CGM creation task within the expected requirement, ENTSO-E has proceeded with a re-organisation of its governance around that task and has reinforced delivery targets for both TSOs and RCCs: the CGM Action Plan governance was set up by the summer of 2025. To facilitate the process of reaching those ENTSO-E targets, a detailed and comprehensive CGM action plan was developed highlighting the actions necessary to support TSOs and RCCs to increase the delivery of IGMs and CGMs. The status of the progress of the CGM creation task toward the abovementioned targets is regularly reported by ENTSO-E in the System Operation Coordination Group (SO CG) quarterly meetings. This group consists of representatives from ACER, NRAs, ENTSO-E and European Commission. These reports sessions are prepared in close collaboration with the RCCs.

In the rest of the CGM chapter, any reference to the CGM building process or CGM used in any process shall refer to the CGM created based on the CGMES format.

Since the quality of the CGMs is not yet at the expected level, and combined with non-readiness of regional processes, the CGMs created during the reporting period was not used in regional operational processes. However, regional merged models in CGMES format were already used in some capacity calculation regions (e.g. the capacity calculation process for the SWE CCR).

On 1 December 2024 the common EMF tool of Coreso and TSCNET went live. Since then, a single common tool is operated by the two RCCs to perform the CGM building process according to the pan-EU rotational principle. The operational and back-office activities are performed in close co-operation of Coreso and TSCNET experts, ensuring efficient allocation of the available resources. During 2025 the common EMF tool was continuously improved, not only with planned updates but also based on the experience gained working with operational data. As a result of this, and the improvement of the data quality on TSO side, the operational performance improved significantly during the year, and by December the target of CGM Action Plan was reached.

The data used in the report is based on the common ENTSO-E reporting tool.

7.1 Operational Performance

During the reported period, the RCCs built CGMs in the following time-frames, based on the number of published CGMs during the data collection phase of this report, accounting successful only the CGMs that were published until gate closure time, without any manual data quality intervention (except for the year-ahead model):

- YA (performed on selected scenarios, including manual data quality interventions, as explained in the following paragraph)
- 2D (1 run of CGM building process to provide 24 models for each day[12])
- DA (1 run of CGM building process to provide 24 models for each day[13])
- ID (24 Intraday runs of CGM building processes per day[14],each of which covers the remaining hours from the next target time to the end of the relevant calendar day resulting in 300 models for each day).

Year-ahead (YA) is further away from operational as compared with other time-frames, and due to several issues detected during the CGM creation process, the gate closure time was not respected, and the focus was on the iterative alignments to include as many IGMs as possible. In 2025, Coreso and SCC were in rotation as the Main and Backup RCC, respectively, to create the YA CGM for the calendar year 2026. TSOs and RCCs agreed on delivering 5 scenarios for the YA CGM for calendar year 2026 (see Table 14).

The Table 14 presents IGMs publication rate as well as their inclusion rate into the corresponding CGMs. Coreso succeeded on publishing the 5 scenarios. 97% and 94% of the available IGMs were included respectively into Winter 1 and Summer CGMs, on which TSOs and RCCs proceeded with intensive issue resolutions for maximum IGM inclusion. For the remaining scenarios, although the CGMs were successfully published with the high inclusion rates of 88,2 - 95,5%, the overall number of IGMs in these CGMs were relatively low, due to the limited number of IGMs available for these scenarios.

	Winter 1 Peak	Spring Peak	Summer Peak	Autumn Peak	Winter 2 Peak
IGMs published	35	22	35	20	17
IGMs included into CGM	34	20	33	18	15

Table 14: YA IGM publication and inclusion into published CGMs

The CGM for the Week-ahead (WA) time-frame was not part of the CGM building task in 2025, and related KPIs will be provided in future reports.

Operational Performance indicator compares the successful publication only for TSCNET and Coreso, based on the number of expected CGMs during the data collection period of this report. Except for the YA timeframe, only the CGMs published before the gate closure time were considered successful. For the 2D, DA and ID timeframes, there were no manual data quality interventions performed during the process, and all published IGMs that were validated by the EMF tool successfully, were included in the published CGMs. However, the IGMs not published for a period longer than 2 weeks, or not available at all could not be considered. These partial CGMs were still considered as successful CGM creation.

As Coreso and TSCNET were using the same tool and same procedures, the KPIs don't reflect the performance of the individual RCCs. The differences in the KPIs in Table 15 stem from the different level of improvements in the process implemented through the year.

Defenition	Time-Horizon				
	YA	2D	DA	ID	RCC
% of published CGMs/due CGMs (as main or backup RCC)	N/A	32,56%	32,79%	55,92%	TSCNET
	100%	11,22%	15,91%	43,86%	Coreso

Table 15: CGM building process Operational performance KPI

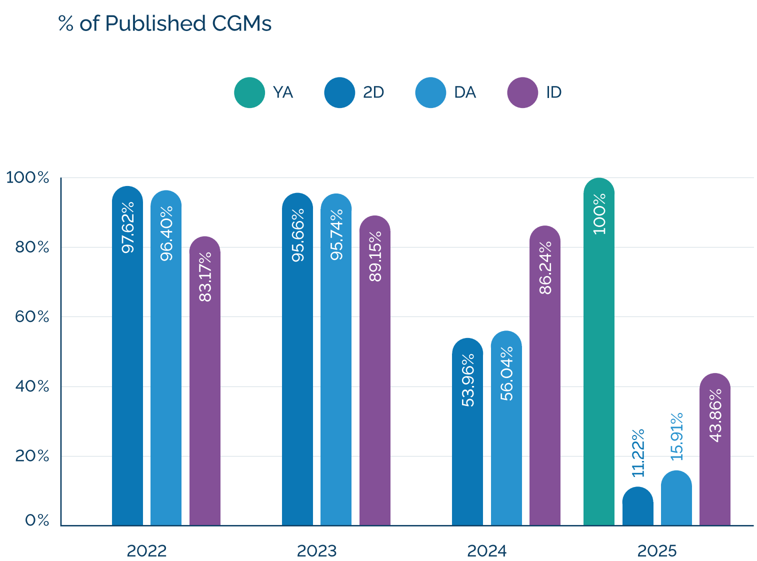


Figure 10: CGM Operational performance KPI evolution – Coreso[15]

[12 13 14] *Or 23/25 timestamps due to Daylight saving time.*

[15] *The YA process is performed only in specific years, in accordance with the rotational calendar. Important: Results for 2024 are not directly comparable with previous years, as Coreso and TSCNET discontinued the use of manual interventions in the CGM building process as of September 2024. Additionally, the results for 2025 are not comparable with previous years, as Coreso and TSCNET started using a new tool in 2025.*

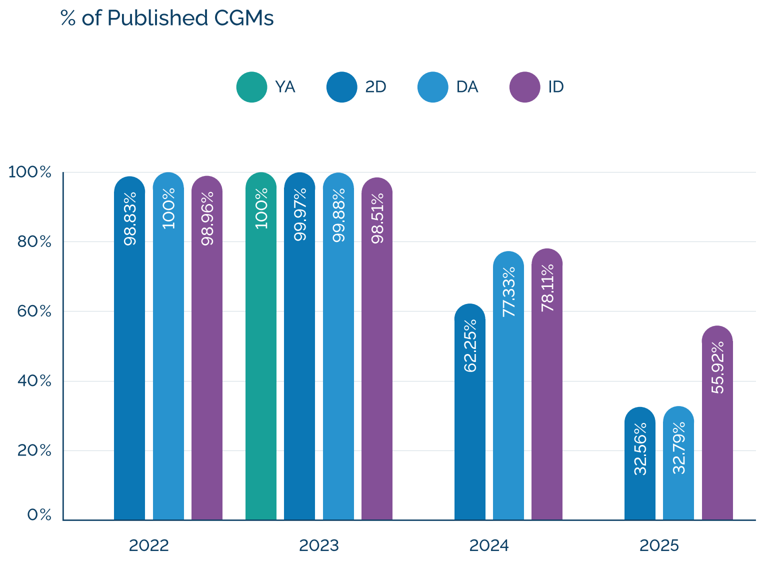


Figure 11: CGM Operational performance KPI evolution – TSCNET[16]

Figure 12 to Figure 14 show the progression of CGM publication considering the Gate Closure Time (GCT). On the figures, the rotation of Coreso and TSCNET (irrespective of the Main or Backup role) are marked with purple and green colours, while the grey colour represents other RCC only in Main role for the respective timeframe.

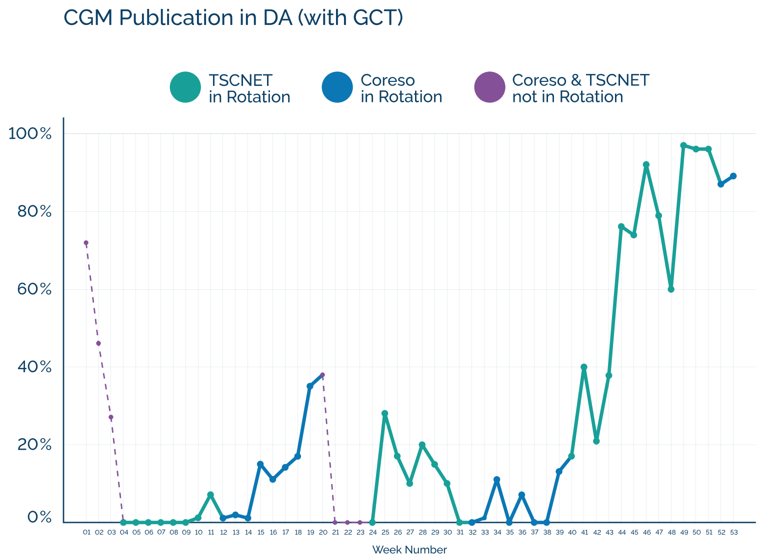


Figure 12: Percentage of published CGMs with GCT for DA time-frame

*[16] The YA process is performed only in specific years, in accordance with the rotational calendar. **Important: Results for 2024 are not directly comparable with previous years, as Coreso and TSCNET discontinued the use of manual interventions in the CGM building process as of September 2024.** Additionally, the results for 2025 are not comparable with previous years, as Coreso and TSCNET started using a new tool in 2025.*

CGM Publication in 2D (with GCT)

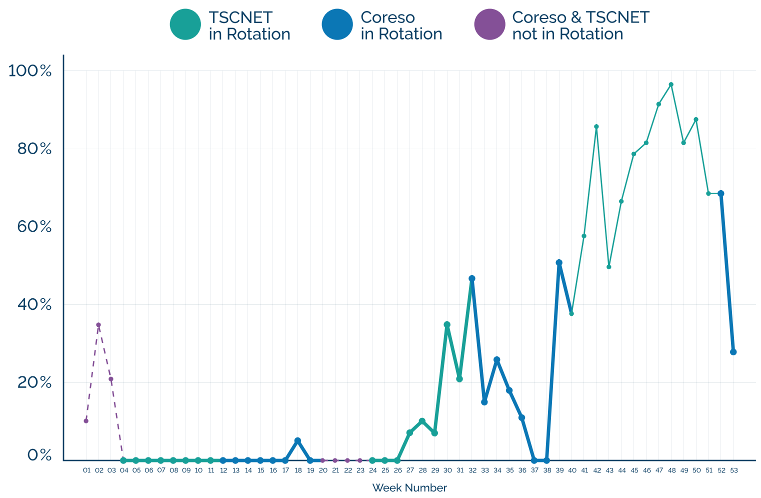


Figure 13: Percentage of published CGMs with GCT for 2D time-frame

CGM Publication in ID (with GCT)

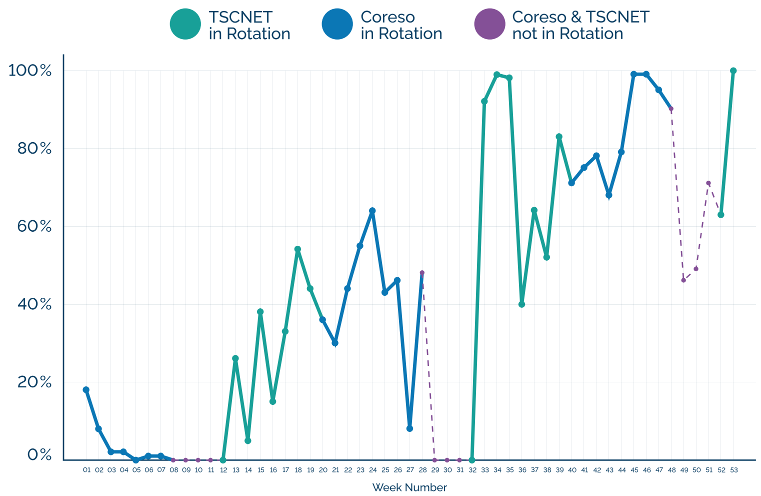


Figure 14: Percentage of published CGMs with GCT for ID time-frame

The operational performance KPI for the 2025 reporting period has been significantly reduced compared to the previous years. Since September 2024 manual data quality interventions in all time-frames were stopped and the process gate closure time were respected. The drop in performance observed during 2025 reporting period reflects this change of approach. The last RCC stopped using manual data quality interventions in May 2025, therefore the performance of the RCCs only comparable from that point on.

As a reminder, the main purpose of stopping manual data quality interventions was to demonstrate the CGM building process's readiness for subsequent tasks (such as CSA) by strictly respecting the execution steps as defined in the referential documents. This also enabled a more efficient use of resources by focusing efforts on data quality investigations rather than relying on unsustainable manual adjustments from an operational standpoint.

During 2025, several data quality issues were identified and resolved in cooperation with the TSOs, that improved the performance of the CGM building process. Beside the quality of the input data, the common EMF tool was also improved. Based on the experience gained from these issues, an improvement of the CGM creation performance was observed.

Another impacting element that affected the CGM publication mainly during the quarter 3 of 2025 was related to the OPDE client major upgrade. The deployed release impacted the duration of delivery and validation phases, causing a delay in publication, resulting in CGM being published after the gate closure time and therefore not considered successful.

The identified issues were fixed and completely resolved by quarter 4. Directly attributed to these resolutions, an increase of the CGM publication rate before the gate closure time was seen. This is illustrated on Figure 12 to Figure 14.

7.2 Coordinated actions and recommendations

The RCCs do not formally issue recommendations for the CGM task yet. However, each time it is necessary, RCCs advise TSOs on the improvement of IGMs data quality.

In March 2025, an improved issue tracker tool hosted by ENTSO-E went live, providing more transparency and traceability about the status of IGM and CGM data quality problems. Coreso and TSCNET recorded the identified data quality problems there and collaborated with the affected TSOs to find solutions.

7.3 Effectiveness and efficiency

Since the CGM task went live in December 2021, the community of TSOs and RCCs were consistently improving their ability to execute this task more effectively and efficiently. In 2025 the key topics are the number of IGMs included in the CGM, the timely delivery of the CGMs, and the metrics used to monitor process performance.

Effectiveness of the CGM process in the current report is defined for Coreso and TSCNET based on the data collected by ENTSO-E and metrics available to all TSOs and RCCs, to keep the reports consistent in the community. This metric is illustrated by IGMs inclusion status defined as follows:

- The percentage of total published IGMs needed by the pan-European CGM process, that were included in the corresponding published CGMs.

Coreso and TSCNET developed and operate a common EMF tool to perform the CGM building process. This alignment improves operational efficiency by eliminating the need to maintain and operate two separate tools for the same purpose.

Please note, that as Coreso and TSCNET were using the same tool and same procedures, the KPIs don't reflect the performance of the individual RCCs. The differences in the KPIs in Table 16 stem from the different level of improvements in the process implemented through the year.

Figure 15 to Figure 17 show the progression of IGMs included in CGM (considering the GCT). On the figures, the rotation of Coreso and TSCNET (irrespective of the Main or Backup role) are marked with purple and green colours, while the grey colour represents other RCC only in Main role for the respective timeframe.

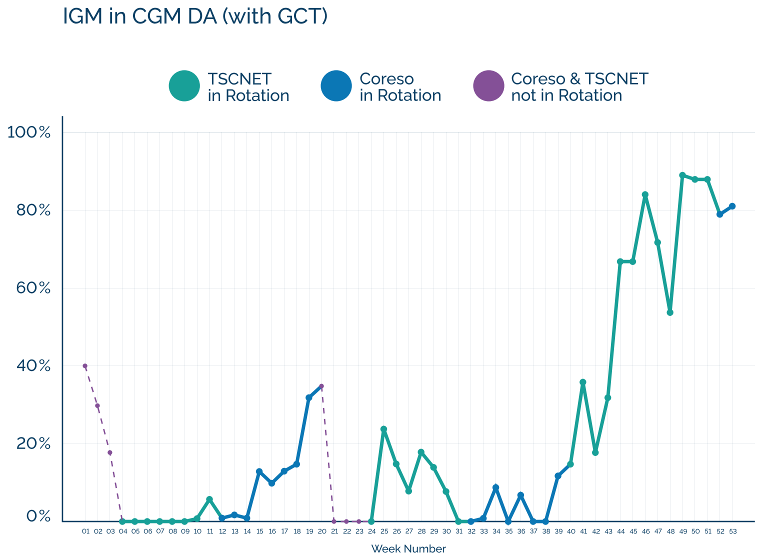


Figure 15: Percentage of IGMs included in CGM with GCT for DA time-frame

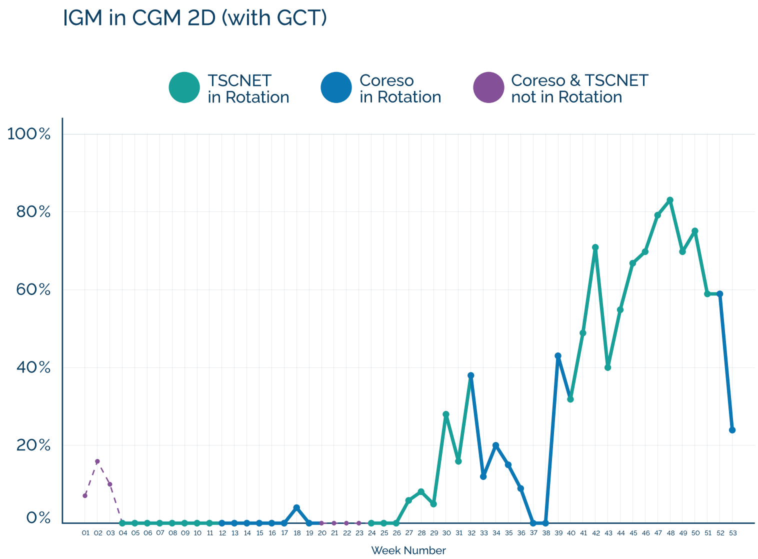


Figure 16: Percentage of IGMs included in CGM with GCT for 2D time-frame

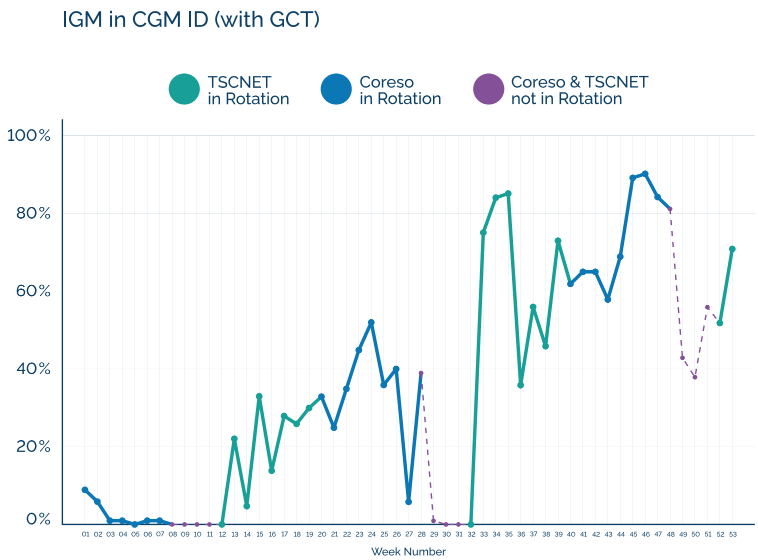


Figure 17: Percentage of IGMs included in CGM with GCT for ID time-frame

Definition	Time-Horizon			RCC
	2D	DA	ID	
Percentage of IGMs included in CGM	27,58%	29,78%	45,93%	TSCNET
	9,38%	14,46%	37,49%	Coreso

Table 16: CGM Effectiveness KPI

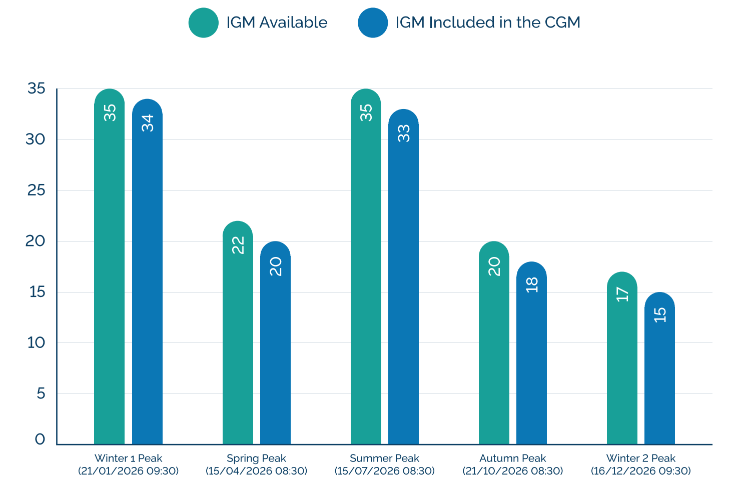


Figure 18: Number of included IGMs in CGM for YA time-frame

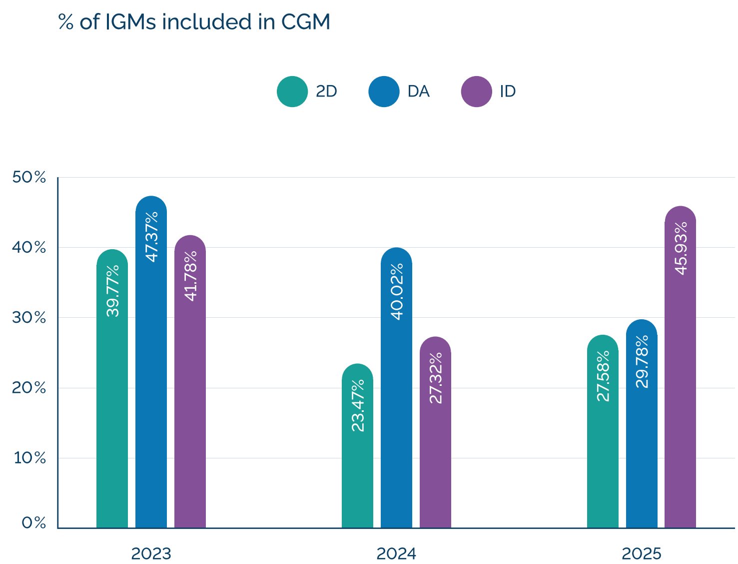


Figure 19: CGM Effectiveness KPI evolution - TSCNET[17]

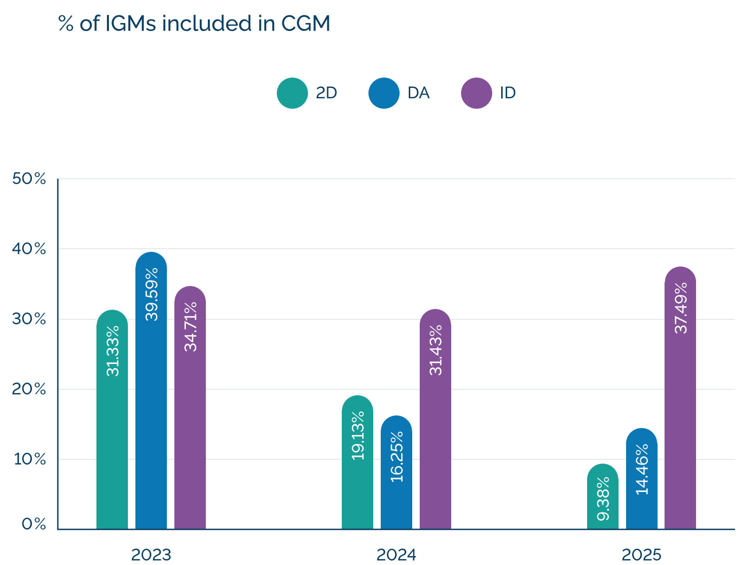


Figure 20: CGM Effectiveness KPI evolution - Coreso[18]

[17] [18] The CGM Effectiveness KPI was not reported for 2022, as the monitoring process had not yet been established at Coreso and TSCNET. The KPI has been redefined and is reported starting from 2023. Important: Results for 2024 are not directly comparable with previous years, as Coreso and TSCNET discontinued the use of manual interventions in the CGM building process as of September 2024. Additionally, the results for 2025 are not comparable with previous years, as Coreso and TSCNET started using a new tool in 2025.

As the CGM publication rates improved during the year considering no manual data quality improvements implemented, consequently the IGM inclusion rates improved accordingly.

The process of monitoring the efficiency of the merging process is planned to be implemented with the following metrics:

- Ratio of the time it should take to create and submit the CGM and the time it took to create and submit the CGM (excluding the validation, considering all CGMs)
- Ratio of the time it should take to deliver the CGM and the time it took to deliver the CGM (excluding the validation, considering the published CGM only).

7.4 Shortcomings

The accurate modelling of the very complex transmission network with all its equipment is a challenging task for all involved parties. All involved RCCs and TSOs are working together to reach high-quality CGMs. Although during 2025 significant improvement was made in this matter, it has been still observed, that successfully validated IGMs cannot always be included in the merged grid models. There is no single explanation or cause, and each of the issues need to be investigated separately. These issues were investigated on the following main platforms:

1. Internal investigation of the erroneous timestamps by Coreso and TSCNET to identify the potential root causes (e.g. EMF tool or data quality).
2. Recording of the identified issues in a common issue list, with the purpose to track the progress and the status of the resolution.
3. Weekly alignment with the other RCCs to exchange knowledge about the issues identified to adapt the investigations methods, with e.g. introducing regular, detailed study of CGMs created.
4. Weekly alignment with the TSOs, RCCs and ENTSO-E in the IGM CGM Quality Working Group (based on the Modelling Group, that was transferred to this group after the start of CGM Action Plan) to provide a common platform to clarify the modelling issues identified, and agree on the most efficient resolution.
5. Regular Interoperability Tests (IOPs) organised by ENTSO-E. As an outcome of these tests, the TSOs and RCCs receive a detailed, objective report about the data quality issues identified in the IGMs and CGMs.

Resolving the identified issues often need changes in the respective tools of the TSOs and the RCCs, which take longer time to go through the implementation, testing and deployment procedure.

The performance of the CGM building process is regularly reported to the representatives of the EC, ACER and the NRAs in the System Operation Coordination Group.

As a result of the efforts made during 2025 to resolve these shortcomings, by the end of the year, the operational performance improved significantly and by December, the target of 80% CGM publication rate for the DA timeframe was reached.

8.

Defence and restoration plans

The consistency assessment of system defence and restoration plans task is carried out by all RCCs including TSCNET and Coreso. This assessment included the results of the monitoring task assigned to ENTSO-E in Article 52 of the Commission Regulation (EU) 2017/2196 of 24 November 2017 establishing a network code on electricity emergency and restoration (NC ER).

Article 6.1 of the NC ER specifies that when designing its system defence plan pursuant to Article 11 and its restoration plan pursuant to Article 23, or when reviewing its system defence plan pursuant to Article 50 and its restoration plan pursuant to Article 51, each TSO shall ensure the consistency with the corresponding measures in the plans of TSOs within its synchronous area and in the plans of neighbouring TSOs belonging to another synchronous area of at least the following measures:

a) inter-TSO assistance and coordination in emergency state, pursuant to Article 14;

b) frequency management procedures, pursuant to Article 18 and Article 28, excluding the establishment of target frequency in case of bottom-up re-energisation strategy before any resynchronisation to the interconnected transmission system;

c) assistance for active power procedure, pursuant to Article 21;

d) top-down re-energisation strategy, pursuant to Article 27.

In agreement with the Article 6.3 of the NC ER, each TSO transfers the above-mentioned regional coordination measures to their relevant RCCs, set up pursuant to Article 77 of SO GL. And the reports drafted for this task particularly cover the consistency assessment of system defence plans and restoration plans carried out by TSOs in accordance with Article 6 of the NC ER.

This consistency assessment must be performed at least every 5 years in line with the TSO timeline to review the defence plans and restoration plans as agreed with ACER. This task was performed for the first time by TSCNET and CORESO in 2019, and it was performed again in 2024, following the five-year pattern. The next provision of the task to be performed is in 2029.

8.1 Operational Performance

Operational performance of this task is defined as total number of inconsistencies in the final report. Since no tasks were performed for defence and restoration plans in 2025, no relevant operational performance KPIs are reported.

8.2 Coordinated actions and recommendations

RCCs did not issue recommendations for this task as it was not performed in 2025.

8.3 Effectiveness and efficiency

The effectiveness of this task is assessed based on the successful submission of regional reports by TSCNET and Coreso to their respective TSOs and to ENTSO-E, following the agreed timeline, and the SOC approval of the final report, including RCC chapters.

Efficiency of this task is measured by the number of communications between TSOs and RCCs, as well as between RCCs. A key metric to measure efficiency is to measure the number of data submissions required for each border to complete the consistency analysis. An efficient process would require very few data submissions, and an inefficient process would require multiple data resubmissions from the TSOs before analysis could be completed.

However, since no tasks related to defence and restoration plans were performed in 2025, effectiveness and efficiency KPIs are not reported.

Number of Data Submissions Required to Achieve Consistency	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
% of Borders (Coreso)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
% of Borders (Coreso)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 17: Number of data submissions required to achieve consistency on all borders (sample). No data is included as the task has not been triggered in 2025.

8.4 Shortcomings

No shortcomings are reported since no tasks were performed related to defence and restoration plans in the reporting period.

9. STA

To ensure a good balance between supply and demand, the role of the STA service consists, in the DA to WA time-frame of both pan-European and regional adequacy assessments.

The goal of the pan-European adequacy assessment is to detect situations where a lack of electricity adequacy is expected in any of the control areas or at regional level (pan-European view), considering the cross-border exchange limits. The pan-European assessment is performed using two different approaches, namely the deterministic and probabilistic approach. The deterministic approach performs the assessment based on the best forecast from TSOs, whereas the probabilistic approach considers variations in generation, load and transmission asset availabilities. The pan-European assessment is performed by a central tool managed by ENTSO-E based on a rotational principle among RCCs. Each cycle has a duration of 2 weeks, and for each cycle one main and one back-up RCC is allocated. This ensures that in case of a technical failure at the main RCC's side (e.g. IT issue, power cut) the back-up RCC can take over to complete the process successfully. The central tool is a single common platform used by all RCCs; therefore, the rotational allocation of different RCCs does not affect the performance, consistency, or functioning of the tool itself.

Regional adequacy assessment is conducted in the relevant adequacy region which is defined by a matrix showing the TSOs to be included in the assessment depending on the control area/region having the adequacy issue. This assessment is triggered either by the results of STA Cross-Regional assessment or upon TSO request (for instance, in case of regional scarcity issue or insufficient cross-zonal capacities). To resolve the adequacy identified and mitigate the risk of it, the RCC of the affected shareholder TSO/region will then propose remedial actions to the associated TSOs and coordinate them with other RCCs depending on the geographic region identified for the assessment.

9.1 Operational Performance

Operational performance is based upon the successfully completed executions of the Pan-European STA calculations as regional STA process is triggered on ad-hoc basis in case of an adequacy risk identified. Pan-European STA is triggered once a day regularly and in case of a request from a TSO, a second run is also performed. The KPI below reflects the overall performance of the process irrespective of which RCCs are in rotation as RCCs use the same tool to perform the assessment. For the monitored period at the pan-European level, 406 calculations were triggered and only 8 calculations failed. On the other hand, no regional adequacy assessment was triggered.

Art.46 Central SOR			Time-Horizon	Region
ID	Process	Definition	WA	
KPI-1	Pan-EU STA	% of process successes	98,03%	Pan-EU[19]

Table 18: Pan-EU STA Operational Performance KPI

Figure 21: Evolution of STA Operational performance KPI (KPI-1)

[19] *Coreso provides the pan-EU STA process for all concerned TSOs in the Central SOR region (both Coreso and TSCNET shareholder TSOs).*

9.2 Coordinated actions and recommendations

Proposal of remedial actions (RAs) are only relevant to the regional adequacy assessments. For the monitored period, no regional adequacy assessment was triggered for the TSOs of the Central SOR region. Therefore, no recommendation was given to the TSOs.

9.3 Effectiveness and efficiency

Pan-European STA

An efficiency KPI is defined as the percentage of days without the need of additional STA calculation which is generally triggered in case of input data issues at the pan-European level. Like the operational performance KPI, the overall STA process is considered irrespective of RCCs in rotation. During 2025, an additional run was triggered 41 times. Reasons for second run are either data quality inconsistency (e.g. missing TSO input data or required update) or an application issue (e.g. calculation failure in the first run).

Art.46 Central SOR			Time-Horizon	Region
ID	**Process**	**Definition**	**WA**	
KPI-2	Pan-EU STA	% of days without the need for additional run	88,76%	Pan-EU

Table 19: Pan-EU STA Efficiency KPI (KPI-2)

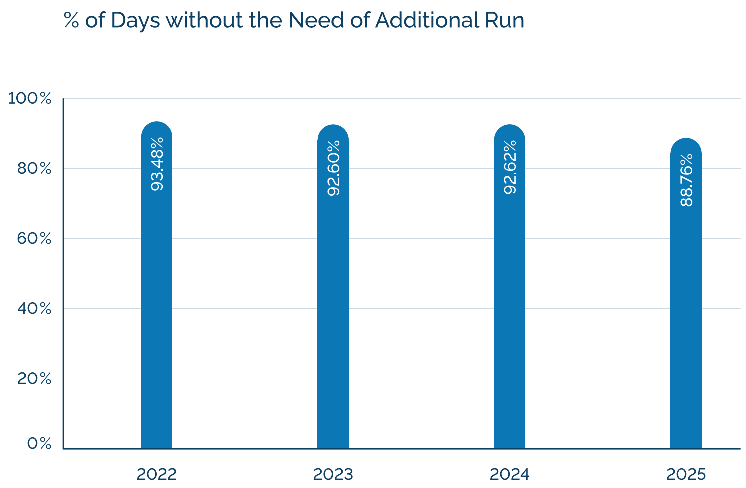


Figure 22: Evolution of STA Efficiency KPI (KPI-2)

Regional STA

An effectiveness KPI is defined by the capability of the process to provide a resolution to the adequacy issue identified at the regional level. Following information will be delivered in the future versions of the report per each Regional Adequacy Assessment (RAA) when triggered:

No	Date of Assessment	Date of Event	RCC Leader	No. of concerned TSOs	Inadequacy duration	ENS [MWh]	Proposed mitigation action	Resolution Status
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 20: KPIs for Regional STA Triggers (sample). No values are available as no regional process was initiated.

Date of Assessment: Date when the pan-European STA is assessed.

Date of Event: Date and timestamp of the case for which Regional STA process is triggered.

RCC leader: RCC responsible for leading the Regional STA process.

No. of concerned TSOs: No. of TSOs participating in the Regional STA process, main affected TSO (for which ENS is detected) and their neighbours that can have an impact on the main affected TSO (determined based on Dynamic matrix).

Inadequacy duration: Number of timestamps in the Week-ahead time-frame for which the main affected TSO is in inadequacy situation (each timestamp corresponds to one hour).

ENS [MWh]: Amount of 'Energy Not Supplied' in the timestamp assessed during the Regional STA process.

Proposed mitigation action: List of RAs considered as a solution to the lack of adequacy (this can be one or multiple actions depending on the case assessed).

Resolution Status: Status of the resolution of the adequacy issue identified.

9.4 Shortcomings

No shortcomings are reported as there was no regional process triggered.

10. OPC

The OPC task is performed at two levels: pan-European and regional. The pan-European process is performed by the RCCs on a rotational basis, using the centralized pan-European OPC tool managed by ENTSO-E. Each rotational cycle has a duration of 2 months to which one main and one back-up RCC are allocated. The 2-month alternation minimizes disruptions and promotes continuity in process execution considering the Week-ahead time-frame. For the Year-ahead time-frame, there is an annual rotation among RCCs considering it is executed at the end of each year, with main and back-up roles respectively. The nomination of a main and back-up role ensures seamless coordination in case of a failure at the main RCC's side (E.g. Connectivity issues, power outage) the back-up RCC can take over to complete the process successfully.

The main purpose of this task is to harmonize the outage plans across Europe.

Due to historical reasons, two regional OPC processes were performed in 2025, one by Coreso and one by TSCNET, based on the technical requirements agreed with the respective shareholder TSOs. Currently, the regional OPC process is performed based on shareholder relationships; however, transition to an Outage Coordination Region (OCR) is planned, in line with the regulatory requirements set out in Article 80(1) of Regulation (EU) 2017/1485, which provides that an OCR shall be at least equal to the Capacity Calculation Region (CCR). During these processes, the RCCs propose recommendations to solve OPIs towards the TSOs in the form of outage cancellations. These processes are not included in this report as they are not performed based on a commonly agreed Regional Coordination Operational Procedure (RCOP) between TSOs of the respective outage coordination region in accordance with Article 83.1 of SOGL.

10.1 Operational Performance

Operational performance is generally considered as the percentage of processes triggered (irrespective of deadline) compared to the processes expected to be triggered. The KPI below reflects the overall performance of the process irrespective of which RCCs are in rotation they use the same centralized tool. For the reported period in 2025, for WA and YA time horizons, all merges were successfully performed.

Art.46 Central SOR			Time-Horizon		Region
ID	Process	Definition	WA	YA	
1.	OPC	% of process successes	100%	100%	Pan-EU[20]

Table 21: OPC Operational Performance KPI

Figure 23: Evolution of OPC Operational performance KPI

[20] *TSCNET provides the pan-EU OPC process for all concerned TSOs in the Central SOR region (both Coreso and TSCNET shareholder TSOs).*

10.2 Coordinated actions and recommendations

The issued recommendations of the regional OPC process, including their status of adoption and implementation, are not included in this report. The necessary RCOP - its development and implementation - is under ongoing assessment in collaboration between the RCC and their delegated OCR.[21]

10.3 Effectiveness and efficiency

We measure the effective performance of the process from the perspective of a timely delivery of the results for the TSOs, so these can be used as input for further processes. The late delivery could cause delays and fallback procedures, resulting in lower effectiveness of the operational planning. Like the operational performance KPI, the overall OPC process is considered irrespective of the RCCs which are in rotation.

To further support the effective performance of the processes, TSCNET and Coreso support the TSOs with tie-line outage inconsistency checking and feedback on the correct mapping of the outages between the OPC format and the grid model used for the regional OPC calculation.

The element types of power generating modules and demand facilities are currently imported to the centralized pan-EU OPC tool from the Transparency Platform, but not actively coordinated on pan-EU level, since these elements are within the responsibility of DSOs, which are not part of the process.

Art.46 Central SOR			Time-Horizon		Region
ID	Process	Definition	WA	YA	
2.A	OPC	% of result delivery within defined deadlines	100%	100%	Pan-EU
2.B	OPC	% of consistent tie-line outages	97,32%	90,37%	Pan-EU
2.C	OPC	% of correctly mapped assets between OPC & CGM	95,77%	93,22%	Pan-EU

Table 22: OPC Effectiveness and Efficiency KPIs

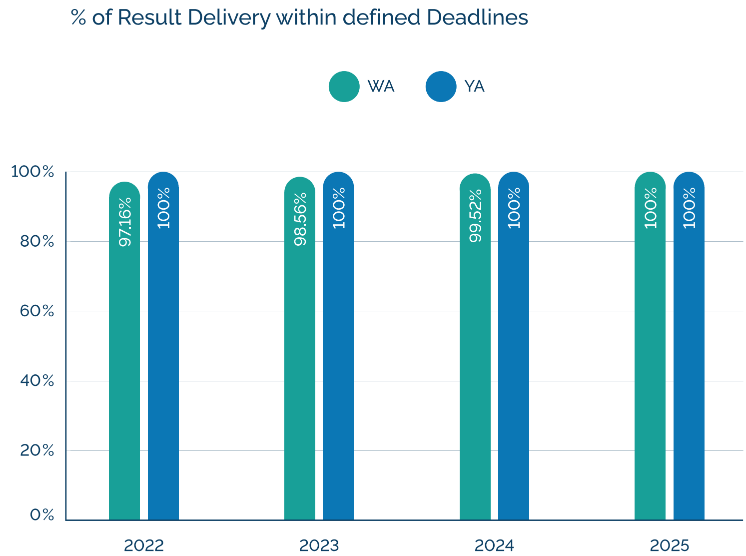


Figure 24: Evolution of OPC Effectiveness KPI (KPI 2.A)

[21] The governance structure of the regional OPC process and the subsequent development of the RCOP is currently under discussion within the Central Europe SOR Joint Management Board.

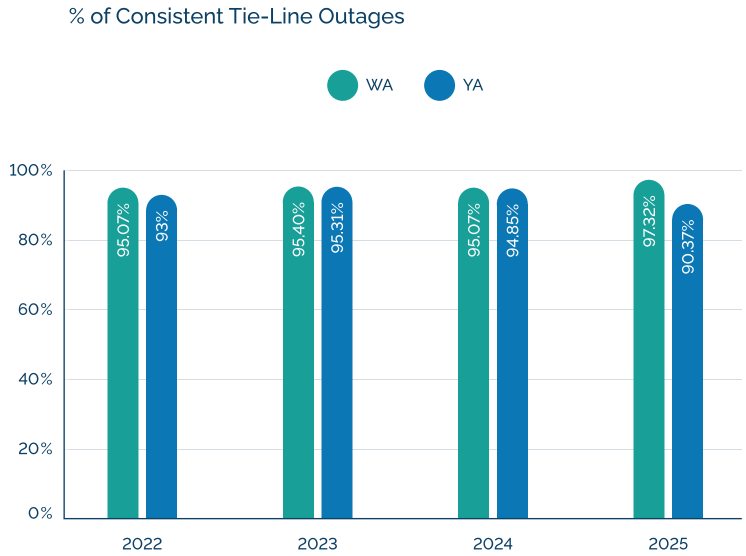


Figure 25: Evolution of OPC Efficiency KPI (KPI 2.B)

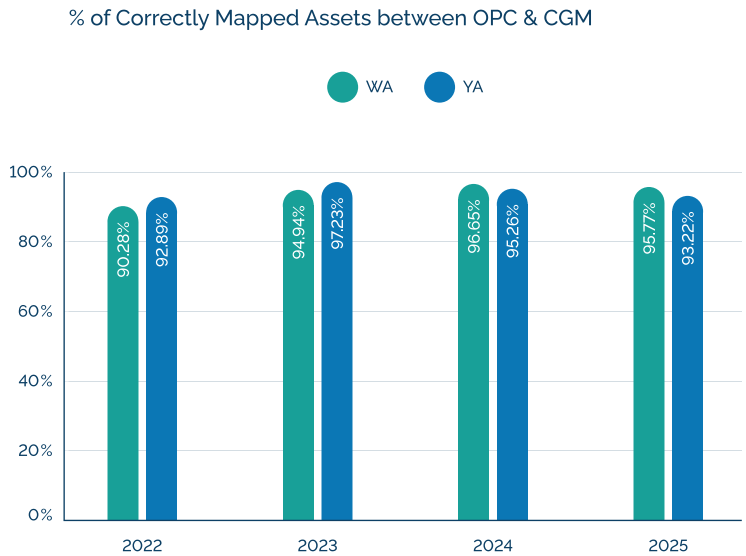


Figure 26: Evolution of OPC Efficiency KPI (KPI 2.C)

10.4 Shortcomings

The development of the RCOP and the subsequent reporting of activities from RCCs towards the TSOs as part of the regional OPC process is currently under review and therefore considered a shortcoming. The development of the procedure under collaboration of the RCC and their delegated OCR is under ongoing assessment[22].

[22] The governance structure of the regional OPC process and the subsequent development of the RCOP is currently under discussion within the Central Europe SOR Joint Management Board.

11.

Training and certification of staff

The task encompasses the establishment and carrying out of training and certification programmes for their own staff operating other tasks in accordance with Article 37.1 and Annex I of Regulation (EU) 2019/943. The methodology prescribes 2 regulatory deadlines for this task – to establish the setup for training and certification by May 2024, and the legal requirement to train and certify the operators, which is due by May 2026.

11.1 Operational Performance

Both Coreso and TSCNET set up their individual training programmes including developing their training modules, setting up Learning Management Systems (LMS) to track progress and certification status of operational personnel, and to deliver trainings. Besides contributing to the creation and maintenance of the 8 joint training modules that encompass 7 Pan-European processes shared by all RCCs; Coreso and TSCNET performed the Cross-RCC coordination for 8 of their training modules, harmonizing the relevant aspects of their training for regional processes. All training modules have been reviewed and updated to reflect the developments in their respective processes, operational staff have been trained on the changes.

Two distinct metrics have been included, corresponding to different regulatory requirements in the methodology:

Article 13.2 – Compliance with Operational Tasks: This metric tracks the progress of issued certifications for tasks that were already operational before the go-live of the RCC Training and Certification Methodology in May 2024. Since RCCs must certify a sufficient number of RCC Operators for these tasks by May 2026, the success rate in this category may vary during the transition period as the certification process is progressively completed.

This metric is determined by assessing the proportion of completed certifications out of the total required to fully certify all RCC Operators for operational tasks.

Article 4.5 – Compliance with Task of New Implementation: This metric reflects the success rate of certifications for new tasks implemented after May 2024. Since a sufficient number of RCC Operators must obtain the necessary certifications before these tasks go live, the success rate shall always be 100%. In cases where RCC Operators do not initially pass the certification process, they receive the required support and additional training to support them on meeting the certification standards before assuming their responsibilities, ensuring full compliance with the methodology.

The total success rate of the certification process is calculated as the number of successful certifications (including first-time certifications and extensions) divided by the total number of certifications performed during the reported period.

By tracking these two metrics separately, we can provide a clear view of certification progress across both operational before May 2024 and newly implemented operational tasks since May 2024.

Operational Performance KPI		TSCNET	CORESO
KPI1(a)	Progress of issued certifications for tasks already operational before the go-live of the RCC Training and Certification Methodology (Article13.2)	100%	99%
KPI1(b)	Success rate of certifications for new tasks implemented after RCC Training & Certification of Staff Task live (Article 4.5)[23]	100%	100%

Table 23: Training and certification of staff Operational Performance KPIs

[23] No new tasks were assigned in 2025

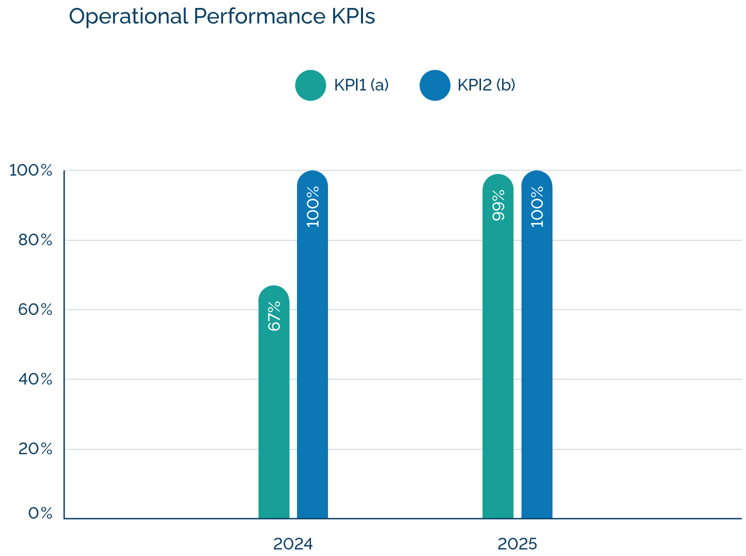


Figure 27: Evolution of Training and certification of staff Operational Performance KPIs - Coreso

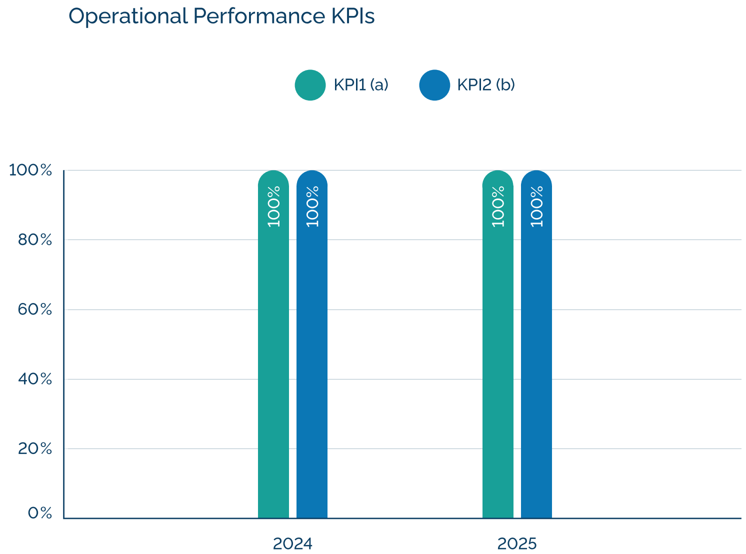


Figure 28: Evolution of Training and certification of staff Operational Performance KPIs - TSCNET

11.2 Coordinated actions and recommendations

RCCs do not issue recommendations for this task.

11.3 Effectiveness and efficiency

The success rate of certification process measures the percentage of certifications that RCC Operators successfully pass. This metric serves as a key indicator of the effectiveness of training programs, assessment design, and candidate preparedness. Moreover, as it has been harmonized across RCCs, it enables consistent measurement and comparison between RCCs, ensuring a standardized approach to evaluation and supporting continuous improvement initiatives at an organizational level. Efforts are continuously made to maintain success rates, ensuring that certified RCC Operators have the necessary knowledge and competence level to perform the tasks assigned to their role.

This metric should serve as a valuable indicator for further internal assessments by RCCs to refine their training programs and processes.

Effectiveness and efficiency KPI	TSCNET	CORESO
Success rate of the certification process measures the percentage of certifications that RCC Operators successfully pass.	100%	99%

Table 24: Training and certification of staff Effectiveness and Efficiency KPI[24]

11.4 Shortcomings

No shortcomings have been identified for the task.

[24] *The Effectiveness and Efficiency KPI has been redefined jointly with the other RCCs; therefore, the 2025 results are not comparable to the 2024 KPI.*

12. Post-operation and post-disturbances analysis and reporting

On 31 March 2022, the post-operation and post-disturbances analysis and reporting methodology was approved by ACER in accordance with the regulation. The task according to this methodology went live on 1 October 2022. In everyday operations, this task is often referred to as Regional Incident Analysis and Reporting (RIAR). The RCCs' process to carry out the post-operation- and post-disturbances-analysis and -reporting interacts with the existing process run by the ENTSO-E Incident Classification Scale (ICS) Expert Panel, established for the investigation of incidents on scale 2 and scale 3, in accordance with the ICS Methodology. After the incident threshold of scale 2 or 3 is triggered, a factual and final report shall be prepared by an expert panel. An RCC Investigation Subgroup is created within the ICS Expert Panel. This group supports the assessment of whether the RCC Investigation Threshold defined in Article 5.1 is met and leads the subsequent investigation relating to RCC activities. A chapter pertaining to RCC activities will

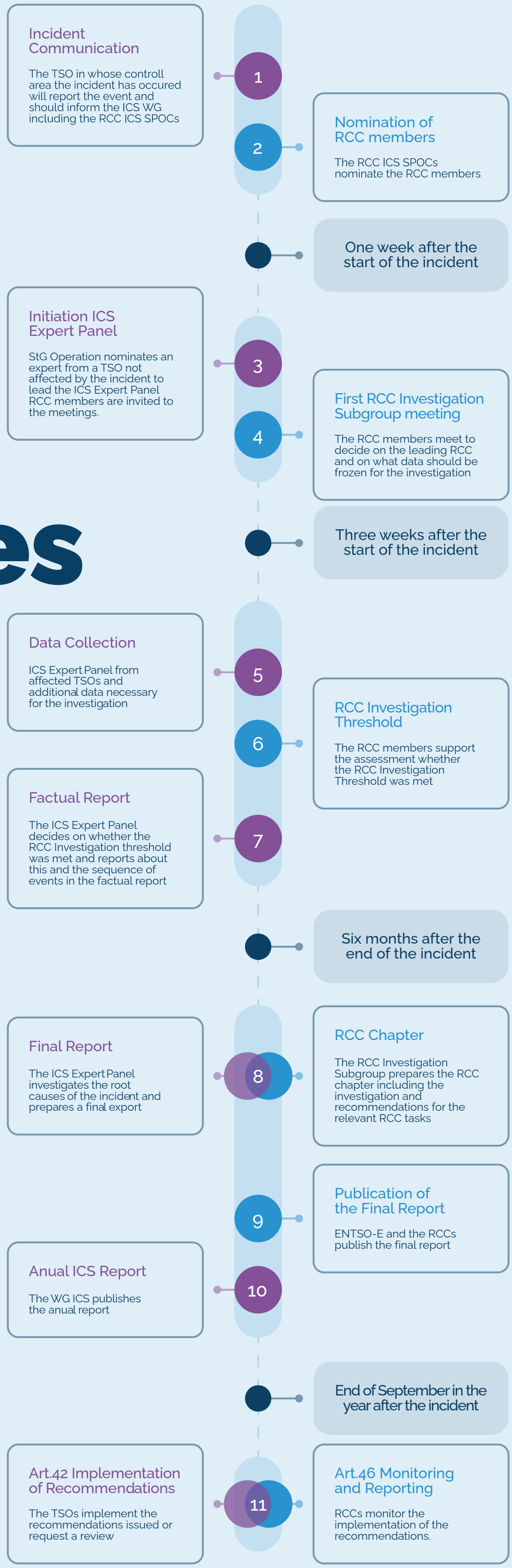


Figure 29: Timeline of an incident investigation conducted by TSOs and RCCs

be prepared by the RCC subgroup and included in the final report. Details of the interactions and activities led by the ICS Expert Panel and the RCC subgroup are shown in Figure 29.

Recommendations issued by the RCC subgroup will be tracked in a dedicated database and updated by each RCC for their respective SOR (Article 46.3). For the Central SOR region, this will be detailed in this report.

While the RIAR investigations aim to improve the regional processes defined in Article 37, RCCs have also continuously assessed the status and potential enhancements of legacy and intermediary implementations wherever they contribute to grid security. In addition, both TSCNET and Coreso operate internal processes for investigating and following up on minor incidents. As part of effective quality management, such post-operational analyses are integrated into every process. These 'minor' RCC-internal investigations are not included in the scope of the RIAR task and not included in this chapter.

12.1 Operational Performance

In 2025, the ICS SPOCs from Coreso and TSCNET were informed about three incidents which had the potential to be classified as level 2 or 3. In two cases, this information was in time and the nomination of the RCC members could happen within the foreseen timeframe. In the third case, there was a delay in the communication towards RCCs resulting in a nomination after the deadline of one week after the incident.

The investigation on the so-called Balkan blackout incident that took place on 21 June 2024 was finalised with the publica-tion of the Final report on 25 February 2025[25]. The remaining actions involving this incident is to follow and report on the implementation of the issued RCC Recommendations. More information is available in section 12.2.

On Monday 28 April 2025 at 12:33 CET the Spanish and Portuguese power systems experienced a total blackout, affect-ing a small area of South-West France close to the border with Spain without causing major impact on the rest of the Eu-ropean grid. A few minutes after the incident the restoration process was started, spanning through the night until the totality of the grid was restored. The investigation was triggered and members nominated shortly after, including an RCC Investigation subgroup as mandated by the RIAR methodology.

After some months focused on data gathering and understanding the sequence of events, the factual report was published on 03 October 2025. This report includes a chapter on RCC tasks and their performance, covering mainly Outage Plan-ning Coordination (OPC), Short Term Adequacy (STA), Coordinated Security Analysis (CSA), Coordinated Capacity Cal-culation (CCC), and Common Grid Model (CGM). The RCC Investigation conclusions and recommendations shall be included in the final report on the incident. The final report is expected to be published during Q1 2026.

Additionally other events were subject of ICS/RIAR investigations in 2025 such as the grid incident in North Macedonia on 18 May 2025 and the grid incident in Czech Republic on 04 July 2025. Both incidents were classified as Scale 2 or above but not meeting the RCC Threshold and thus not including an RCC Investigation subgroup.

Incident start	RCCs informed	Nomination	Classification	Factual Report	Final Report
21.06.2024	21.06.2024	27.06.2024	Scale 3 above RCC threshold	04.11.2024	25.02.2025
28.04.2025	28.04.2025	02.05.2025	Scale 3 above RCC threshold	03.10.2025	Expected in 2026
18.05.2025	30.05.2025	03.06.2025	Scale 3 below RCC threshold	10.11.2025	Expected in 2026
04.07.2025	07.07.2025	07.07.2025	Scale 2 below RCC threshold	19.12.2025	Expected in 2026

Table 25: List of scale 2&3 incidents in 2025

[25] https://www.entsoe.eu/news/2025/02/25/entso-e-publishes-the-final-report-on-the-grid-incident-in-south-east-europe/

12.2 Coordinated actions and recommendations

In February 2025, the RCC investigation subgroup for the incident on 21.06.2024 issued two recommendations to ENTSO-E TSOs. These recommendations aim at preventing similar incidents in the future through improvements in the regional processes included in Art. 37 of Regulation (EU) 2019/943. Both recommendations were limited to the 35 ENTSO-E members that are participating in regional processes through the delivery of IGMs.

Both recommendations include a target date of June 2026. It is possible that some TSOs won't be able to complete the implementation by then. In this case, they may request a review according to Art. 42.4 of Regulation (EU) 2019/943.

Recommendation R2411

Deliverable: All TSOs (only ENTSO-E members) should check and adjust (if needed) their internal processes to ensure the IGMs reflect topological (scheduled and unscheduled) changes (e.g. topology status, PST, exchange, load and generation). This IGM update should be automatic.

Action plan: By 30 June 2026, all TSOs (only ENTSO-E members) should check and, if necessary, adjust their internal pro-cesses to promptly reflect all scheduled and unscheduled topological changes (e.g. topology status, PST, ex-change, load, and generation) in all IGM time frames to enable a more frequent IDCF. The update should occur at least every four hours and ideally every hour.

Status December 2025: Since 20 TSOs already update their IGMs at least every four hours, the recommendation is only applicable to 15 TSOs. One TSO already informed that they would not be able to implement this recommendation and provided a justification. For the remaining 14 TSOs, several TSOs have started working on the implementation. However, they have not yet completed the adoption of the recommendation.

Recommendation R2412

Deliverable: Review the quality of voltage level calculations performed on CGMs to analyse whether improvements are possible.

Action plan: Some TSOs are generally unable to consider voltage measures (such as line disconnections) before real time due to suspected low accuracy of the voltage results from the DACF and IDCF. These TSOs, along with the respective RCCs, should perform a quantitative assessment of this accuracy by 30 June 2026. The purpose of this assess-ment is to understand the limitations of these calculations and make an objective decision regarding whether such measures can be considered earlier. Considering the dynamic nature of the grid and the modelling limitations, improvements in the quality of the results cannot be assumed. Additionally, in certain cases, a DC calculation and real-time measurements must be taken into consideration. Therefore, the objective of this recommendation is merely a quantitative assessment and deci-sion-making. This does not include any changes to the models themselves. Only by improving the IGMs can dy-namic simulations better reflect reality. ENTSO-E guidance may be available to support this.

Status December 2025: From the 35 TSOs, several TSOs have started working on the implementation. However, they have not yet completed the adoption of the recommendation. All RCCs are in contact with their TSOs to support the completion of this recommendation by June 2026. Two RCCs have already performed first quantitative assessments and shared the results with their TSOs.

Monitoring for Central Europe SOR:

Both recommendations were limited to the 35 ENTSO-E members that are participating in regional processes through the delivery of IGMs. TSCNET and Coreso are monitoring the implementation by 21 TSOs. This report refers to 19 TSOs, the other 2 are included in the SWE report by Coreso. The implementation by the other 14 TSOs is monitored by other RCCs.

Recommendation	Target Time	Target TSOs	Implemented	Not Implemented	Outcome achieved
R2411	30/06/2026	UA	-	UA (justified)	Central SOR TSOs already provide frequent IGM updates.
R2412	30/06/2026	All 19 TSOs	Not due yet (will be included in 2026 monitoring report)		

Table 26: Monitoring status of December 2025 for Central Europe SOR

12.3 Effectiveness and efficiency

Effectiveness of this task has been defined as:

- Nomination and communication of the RCC members within one week after the incident occurred.
- Publication of the final report, including the RCC chapter by the end of September in the year after the incident.

In two of three cases, the nomination and communication of the RCC members happened within one week after the incident. One case was delayed, but RCCs reacted promptly once they were informed.

The publication of the final report for the incident on 21.06.2024 was well within the foreseen timeline (publication on 25.02.2025, regulatory deadline 30.09.2025).

The efficiency of this task can be assessed based on published reports in case of the RCC investigation threshold being met. Reducing this down to a one number KPI is not possible since each incident case is unique and difficult to compare with the other cases.

In 2025, TSCNET spent 160 hours and Coreso 75 hours on the regular activities connected with the task such as improvement of methodologies and training material and certifying additional investigators. Additionally, TSCNET spent 515 hours and Coreso 466 hours on incident investigations. Most of these hours were linked with the incident on 28.04.2025.

12.4 Shortcomings

In 2025, RCCs identified some room for improvement concerning the timely communication about incidents and concerning the availability of data for the investigations. These points were raised with ENTSO-E and considered in the update of the ICS methodology[26] which will be applied from 2026 onwards.

[26] https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/Reports/2025/251215_ICS_Methodology_2026.pdf

13. Crisis scenarios

Well-integrated and efficiently functioning electricity markets, provide the strongest foundation for ensuring security of supply. Nevertheless, even under such favourable conditions, the risk of a crisis cannot be eliminated. Efforts towards the "Identification of the Most Relevant Regional Electricity Crisis Scenarios" has the aim to ensure the most effective and efficient risk preparedness within the European Union. Achieving coherence in risk assessments requires a harmonized methodology for identifying electricity crisis scenarios at both regional and national levels. In line with this objective, Article 6 of the Risk Preparedness Regulation requires ENTSO-E to identify the most relevant regional electricity crisis scenarios and to update the scenarios every four years. Accordingly, the report was submitted in September 2024, with the next update scheduled for 2028.

The Working Group Risk Preparedness (WG RP) was built comprising ENTSO-E, RCCs and TSO which worked closely to identify the most relevant regional electricity crises scenarios.

13.1 Operational Performance

For the report submitted in September 2024, a consolidated set of 23 regional electricity crisis scenarios was developed and evaluated by the Working Group on Risk Preparedness (WG RP). This set was derived from a systematic reassessment of the 31 regional crisis scenarios identified in 2020, complemented by additional inputs provided through ENTSO-E's consultation process with the Electricity Coordination Group (ECG – DG Energy of the European Commission), the RCCs, competent authorities, and regulatory authorities. Looking ahead to the next report, scheduled for submission in 2028, preparatory activities aligned with this methodology were pursued throughout 2025 to ensure a robust and updated scenario framework.

The activities and workshops conducted throughout 2025 made a significant contribution to achieving the objectives of studies under Crisis scenarios, enabling substantial progress toward updating the risk scenarios. The KPIs applicable to this chapter are designed for the targeted four-year reporting cycle. Therefore, no KPIs performed for each year within the reporting cycle. The work carried out over the past year is further detailed in the following sections.

13.2 Coordinated actions and recommendations

In 2025, the WG RP planned and organised several workshops with the objective of gathering input to improve the next Risk Preparedness (RP) report. The workshops addressed a range of critical crisis scenarios, including extreme Weather Scenarios, Malicious Acts and Cyberattacks, Space Weather Scenarios, and Fuel Shortages.

These meetings brought together a broad range of key stakeholders, including representatives from DG ENER, the Joint Research Centre (JRC), NATO, ENTSO-G, ENTSO-E, ENNOH, RCCs, and numerous TSOs.

13.3 Effectiveness and efficiency

In 2025, the WG RP organized a series of targeted workshops designed to collect structured input for improving the next RP report.

The effectiveness of these workshops stemmed largely from their ability to convene a broad and relevant group of stakeholders, including DG ENER, the JRC, NATO, ENTSO-G, ENTSO-E, ENNOH, the RCCs), and numerous TSOs.

This wide participation ensured that crisis scenarios such as extreme weather, malicious acts and cyberattacks, space weather, and fuel shortages could be examined in a comprehensive and coherent way, fostering shared understanding and improving the quality and relevance of the inputs gathered.

A key factor enhancing the effectiveness of the workshops was the incorporation of input derived from the European Commission's recommendations under the Risk Preparedness Regulation.

The workshops effectively addressed several critical risk categories, including extreme weather events, malicious acts and cyberattacks, space weather, and fuel shortages. This allowed participants to share cross-sectoral insights needed to strengthen Europe's preparedness strategies.

The efficiency of the workshops was reflected in their structured planning and organization. Pre-defined agendas, registration procedures, and coordinated communication channels helped streamline participation and minimize administrative overhead.

Sessions were focused and well-scoped, enabling stakeholders to discuss specific crisis scenario families without unnecessary divergence. This focus allowed for targeted exchanges that directly contributed to the improvement of scenario methodologies and the alignment of assumptions across organizations. The results of the workshops were not stand-alone: they fed efficiently into ongoing processes, such as ENTSO-E's long-term crisis scenario identification cycle, ensuring that efforts were not duplicated and that the outcomes supported broader policy and operational frameworks.

Overall, the 2025 WG Risk Preparedness workshops were both effective in creating high-quality, multi-stakeholder inputs for the RP report, and efficient in ensuring structured, purposeful, and well-coordinated exchanges that contributed directly to long-term European energy security planning.

13.4 Shortcomings

There are no shortcomings to be reported for this task.

14. MEC

The Maximum Entry Capacity (MEC) refers to the highest amount of capacity in MW that can be safely integrated into a Capacity Market (CM) from a neighbouring system over a given CM border for a given delivery period. This includes all eligible capacity resources, such as renewable and conventional sources of energy, without compromising the stability and reliability of the system within the CM border. According to Article 2.2(g) of ACER Decision No. 36/2020, a CM border is defined as a bidding zone to bidding zone border between Member States applying a capacity mechanism.

MEC calculations concern only eligible TSOs which currently are ELIA, RTE and PSE. Currently, TSCNET performs the MEC task for PSE while Coreso performs the task for RTE and Elia. In 2025, the data used as input is ERAA 2023 and ERAA 2024 data for TSCNET and Coreso responsible TSOs respectively. The tool used by the RCCs to perform the MEC calculation in 2025 is the industrialized tool for MEC. The tool was developed by ENTSO-E following the legal requirements of the Regulation (EU) 2019/943 of 5 June 2019 and ACER's decision No. 36/2020 and was successfully tested within the UAT phase by TSCNET, Baltic RCC, Coreso and relevant TSOs. Due to the delay in deploying the tool to the production environment, TSCNET used the industrial tool version within the UAT environment for the MEC 2025 calculation to ensure that it delivered the MEC recommendations report for PSE within the critical deadline. The production tool was used by Coreso as it was ready and deployed in time before the calculation for Coreso's responsible TSOs.

The eligibility criteria include having a CM open for direct cross-border participation. The MEC process plays a crucial role in ensuring a coordinated and efficient assessment of available cross-border capacity from different capacity resources and providers to participate in the capacity mechanism within the European energy market.

A more detailed introduction and definition of MEC, including a high-level explanation of the MEC computation procedures and full scope of the MEC task performed by the RCCs in line with the regulatory responsibilities of RCCs, are contained in the published MEC Recommendation on both TSCNET and Coreso's website:

- TSCNET – for PSE: https://www.tscnet.eu/recommendation-to-the-tso-2025-maximum-capacity-entry/
- Coreso – for Elia: https://www.coreso.eu/media/documents/
- Coreso – for RTE: https://www.coreso.eu/media/documents/

14.1 Operational Performance

The Operational performance KPI is defined as the successful completion of calculations requested by each relevant TSO per delivery period. From the RCC's perspective, operational performance is considered one hundred percent successful when the number of calculations successfully performed by the RCC equals the number of calculations requested by the TSO, considering the following conditions:

1. ERAA/NRAA data must be available and meet the requirements defined in the RCC MEC Business Requirements Document.
2. Calculations can be for the full target year (TY) or a partial period, per TSO or general.
3. Calculations performed using a replacement strategy at the TSO's request are also counted.
4. If the MEC calculation cannot be completed due to target year mismatches between ERAA and the TSOs' requested period, and no replacement strategy is available, TSOs must indicate a specific ERAA year. If not provided, the RCC KPI remains unaffected.

The operational performance of the MEC task is measured by the number of calculations performed compared to the number of calculations requested.

Performance KPI	Coreso_ELIA	Coreso_RTE	TSCNET_PSE
Number of performed calculations/ Number of requested calculations (%)	100%	75%	100%

Table 27: MEC Operational Performance KPI

Operational Performance KPI

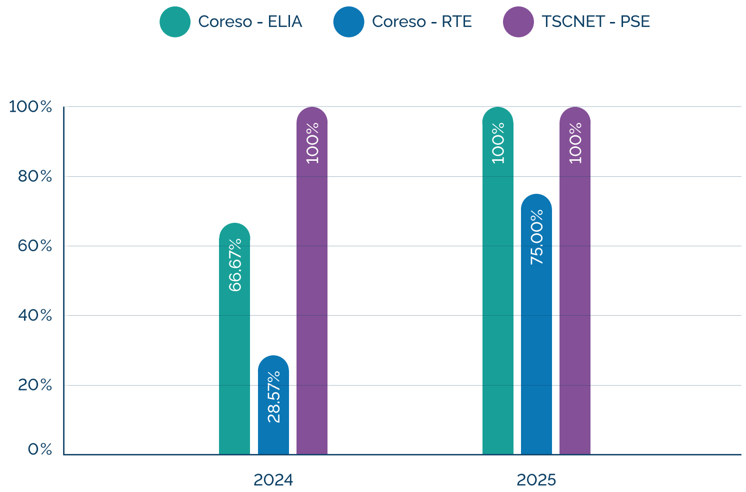


Figure 30: Evolution of MEC Operational performance KPI

- For Elia, Coreso performed 1 calculation out of the 1 requested.
- For RTE, Coreso performed 3 calculations out of the 4 requested calculations, due to missing matching target year from ERAA 2024. Moreover, the TSO did not indicate the use of the replacement strategy, so according to condition #4 of the Operational Performance, this should not negatively affect the KPI.
- For PSE, TSCNET performed 5 calculations out of the 5 requested calculations. For all delivery periods, replacement ERAA 2023 data was used due to the unavailability of the corresponding ERAA data for each respective delivery period. The use of the replacement input ERAA data was agreed and approved by PSE and all relevant computations were completed within the agreed delivery timeline of the MEC process as defined in the MEC Rule Book.

14.2 Coordinated actions and recommendations

In line with the with the legal requirements of Article 26.7 of Regulation (EU) 2019/943 and Article 6.7 of ACER decision No. 36/2020, the MEC service delivery by RCC to TSOs includes recommendations for each of the considered CM border and shall include all the details contained within Article 6.7 of ACER decision No. 36/2020. The final MEC recommendation is shared by each RCC with their respective TSOs. In compliance with the transparency requirement from Article 10 of ACER decision No. 36/2020, each RCC is required to publish the recommendation publicly on its website. More details and links are contained in the introduction section of the MEC chapter.

To ensure the compliance to the Article 46 of Regulation (EU) 2019/943, the recommended maximum entry capacity in MW per CM border for each TSO is monitored to confirm if the final capacity that was made available by the regulatory bodies for the capacity mechanism, is different from the recommended capacities of the RCC's MEC computation for each CM border.

14.2.1 Number of recommendations provided to TSOs

The number of recommendations provided for each TSO is contained in the respective RCC MEC recommendation for the given business year computation. Maximum Entry Capacity recommendation is provided for each requested by TSO delivery period. More details on the recommendations provided by both TSCNET and CORESO for PSE, Elia and RTE are publicly available on each RCC's website.

14.2.2 Implementation status of the recommendation in Capacity Mechanism

Through an agreed annual monitoring data collection process triggered by the RCCs to the relevant TSOs involved in the MEC process, TSOs confirm with an answer of "Yes" or "No" on whether they submitted the RCC's recommended entry capacity to their respective regulatory bodies:

- If the answer is "No", the TSO is required to provide the reason as of why the recommendation from the RCC was not submitted.
- If the answer is "Yes", a follow-up question is asked, to confirm on whether the regulatory bodies implemented the RCC recommended entry capacity or not.
- If the answer is "Not implemented" or "No", the TSO is also required to provide justification as to why.

For the MEC 2025 computation, below are the details of the monitoring of the MEC coordination process and recommendation implementation status for each of the TSOs:

1. The RCC MEC recommendation from Coreso for Belgium was not adopted in the Ministerial Decree, for the following key reasons below, based on a proposal from CREG (BE NRA) and the calibration report published by Elia:

    a. ERAA does not include a central reference scenario with capacity mechanisms. This is the scenario that the RCCs should use for calculating the MEC, according to the technical specifications. ERAA 2024 did not include this scenario. The scenarios from ERAA are not calibrated to the security of supply, criteria (LOLE) neither for Belgium nor abroad. This means that the level of adequacy in Belgium and abroad is not aligned with the desired one, which is necessary for the correct calculation of auction parameters.

    b. b.ERAA2024 does not follow the "reference scenario" selected by the BE Energy Minister for the CRM reports defining relevant auction parameters including MEC. The selected "reference scenario" considers, for example, lower nuclear availability in France than the one in ERAA2024. It means that the RCC calculation is not compliant with the reference scenario selection from the Belgian authorities. Using a scenario with less capacity available in the system, might have resulted in lower MEC.;

2. RTE did not adopt the RCC MEC recommendation from Coreso for the following key reason:

    a. MEC between member states is a parameter whose result is very sensitive to the hypotheses and methodologies underlying it. MEC submitted by Coreso are based on ERAA 2024. However, RTE considers that ERAA 2024 does not sufficiently address the specific characteristics of the French electricity system, which is notably highly dependent on nuclear availability and is very sensitive to temperature (see French country comments about ERAA 2024). Consequently, the representativeness of the MECs proposed by Coreso for France must be examined with hindsight.

3. PSE submitted the RCC MEC recommendation from TSCNET as an annex to the Own Capacity Market Parameters recommendation report. PSE also confirmed through the RCC monitoring survey that the RCC MEC recommended capacities from TSCNET were not the final values implemented by the responsible Polish National Ministry of Energy due to the following reasons:

    a. The Polish CM follows a different border configuration than the RCC MEC recommendation. Instead of bidding zone-to-bidding zone CM borders, it uses a Member State-to-Member State or Member State-to-Multiple Member States (profile) approach that is defined in EC State Aid Decision and Polish Na-tional law. As a result, direct implementation of the RCC recommendation was not feasible.

    b. The final (implemented) MEC values by the Polish National Ministry of Energy were calculated using the same inputs as the RCC MEC recommendation but aligned with the existing CM border configuration.

14.3 Effectiveness and efficiency

We defined the Efficiency KPI for the MEC service performed by the RCC as the ratio of the number of delivered final recommendation reports on or before the agreed deadline compared to the total number of delivered final recommendation reports. We considered the recommendation delivered by the RCCs for each of the calculated delivery period to be individual recommendations, covering all the defined CM borders for each of the relevant TSOs. All recommendations for each TSO are contained within a single RCC recommendation report for the respective business year. The efficiency KPI from RCCs perspective is calculated considering the following condition:

- Late delivery or non-delivery of ERAA/NRAA from ENTSO-E/TSO shall not impact this RCC KPI negatively.

For the 2024 business year MEC computation performed in 2025, Coreso as the responsible RCC for both Elia and RTE delivered 2 recommendations out of 2 before the agreed deadline to Elia and RTE, while TSCNET as the responsible RCC for PSE delivered 5 recommendations out of the requested 5 delivery period computation before the agreed delivery deadline. In the case of Elia and RTE, there were more target year delivery period computations requested by the TSOs but the relevant MEC recommendation could not be performed for those delivery periods due to lack of suitable input ERAA data, hence that case does not impact the efficiency KPI of RCC, as it falls within the defined condition of exemption.

Efficiency KPI	Coreso_ELIA	Coreso_RTE	TSCNET_PSE
Number of delivered final recommendation reports on or before deadline agreed/ Total number of delivered final recommendation reports (%)	100%	100%	100%

Table 28: MEC Efficiency KPI

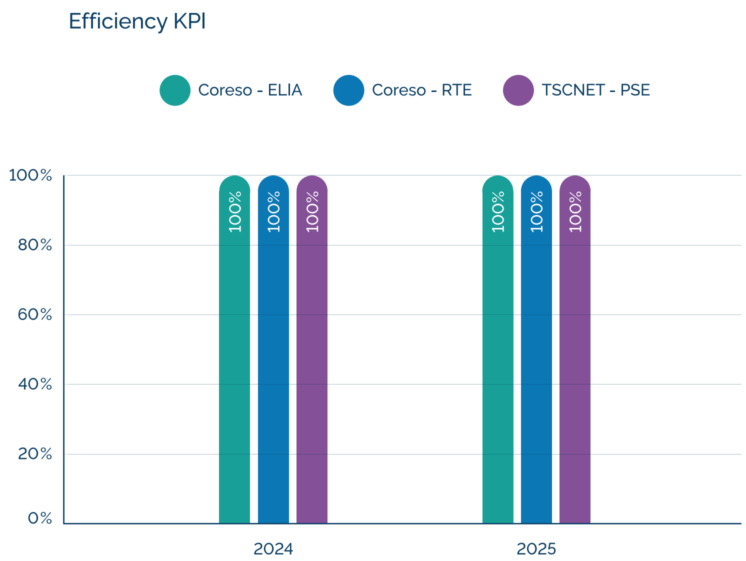


Figure 31: Evolution of MEC Efficiency KPI

For the Effectiveness KPI of the MEC service there is no quantitative metric applicable (N/A), but the RCC considers the MEC service delivery to be effective based on the following criteria:

1. Compliance with MEC methodology requirements in both design and implementation;
2. Publication of final MEC recommendations and metadata on the RCC website;
3. Ongoing follow-ups with TSOs to monitor implementation in compliance with the Article 46 of Regulation (EU) 2019/943;
4. Proper storage and archiving of all MEC input and result data in accordance with the RIAR methodology.

14.4 Shortcomings

Both Coreso and TSCNET issued the MEC recommendation to their respective eligible TSOs, RTE and ELIA for Coreso and PSE for TSCNET. However, none of these TSO's National Energy Ministries have implemented the RCCs' recommendation in the final published maximum entry capacities for their respective CM Borders.

In the case of PSE, the RCC recommended MEC was submitted to the National Ministry but was not considered by the ministry due to the existence of a different border configuration between the MEC methodology and the implemented CM border in Poland according to the Polish national law.

The key reason for non-implementation for Elia and RTE is related to the ERAA 2024 scenario which differs from CRM dimensioning and does not ensure that Loss of Load Expectation (LOLE) criteria are met.

TSCNET Services

coreso