ACER

European Union Agency for the Cooperation of Energy Regulators

Regional Coordination Centres' (RCC) reporting obligations in 2023

ACER monitoring report

13 March 2025

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Table of contents

EXECUTIVE SUMMARY

Greater EU energy market integration requires increased regional cooperation and the advancement of an enhanced framework for electricity system operation. Regional coordination centres ('RCCs') play a crucial role in supporting these developments.

Indeed, RCCs have been established to contribute effectively to the coordination of transmission system operators ('TSOs') within each system operation region ('SOR') and across regions. In close cooperation with TSOs, RCCs aim to increase efficiency in system operation, minimise security risks and blackouts, reduce the costs of electricity and increase competition in electricity markets by providing the maximum available transmission capacity to market participants.

RCCs are required to carry out 16 tasks as per the requirements of the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity ('Electricity Regulation'), in particular Article 37 and Annex I.

Since 2023, the European Union Agency for the Cooperation of Energy Regulators (ACER) has been monitoring the regular reporting obligations of RCCs in line with Article 46(3) of the Electricity Regulation.

This report is the second ACER Monitoring Report of RCCs' reporting obligations and presents the main findings of the RCCs' first full year of operation since their establishment in 2022. It covers the reporting period of 2023, which saw important progress in the development and implementation of tasks in all RCCs.

The implementation status of RCC tasks presented in this report is based on the RCCs' own assessment and reporting.

In addition to monitoring the RCCs' reporting, ACER monitors the compliance of RCCs with their obligations. For example, one aspect being monitored since 2022 is the RCCs carrying out coordinated capacity calculation, in accordance with Article 16(3) of the Electricity Regulation.

As of 2025, ACER is monitoring each RCC task to complement the information provided by the RCCs in their reporting and obtain a complete understanding of the implementation status and performance across all tasks and RCCs. The result of this monitoring will be gradually included in ACER's reports in the next years.

All ACER reports monitoring the RCCs are published on ACER's website[1] once available.

[1] See New Electricity Regulation | www.acer.europa.eu

Status of RCC tasks

16 tasks	4 tasks implemented in all RCCs	4 tasks in operation in most RCCs	4 tasks under development	4 tasks not delegated or not requested

The RCC reports published in 2024 covered the performance of their tasks in 2023, the first full year of operation of RCCs. With regard to this period, the RCCs monitored and reported on in greater detail in their reports on nine tasks:

- Coordinated capacity calculation,
- Coordinated security analysis,
- Common grid model,
- Consistency defence and restoration plans,
- Short-term adequacy,
- Outage planning coordination,
- Training and certification,
- Post-disturbance analysis and
- Regional sizing of reserve capacity.

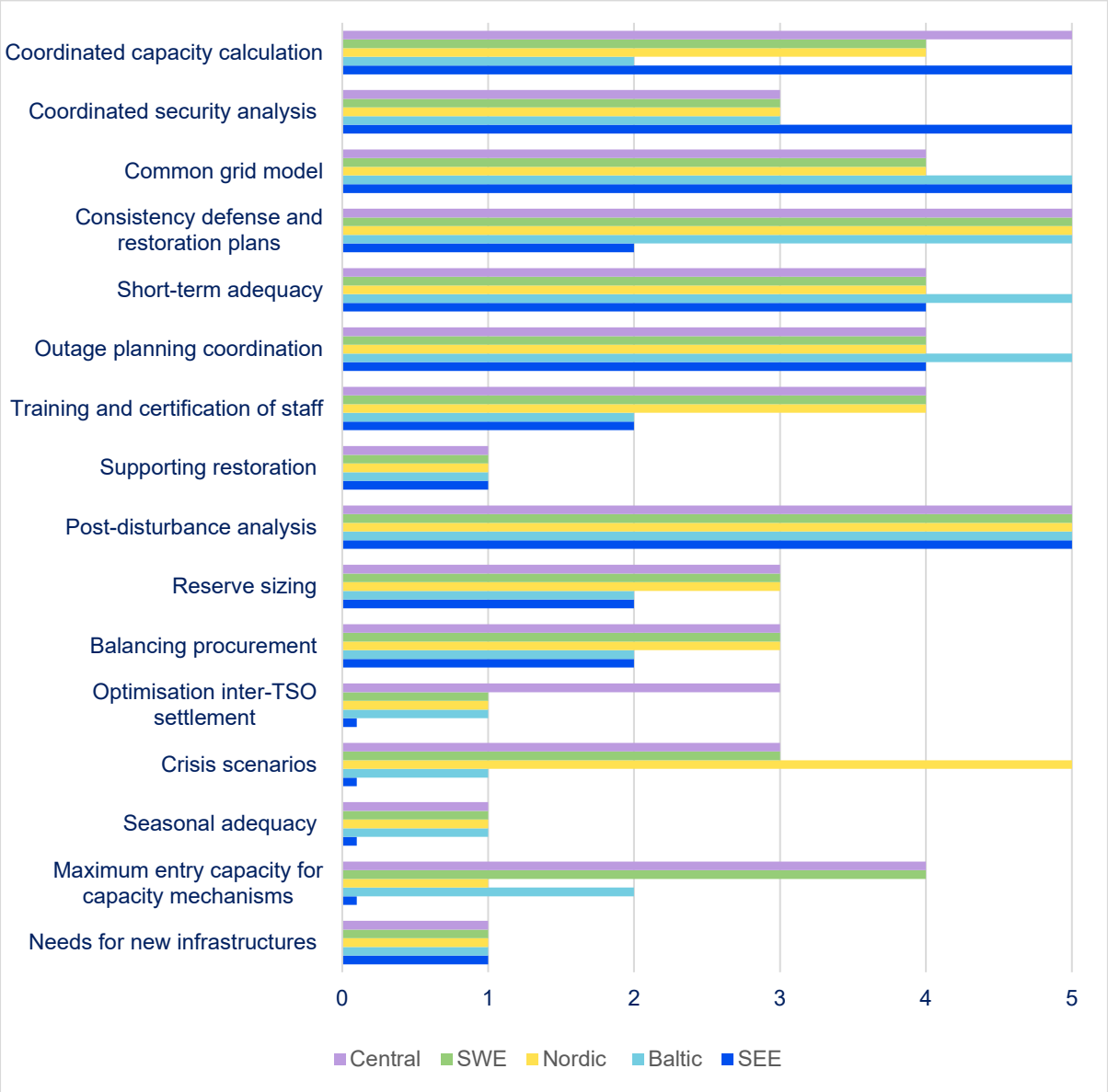
As identified in ACER's first monitoring report on the RCC's reporting obligations[2], no task had been reported as fully implemented by all RCCs with regard to 2022. Since then, RCCs made progress in terms of RCC task implementation. In 2023, all RCCs have reported to have an operational common grid model, post-disturbance analyses, outage planning coordination and short-term adequacy:

- the process for carrying out the common grid model task is reported to be implemented, with RCCs building common grid models in different time horizons, in some cases using the more advanced common grid model exchange standard format for the CGM process. In 2023, CGMs were created in two days ahead and in intra-day timeframes, and partially in the day-ahead and year-ahead timeframes based on a rotational principle;
- the task of coordinated capacity calculation became operational in most RCCs, with further development pending for longer-term timeframes. In 2023, discussions were ongoing on the implementation of the flow-based methodologies for calculating capacities;
- progress will continue to take place as RCCs reported shortcomings on five tasks including missing or invalid TSO inputs (coordinated capacity calculation), inadequate IT infrastructure (coordinated security assessment, outage planning coordination), performance issues (common grid model) and communication improvements (post-disturbance analysis).

The RCC tasks under development have not experienced major changes since 2022. It is expected that the RCC performance reporting in the coming years will cover in more detail the remaining tasks as soon as these are being gradually implemented by the RCCs and the related methodologies are approved.

[2] ACER Monitoring Report on Regional Coordination Centres' (RCC) reporting obligations in 2022

Figure 1: Implementation status of RCC tasks in 2023 in all SORs (as reported by RCCs)



5 – in operation; 4 – in operation and under further development; 3 – under development; 2 – task pending implementation; 1 – not requested by TSOs or pending methodology; 0 - not reported

Source/Note: ACER based on RCC reports.

ACER Conclusions

ACER concludes that RCCs should act to:

1. **Ensure swift implementation of tasks.** RCCs' tasks remain a prerequisite for advancing EU electricity market integration and TSOs' regional coordination.
2. **Explain and clarify the rotation of tasks among RCCs**, such as for the task on the common grid model. Consider assessing the effectiveness and efficiency of the rotation principle where relevant.
3. **Progress on the common grid model task.** RCCs should closely follow the performance of this task and update ACER on its progress and identified shortcomings regarding the common grid model process.

4. **Ensure capacity calculation is extended to all timeframes.** Continue the progress on capacity calculation by implementing long-term and balancing timeframes.
5. **Extend outage planning coordination to power generating modules and demand facilities** to enhance coordination within and between system operation regions and ensure reliable system operation.
6. **Understand if relevant RCCs could help bridge the gaps in the individual TSOs' observability areas**[3] by making use of supervisory and data acquisition systems where necessary.
7. **Improve the RCC reporting of information by providing details and clarity** namely on key performance indicators, implementation status, changes from previous years, visuals, text and terminology, and ensure the submission of the reports, facilitated by ACER tools.

[3] As defined in Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation, observability area means a TSO's own transmission system and the relevant parts of distribution systems and neighbouring TSOs' transmission systems, on which the TSO implements real-time monitoring and modelling to maintain operational security in its control area including interconnectors.

1. Background

This is the second ACER Monitoring Report ('the Report') covering the performances of regional coordination centres ('RCCs')[4]. It is based on the individual RCC reports[5] published by the RCCs in accordance with Article 46(3) of Regulation (EU) 2019/943 ('Electricity Regulation') for the reporting year 2023.

Article 46(1) of the Electricity Regulation requires RCCs to monitor their own operational performance, coordinated actions and recommendations issued, effectiveness and efficiency and submit an annual report based on the outcome of this monitoring.

RCCs are requested to report on 16 tasks provided for in Article 37 of the Electricity Regulation (Table 1). The table includes a reference as to whether the relevant methodology for each task has been approved by 2023 and where applicable, if the task applies per capacity calculation region (CCR).

Table 1. Overview of RCC tasks

Article 37(1) tasks	Brief descriptions	Methodology approved in 2023
a) Coordinated capacity calculation (CCC)	Calculating the maximum available cross-border capacity in the capacity calculation regions while ensuring grid security[6].	✓ (per CCR)
b) Coordinated security analysis (CSA)	Forecasting potential security risks, such as voltage and congestion issues, and ensuring secure system operation.	✓ (per CCR)
c) Common grid model (CGM)	Creating a Union-wide data set describing the main characteristics of the power system (generation, load and grid topology) and rules for changing these characteristics during the capacity calculation process.	✓
d) Consistency defence and restoration plans	Putting in place the technical and organisational measures to be undertaken to prevent the propagation or deterioration of a disturbance in the transmission system, in order to avoid a wide area state disturbance and blackout state.	**N/A** - Article 6 of the Network Code Emergency and Restoration
e) Short-term adequacy (STA)	Ensuring that there is sufficient generation capacity to meet demand (weak ahead adequacy to at least day-ahead).	✓
f) Outage planning coordination (OPC)	Harmonising regionally differing outage planning processes and data format for data exchange for operational planning.	✓
g) Training and certification of staff	Training and certification of staff working for RCCs.	✓

[4] The first RCC monitoring report 2022 was published in March 2024.

[5] See table 3 of this Report.

[6] In 2024, this task was amended to cover all timeframes by Regulation (EU) 2024/1747 of the European Parliament and of the Council of 13 June 2024 amending Regulations (EU) 2019/942 and (EU) 2019/943 as regards improving the Union's electricity market design – *a) carrying out the coordinated capacity calculation in accordance with the methodologies developed pursuant to the forward capacity allocation guideline established by Regulation (EU) 2016/1719, the capacity allocation and congestion management guideline established by Regulation (EU) 2015/1222 and the electricity balancing guideline established by Regulation (EU) 2017/2195).*

h) Coordination and Optimisation of Regional Restoration (Supporting restoration)	RCCs shall support the TSOs on improving the efficiency and effectiveness of system restoration.	✗
i) Post-operation and post-disturbances analysis and reporting (Post disturbance analysis)	Reporting on incidents corresponding to a threshold above which the impact of actions of one or more TSOs in the emergency, blackout or restoration states is considered significant for other TSOs synchronously or non-synchronously interconnected.	✓
j) Regional sizing of reserve capacity (Reserve sizing)	Calculating the reserve capacity requirements with the objective of maintaining the operational security in the most cost-effective manner.	✓ (July 2023)
k) Regional procurement of balancing capacity (Balancing procurement)	Supporting the TSOs in determining the amount of balancing capacity that needs to be procured.	✓ (July 2023)
l) Optimisation inter-TSO settlement	Supporting TSOs in administering the financial flows related to settlements between TSOs involving more than two of them.	✓
m) Crisis scenarios	If delegated by ENTSO-E, identifying regional electricity crisis scenarios and supporting competent authorities upon their request in preparing and carrying out biennial crisis simulation.	✓
n) Seasonal adequacy	If delegated by ENTSO-E, carrying out regional seasonal adequacy assessments on the probability of occurrence of different electricity crisis scenarios, such as capacity outage, severe weather conditions, simultaneous electricity crisis and others.	✓
o) Maximum entry capacity for capacity mechanisms	Calculating the maximum entry capacity available for the participation of foreign capacity in capacity mechanisms, considering the expected availability of interconnections and the likely concurrence of system stress between the two of them.	✓
p) Needs for new infrastructures	Supporting TSOs in identifying needs for upgrades and new transmission capacity or flexibility alternatives.	✗

The RCC tasks referred to in Table 1 are set out in more detail in Annex I of the Electricity Regulation and are linked to their relevant methodologies. Some of the tasks of Article 37(1) and Annex I of the Electricity Regulation depend on a request from TSOs or delegation from ENTSO-E. Where the tasks were not covered by the relevant network codes or guidelines, the Electricity Regulation requires that ENTSO-E develops proposals for such methodologies, to be approved by ACER in accordance with Article 37(5). Each methodology provides a timeline and any relevant conditions for its implementation.

The methodologies for tasks h) supporting the coordination and optimisation of regional restoration (supporting restoration) and p) needs for new infrastructures are still under development, while the remaining tasks covered in the relevant network codes or methodologies were already approved (except for the methodologies for capacity calculation for the balancing timeframe).

In July 2023, ACER approved methodologies for two RCC tasks: j) regional sizing of reserve capacity (reserve sizing) and k) regional procurement of balancing capacity (balancing procurement), meaning that work on these tasks by the RCCs was pending development for the 2023 reporting period. Although not previously delegated by ENTSO-E to RCCs, task m) crisis scenarios is now expected to go live in 2024 and 2025 in some RCCs and it is already reported in operation in one RCC. One task continues not to be delegated by ENTSO-E to RCCs: (n) seasonal adequacy. In four RCCs, task l) optimisation on inter-TSO settlement is not requested by TSOs.

2. Summary and assessment of RCC reports

2.1. RCCs' overview and report submissions

Five RCCs have been established in 2022 in the EU. These have registered seats in different Member States and cover different system operation regions (SOR) and capacity calculation regions (CCR) and TSOs, as outlined in the table below.

Table 2. Overview of RCCs in the EU

RCC	Registered Seat	SOR[7]	CCR[8]	Participating TSOs
Coreso	Brussels, Belgium	Central Europe and SWE	Core Italy North SWE	50Hertz, EirGrid, Elia, National Grid ESO, REE, REN, RTE, SONI, Terna
TSCNET	Munich, Germany	Central Europe	Core Italy North Hansa	50Hertz, Amprion, APG, Creos, ČEPS, ELES, HOPS, MAVIR, PSE, SEPS, Swissgrid, TenneT (DE), TenneT (NL), Transelectrica, TransnetBW, VUEN
Baltic RCC	Tallinn, Estonia	Baltic	Baltic	Elering, AST, Litgrid
Nordic RCC	Copenhagen, Denmark	Nordic	Nordic Hansa	Statnett, Energinet, Fingrid, Svenska Kraftnet
SEleNe CC	Thessaloniki, Greece	SEE	SEE Greece-Italy	ESO, IPTO, Terna

Coreso and TSCNET both cover the Central SOR and the CCR Core and Italy North. **Coreso** is the RCC for South-West Europe (SWE) SOR. **TSCNET** assumes the RCC role for the CCR Hansa, together with **Nordic RCC**. The **Nordic RCC** performs regional coordination tasks concerning the Nordic regions. The **Baltic RCC** covers the regional coordination tasks for the Baltic regions, whereas **SELeNe CC** performs regional tasks for the South-East Europe (SEE) SOR. It covers two CCRs: the Greece – Italy (GRIT) CCR and SEE (Greece (GR) – Bulgaria (BG) – Romania (RO)). SELeNe also established a subsidiary company (Esperia CC) located in Rome that deals with the six bidding zones within Italy.

In accordance with Article 46(5) of the Electricity Regulation, the RCCs' annual reports have been published on the respective websites of the RCCs. In line with Article 46(3), these reports must be submitted to ACER and regulatory authorities.

[7] SOR in accordance with Article 36 of the EU Regulation 2019/943 and ACER Decision No 05/2022

[8] See ACER Decision No 04/2024 on the amendment to the determination of capacity calculation regions.

Table 3. Article 46 of the Electricity Regulation (RCC Annual Reports – 2023 – received in 2024)

RCC and link to published report	Submission
Coreso[9]	Annual report for the performance in the SWE SOR published and received on 18 September 2024. Annual report on Central Europe SOR jointly with TSCNET published and received on 18 September 2024.
TSCNET[10]	Annual report on Central Europe SOR jointly with Coreso published on 18 September 2024 and received on 18 September 2024.
Baltic RCC[11]	Annual report published on 11 April 2024 and received by the NRAs on 10 October 2024.
Nordic RCC[12]	Annual report published and received on 23 April 2024.
SEleNe CC[13]	Annual report published on 21 August 2024 and received by the NRAs on 24 August 2024.

As Coreso and TSCNET submitted a joint report for the Central Europe SOR, the Report looks at their obligations jointly in section 2.3. Coreso's report on SWE SOR is covered separately in section.2.4.

Sections 2.5, 2.6 and 2.7 cover the remaining submitted reports by the Baltic RCC, Nordic RCC and, respectively SEleNe RCC.

[9] https://www.coreso.eu/media/documents/

[10] https://www.tscnet.eu/wp-content/uploads/20240912bis_Coreso_Rapport_Technique_Central_SOR.pdf

[11] https://baltic-rcc.eu/about/annual-reports

[12] https://nordic-rcc.net/wp-content/uploads/2024/04/Nordic_RCC_Annual_Report_2023.pdf

[13] https://www.selene-cc.eu/sites/default/files/2024/08/SELENE%20CC_REPORT_WEB.pdf

2.2. Reporting and implementation overview of RCC tasks

This section presents a general overview across all the RCC tasks in the EU, providing an outline of which tasks the RCCs reported on and which tasks have been implemented in all RCCs regarding the 2023 reporting period.

In addition, Table 4 describes what had been the reported status in the previous reporting period (2022). The text in green highlights the changes as compared to 2022.

The colours used in the table indicate the implementation status across all RCCs; if, e.g., all but one RCC have reported to have implemented a task, the colour used will still indicate partial implementation.

Table 4. Reporting and implementation status of the tasks across all RCCs (as reported by the RCCs)

Task as per Article 37(1)	Implementation status in 2023	2022
a) CCC	**Coreso and TSCNET:** In operation for long-term (LT) IN, in operation and under further development for day-ahead (D-1) CORE, D-1 IN, intra-day (ID) IN and ID CORE (go-live due on 28 May 2024), under development for LT CORE (go-live due in Q4 2025) **Coreso:** In operation and under further development for D-1, ID SWE; Under development for LT SWE **Nordic RCC:** In operation and under further development (D-1 go-live expected in October 2024) **Baltic RCC:** Initial implementation deadline set for 2024 **SEleNe CC:** Fully operational (D-1, ID, month-ahead (M-1), CSA IN)	
b) CSA	**Coreso and TSCNET:** Under development for CORE (go-live for CROSA D-1 due in Q3 2025; and for CROSA ID in Q4 2025) and for IN (go-live for CROSA D-1 in 2026; and for CROSA ID in 2027) **Coreso:** Under Development for SWE **Nordic RCC:** Under development; CSA V.1 expected to go live in 2024 **Baltic RCC**: Partially developed service, full scope in 2024 **SEleNe CC:** Implemented and in operation (already in 2022)	
c) CGM	**Coreso and TSCNET:** In operation and under further development **Coreso:** In operation and under further development **Nordic RCC:** In operation and under further development (regional D-1 CGM in operation, regional Y-1 CGM merged in 2023 for the first time) **Baltic RCC:** Implemented and in operation **SEleNe CC:** In operation (using individual grid models (IGMs) in UCTE format for D-1, D-2 and ID and year-ahead (Y-1) and the Common Grid Model Exchange Standard (CGMES) format for the CGM creation process)	
d) Consistency defence and restoration plans	**Coreso and TSCNET:** In operation (go-live every 5 years; next exercise in 2024 – 2025) **Coreso:** In operation (go-live every 5 years; next exercise in 2024 – 2025) **Nordic RCC:** In operation **Baltic RCC:** Implemented and in operation **SEleNe CC:** Pending implementation; completion set in 2024	
e) STA	**Coreso and TSCNET:** In operation and under further development **Coreso**: In operation and under further development **Nordic RCC:** In operation and under further development (participation in pan-European STA) **Baltic RCC:** Implemented and in operation **SEleNe CC:** In operation for STA 1.A phase; STA 1.B phase under development (in 2023, SELeNe carried out an impact analysis on STA 1.B)	
f) OPC	**Coreso and TSCNET:** In operation[14] and under further development **Coreso:** In operation and under further development **Nordic RCC:** In operation and under further development (Pan-EU and regional OPC operational) **Baltic RCC:** Implemented and in operation **SEleNe RCC:** In operation in week-ahead (W-1) and Y-1; OPC tasks will transition from the UCTE to the CGMES format from 2024	
g) Training and certification of staff	**Coreso and TSCNET:** In operation and under further development (go-live due on 18 May 2024, go-live certification in Q2 2026)	

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

		Coreso: In operation and under further development (go-live process on 18 May 2024; go-live certification in Q2 2026) **Nordic RCC:** In operation and under further development **Baltic RCC:** Initial implementation deadline set for 2024 **SEleNe CC:** Started preparations for the envisaged launch of the training & certification programme in May 2024; Task is still under development	
h)	Supporting restoration	**Coreso and TSCNET:** Methodology under drafting **Coreso:** Methodology under drafting **Nordic RCC:** Not yet started (proposal under development by ENTSO-E) **Baltic RCC:** Initial implementation set for 2025 **SEleNe CC:** Not reported	
i)	Post-disturbance analysis	**Coreso and TSCNET:** In operation **Coreso:** In operation **Nordic RCC:** In operation **Baltic RCC:** Implemented **SEleNe CC:** In operation - live since March 2023; Training and certification will be finalised in 2024	
j)	Reserve sizing	**Coreso and TSCNET:** Under development (Go-live: Q3 2026) **Coreso:** Under development (go-live due in Q3 2026) **Nordic RCC:** Under development **Baltic RCC:** Pending development of methodology[15]; initial implementation set in 2026 **SEleNe CC:** Not implemented; Preparations will start in 2024, and the go-live in 2026	
k)	Balancing procurement	**Coreso and TSCNET:** Under development (go-live in Q3 2025) **Coreso:** Under development (go-live in Q3 2025) **Nordic RCC:** Under development **Baltic RCC:** Pending development of methodology[16]; initial implementation set for 2025 **SEleNe CC:** Not implemented; Preparations will start in 2024, and the go-live in 2026	
l)	Optimisation Inter TSO settlement	**Coreso and TSCNET:** Cost sharing calculation under development (go-live due latest 1 year after CROSA go-live) **Coreso:** Not requested by TSOs **Nordic RCC:** Not requested by Nordic TSOs **Baltic RCC:** Task available on demand **SEleNe CC:** Not reported/ not implemented	
m)	Crisis scenarios	**Coreso and TSCNET:** Under development (go-live exercise every 4 years; next exercise in 2024-2025) **Coreso:** Under development (go-live exercise every 4 years; next exercise in 2024 – 2025) **Nordic CC:** In operation **Baltic RCC:** Task available on demand **SEleNe RCC:** Task was not carried out and no monitoring was performed[17]	
n)	Seasonal adequacy	**Coreso and TSCNET:** Task not requested by TSOs or not delegated by ENTSO-E **Coreso:** Task not delegated / not requested by TSOs **Nordic RCC:** Task not requested by Nordic TSOs **Baltic RCC:** Task available on demand **SEleNe RCC:** Not reported / Not implemented	
o)	Maximum entry capacity for capacity mechanisms	**Coreso and TSCNET:** In operation and under further development (go-live due in December 2023) **Coreso:** In operation and under further development (go-live due in December 2023) **Nordic RCC:** Task not requested by Nordic TSOs **Baltic RCC:** Initial implementation deadline set for 2024 **SEleNe RCC:** Not reported / Not implemented	
p)	Needs for new infrastructures	**Coreso and TSCNET:** Methodology under drafting **Coreso:** Methodology under drafting **Nordic CC:** Not yet started **Baltic RCC:** Initial implementation deadline set for 2025 **SEleNe CC:** Methodology under drafting	

[15] ACER approved this methodology in July 2023 (ACER Decision No 12-2023 on the Regional Coordination Centre Regional Sizing of Reserve Capacity Methodology)

[16] ACER approved this methodology in July 2023 (ACER Decision No 13-2023 on the Regional Coordination Centre Regional Procurement of Balancing Capacity Methodology)

[17] ACER Decision No 02-2024 on the amendment of the methodology for identifying regional electricity crisis scenarios. The process of identifying regional crises scenarios started at the end of 2023 and concluded in 2024. The focus of the amendment was on updating RCC tasks within the methodology.

Colour codes:

- Task reported as implemented by all RCCs
- Task reported on as partially implemented, under development or pending implementation
- Task not reported on with ongoing implementation
- Task not implemented / pending the approval of the relevant methodology
- Task not delegated to RCCs

2.3. TSCNET & Coreso (Central Europe SOR)

2.3.1. Fulfillment of reporting obligations

Table 5. Overview of fulfilment of reporting obligations for implemented tasks (TSCNET & Coreso)

Reporting obligations	Article 37 tasks reported on
RCC's operational performance Article 46(1)(a)	a) (CCC for Core & Italy North CCRs) c) (CGM) e) (STA) f) (OPC) i) (Post-Operation Analysis)
Coordinated actions and **recommendations** issued, the extent to which those have been implemented by the TSOs and the outcome achieved Article 46(1)(b)	Reported that none were issued for: a) (CCC for Core & Italy North CCRs) c) (CGM) e) (STA) f) (OPC) i) (Post-Operation Analysis)
Effectiveness and **efficiency** of each of the tasks for which they are responsible and, where applicable, the rotation of those tasks Article 46(1)(c)	a) (CCC for Core & Italy North CCRs) c) (CGM) e) (STA) f) (OPC) i) (Post-Operation Analysis)
Costs Article 46(2)	✓
Shortcomings Article 46(4)	✓

The remaining tasks are not yet fully developed, implemented and/or operational and therefore not reported on by Coreso and TSCNET.

All tasks are applicable (once developed and implemented), except for the following task which is not yet fully developed:

- n) (Seasonal Adequacy) - Not requested by TSOs or not delegated by ENTSO-E

2.3.2. Summary of the report

This subsection presents a high-level summary of the performance of the RCCs, based solely on the information provided in the reports as published by the RCCs.

Table 6. High-level summary of the report (TSCNET & Coreso)

Article 37 tasks	Article 46(1)(a)	Article 46(1)(b)		Article 46(1)(c)	
	Operational performance	Coordinated actions	Recommendations	Effectiveness	Efficiency
a) (CCC (Flow-Based)) – DACC for CORE CCR	- Successful execution of day-ahead capacity calculation (DACC) process (KPI: total number of timestamps successfully delivered (even if fallback procedures are applied) divided by total number of possible timestamps): **100%** - In 2022, different KPIs were used: merging success rate 99.78% (9 timestamps for 3 days where merging results were not delivered due to failures) and NRAO success rate 96.14%	None issued. Reporting will be done once the coordinated validation method is approved (August 2024) and the confirmation procedure as per Article 13(2) of the RCC establishment provisions is implemented.		- Total computation rate (total number of timestamps where final cross-border capacities were delivered without any fallback procedures): **99.95%** - 4 incidents led to fallback procedures - In 2022, other KPIs were used: Merging success rate 99.93% (3 timestamps on 3 days where merging results were not delivered due to failures) and fallback success rate 99.72%	- Percentage of business days for which the capacity results were delivered before target end time: **95.03%** - In 2022, different KPI: NRAO success rate (timestamps without local reductions applied) 70.19%
a) (CCC (NTC)) - DACC & IDCC for Italy North CCR	- Successful execution of DACC & intra-day capacity calculation (IDCC) processes (see KPI above): - **DACC** (by Coreso): 93.8% (↓ from 96.4% in 2022), (i.e., in 6.2% of the timestamps Terna had to apply additional fallback procedures) - **IDCC** (by Coreso & TSCNET): **96.99%** (↓ from100% in 2022), (i.e. for 3.01% backup net-transfer capacity (NTC) values were used by TSOs due to (IT or missing input) failure of the Coreso - Tool.)	None issued (as not yet required, but may be implemented, once CCR IN is merged with Core CCR).	None issued.	- Total computation rate (see definition above): - **DACC 89.00%** (↓from 99.95% in 2022), i.e. for 11% Coreso was not able to provide any computed results due to missing or invalid TSO input (4.6%) or IT issues (6.2%) - **IDCC 62.24%** (↑ from 50,41% in 2022), i.e. for 37.76% fallback or backup procedures were needed due to missing or invalid TSO input (22,15%) or IT issues (15.61%)	- **DACC** efficiency rate (i.e. initial computed total transmissible capacity without reduction divided by total timestamps): **67.36%** (↑ from 55,03% in 2022), i.e. for 32.64% TSOs used the validation phase to reduce the calculated total transmissible capacity. - **IDCC** efficiency rate: **61.60%** (↓ from 67.03% in 2022), i.e. in 38.4% at least 1 TSO requested a capacity reduction due to security issues.
b) (CSA)	Under development; Legacy Security Assessment in operation for CORESO & TSCNET shareholders. Go-live regional operational security coordination / CROSA for CORE D-1: Q3/2025 and for CORE ID: Q4/2025; for Italy North D-1: 2026 and for Italy North ID: 2027				
c) (CGM)	- CGM building process: Published CGMs divided by due CGMs for two-days ahead (D-2), D-1 & ID at least 98.51% (by TSCNET) and at least 89.15% (by Coreso) - Y-1 (Winter I peak) scenario by	The RCCs do not issue recommendations formally for the CGM task, yet. RCCs provide proposals to TSOs concerning data quality.		- Percentage of total published IGMs included in the corresponding CGMs ("M09"): TSCNET: 39.77% (D-2); 47.37% (D-1); 41.78% (ID) Coreso: 37.33% (D-2); 39.59% (D-1);	Four planned (and still to be implemented) efficiency KPIs: - ratio of desired vs. actual CGM delivery time (excluding validation, considering all CGM) - ratio of desired vs. actual CGM

	TSCNET: 35% of IGMs included in the first merge, 52.5% if IGMs included in the last merge -In 2022, different KPIs: Successful CGMs building compared to expected by TSCNET for D-2, D-1 & ID at least 99.92% and by Coreso at least 98.71% Successful CGMs validation/publication compared to number of submitted CGMs by TSCNET for D-2, D-1 & ID at least 98.83% and by Coreso at least 83.17% CGMs delivered have not been used in operational processes during 2022 Manual data quality interventions are needed resulting in exclusion of IGMs blocking the merge process - The low 83.17% for Coreso's ID CGMs is caused by data quality issues, merging function (MF) tool readiness and mainly due to manual data quality intervention after CGM publication Gate Closure Time.		37.71% (ID)	delivery time (excluding validation, but considering only the published CGM)
d) (Consistency Defence and Restoration Plans)	In operation. Go-live: Exercise every 5 years - next exercise in 2024-2025			
e) (STA)	- Pan-EU STA: 389 calculations triggered, only 4 failed (98.97% success rate) (↓ from 196 calculations triggered, only 1 failed – 99.49% success rate in 2022). - no regional STA regional adequcy assessment (RAA) was triggered (no regional STA (RAA) was triggered in 2022).	Proposals for remedial actions only relevant to RAA; no recommendations given to TSOs, since no RAA was triggered	N/A reported, as no RAA was triggered. Effectiveness KPI is defined by the process' capability to provide a resolution to an adequacy issue identified at regional level. 8 data items are planned to be delivered in future reports per each RAA trigger (date of event & assessment, RCC leader, number of concerned TSOs, inadequacy duration, Energy Not Served [MWh], proposed mitigation action, resolution status).	efficiency (% of days without the need for additional STA run, which is generally triggered in case of an input data issue at pan-EU level): 92.60% (↓ from 93.48% in 2022)
f) (OPC)	Pan-EU OPC operational performance (processes triggered / processes expected to be triggered): 100% (for W-1 & Y-1)	Issued recommendations in the OPC process are not covered, since the Regional Coordination Operational Procedure is not available and not implemented.	- Pan-EU: OPC Result delivery within defined deadlines: 98.56% (W-1); 100% (Y-1) W-1: 97.16%; Y-1: 100% in 2022) - Pan-EU: Tie-line outage consistency: 95.4% (W-1); 95.31 (Y-1) (in 95.07% for W-1,	

	(but not always within the defined deadlines) (in 2022, 100%)		93% for Y-1 in 2022) - Pan-EU: Correctly mapped assets between OPC & CGM: 94.94% (W-1); 97.23% (Y-1) (90.28% for W-1; 92.89% for Y-1 in 2022) Note: 3 out of 208 merges were delayed during W-1 OPC process due to tool issues, but the failures have no significant impact on final regional coordination (since weekly and yearly coordination calls and manual back-up procedures are available in case of failure of automated processes). (3 out of 104 merges failed during W-1 OPC in 2022)	
g) (Training and Certification of Staff)	In operation and under further development (step wise implementation) Go-live process: 18 May 2024; Go-live certification: Q2 2026			
h) (Supporting restoration)	Methodology under drafting Go-live: Awaiting methodology approval			
i) (Post-disturbance Analysis)	Regional Incidents Analysis and Reporting process interacts with ICS Expert Panel for each scale 2 and 3 incident. No incident investigation was triggered in 2023, except for one Montenegro incident on 28 May 23, which was classified by the ICS Expert Panel as scale 1 (so no further investigation was initiated).	No recommendations were made during 2023, since no incidents triggered the RCC threshold.	Effectiveness defined as: - nomination & communication of the RCC members within one week of the start of a scale 2 or 3 incident: 3 days needed for the (eventual) scale 1 incident - Publication of final report including the RCC chapter by end of September in the year after the incident: no reports published, since incident was below the threshold	Efficiency can be assessed based on: - Published reports in case of the investigation threshold is met - Number of hours spent on this task (process implementation, training & certification, recommendation follow-up): in 2023, both RCCs spent 160 hours each on the task of improving training material for certifying additional investigators
j) (Reserve Sizing)	Under development Go-live: Q3/2026			
k) (Balancing Procurement)	Under development Go-live: Q3/2025			
l) (Optimisation Inter-TSO Settlement)	Cost sharing calculation: Under development Go-live: latest 1 year after CROSA go-live			
m) (Crisis Scenario)	Under development Go-live: Exercise every 4 years - next exercise in 2024-2025			
n) (Seasonal Adequacy)	Not requested by TSOs or not delegated by ENTSO-E			
o) (Maximum Entry Capacity for CMs)	In operation and under further development (step wise implementation) Go-live: December 2023			
p) (Needs for new infrastructures)	Methodology under drafting Go-live: Awaiting methodology approval			

2.3.3. Observations

In 2023, while the operational performance for the D-1 flow-based coordinated capacity calculation in the Core CCR increased to 100%, the KPIs for the Italy North region decreased from 96.4% to 93.8% in D-1, and from 100% to 96.99% in ID. In May, the RCCs worked towards improving computation performance and the KPIs in the Italy North CCR.

For DACC in the Italy North region, the percentage of efficiency (currently at 67,36%) is expected to improve by two separate process updates in 2024.

On the **common grid model**, Coreso and TSCNET built CGMs in the Y-1, D-2, D-1 and ID time horizons. Y-1 is further away from operational as compared with other time frames and is still under test phase (Y-1 for the merging process for the reporting period was only performed on Winter I peak scenario). Also, the CGMs delivered have not been used in operational processes during 2023. The manual data quality interventions that were necessary resulted in the exclusion of IGMs, blocking the merging process. The low 89,15% for Coreso's ID CGMs is caused by IT and data quality issues.

On the **post-operation analysis**, Coreso worked to improve training material for certifying additional investigators. The KPIs used to measure this task were adapted to streamline the evaluation.

2.4. Coreso (SWE SOR)

2.4.1. Fulfillment of reporting obligations

Table 7. Overview of fulfillment of reporting obligations for implemented tasks (Coreso SWE SOR)

Reporting obligations	Article 37 tasks reported on
RCC's operational performance Article 46(1)(a)	a) (CCC SWE) c) (CGM) e) (STA) f) (OPC) i (Post-disturbance analysis)
Coordinated actions and **recommendations** issued, the extent to which those have been implemented by the TSOs and the outcome achieved Article 46(1)(b)	Reported that none were issued for: a) (CCC SWE) c) (CGM) e) (STA) i) (Post-disturbance analysis) Reported issuing recommendations for: f) (OPC)
Effectiveness and **efficiency** of each of the tasks for which they are responsible and, where applicable, the rotation of those tasks Article 46(1)(c)	a) (CCC SWE) c) (CGM) e) (STA) f) (OPC) i) (Post-disturbance analysis)
Costs Article 46(2)	✓
Shortcomings Article 46(4)	✓

The remaining Article 37 tasks are not yet fully developed, implemented and/or operational and therefore not reported on by Coreso.

2.4.2. Summary of the report

This subsection presents a high-level summary of the performance of the RCCs, based solely on the information provided in the reports as published by the RCCs.

Table 8. High-level summary of the report (Coreso)

Article 37 tasks	Article 46(1)(a)	Article 46(1)(b)		Article 46(1)(c)	
	Operational performance	Coordinated actions	Recommendations	Effectiveness	Efficiency
a) (CCC)	Successful delivery: **100% both in DACC and IDCC.** (KPI: total number of timestamps successfully computed and delivered to the participating TSOs divided by the total number of possible timestamps (even if fallback procedures had to be applied). In 2022, the KPIs were the successful delivery of net transfer capacity (NTC) in IDCC 100% and the successful delivery of NTC in DACC 100%.	The final objective of coordinated actions is already fulfilled in the SWE CCR region. However, there are currently no explicit coordinated actions issued by the RCC as there is no requirement in the existing operational process and methodology. No recommendations were issued.		The effectiveness KPI rate in the **IDCC** is 75.01%. For 24.99% of the cases, fallback or backup procedures were necessary due to missing or invalid inputs from TSOs, IT issues, grid constraints or incompatibility issues. The effectiveness KPI rate in the **DACC** is 98.29%. For 1.71% of the cases fallback or backup procedures were necessary for reasons due to missing or invalid inputs from the TSOs, IT issues on the RCC's tool side and grid situations. In 2022, the KPIs were DACC robustness (process successful delivery) 97.19% and IDCC robustness 74.32%.	The efficiency KPI rate in the **IDCC** is 94.34%. For 5.66% of the cases at least one TSO requested a capacity reduction due to security issue. The efficiency KPI rate in the **DACC** is 94.29%. For 5.71% of the cases at least one TSO requested a capacity reduction due to security issue. In 2022, the KPIs were DACC robustness (process successful delivery) 99.59% and IDCC robustness 99.32%.
b) (CSA)	Under development.				
c) (CGM)	CGM building process (based on the number of published CGMs divided by due CGMs) for: - Y-1 (Winter I peak): 35% of IGMs included in the first merge; 52.50% of IGMs included in the last merge; - D-2 95.66%; D-1 95.74%; ID 89.15% of IGMs In 2022, the KPIs were the percentage of publishedCGMs/submitted CGMs (as main or backup RCC): D-2; 97.62%; D-1: 96.4%; ID: 83.17%;) and the percentage of	The RCCs have not yet issued recommendations formally for the CGM task. However, RCCs currently provide proposals to TSOs concerning data quality.		Percentage of total published IGMs included in the corresponding CGMs (metric M09 from ENTSO-E CGM Building dashboard): D-2: 31.33%; D-1: 39.59%; ID: 34.71%	The efficiency process of the merging process is planned to be implemented based on: - ratio of desired vs. actual CGM delivery time (excluding validation, considering all CGM) - ratio of desired vs. actual CGM delivery time (excluding validation, but considering only the published CGM)

	submitted CGMs/due CGMs (as main or backup RCC): D-2: 99.95%; D1: 99.31%; ID: 98.71%.			
d) (Consistency Defence and Restoration Plans)	In operation / Go-live: Exercise every 5 years - next exercise in 2024-2025			
e) (STA)	Based upon the successfully completed executions of the STA calculations. - - Pan-EU STA: 389 calculations triggered, only 4 failed (98.97% success rate) (↓ from the percentage of process successes in 2022, W-1: 99.49%) - - No regional STA (RAA) was triggered	Proposals for remedial actions (RAs) are only relevant to the RAAs. No regional adequacy assessment was triggered for the TSOs of the SWE SOR region. There were no recommendations given to TSOs.	KPI: capability of the process to provide a resolution to the adequacy issue identified at the regional level. - N/A reported, as no RAA was triggered. - 8 data items are planned to be delivered in future reports per each RAA trigger (date of event & assessment, RCC leader, number of concerned TSOs, inadequacy duration, Energy Not Served [MWh], proposed mitigation action, resolution status).	Efficiency (% of days without the need of additional STA run which is generally triggered in case of an input data issues at the pan-EU level): 92.60% for W-1. (In 2022, 93.48%) Reasons for the second run are either data quality inconsistency or an application issue.
f) (OPC)	Percentage of processes triggered compared to the processes expected to be triggered: all pan-European OPC processes were **100%** successfully performed for W-1 and Y-1 (but not always within the defined deadlines). (In 2022, they were 100% for both W-1 and Y-1).	The issued recommendations in the OPC process are not included in this report because the regional coordination operational procedure is not available and is not implemented.	- Pan-EU: OPC Result delivery within defined deadlines: 98.56% (W-1); 100% (Y-1). (In 2022, W-1: 100%; Y-1: 100%;) - Pan-EU: Tie-line outage consistency: 95.4% (W-1); 95.31 %(Y-1). (In 2022, W-1: 100%; Y-1: 98.08%;) - Pan-EU: Correctly mapped assets between OPC & CGM: 94.94% (W-1); 97.23% (Y-1). (In 2022, W-1: 98.55%; Y-1: 92.89%). Note: 3 out of 208 merges were delayed during W-1 OPC process due to tool issues, but the failures have no significant impact on final regional coordination (since weekly + yearly coordination calls and manual backup procedures are available in case of failure of automated processes).	
g) (Training and Certification of Staff)	In operation and under further development / Go-live process: 18 May 2024 - Go-live certification: Q2 2026			
h) (Supporting restoration)	Methodology under drafting / Go-live: Awaiting methodology approval			

i) (Post-disturbance Analysis)	In 2023, no scale 2 or 3 incidents investigations took place. Thus, there was no investigation to be reported for 2023.	No recommendations were made during the year 2023, since no incidents were above the RCC investigation threshold.	Effectiveness defined as: - Nomination and communication of the RCC members within one week after the incident occurred, - Final report publication including the RCC chapter by end of September in the year after the incident. No reports published since the incident was below the threshold.	Efficiency of this task can be assessed based on: - Published reports in case of investigation threshold is 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.
j) (Reserve Sizing)	Under development / Go-live: Q3 2026			
k) (Balancing Procurement)	Under development / Go-live: Q3 2025			
l) (Optimisation Inter-TSO Settlement)	Not requested by TSOs			
m) (Crisis Scenario)	Under development / Go-live: Exercise every 4 years - next exercise in 2024-2025			
n) (Seasonal Adequacy)	Not requested by TSOs or not delegated by ENTSO-E			
o) (Maximum Entry Capacity for CMs)	In operation and under further development / Go-live: December 2023			
p) (Needs for new infrastructures)	Methodology under drafting / Go-live: Awaiting methodology approval			

2.4.3. Observations

Regarding the coordinated capacity calculation, Coreso is responsible for the DACC and IDCC process computation and delivery in the SWE region. Coreso has been upgrading its capacity calculation tool to improve computation performances and to receive more reactive support.

The SWE region was one of the first CCRs to adopt their network models to the CGMES format for the capacity calculation processes and the common grid model building process. In 2023, the common grid model process in the SWE region was further developed to make use of the OPDE to exchange data. Coreso remarked that given the low quality of the EU-wide CGM, it used its previously established regional merging process to serve the needs of its services during the reporting period. In comparison to other timeframes, Y-1 is under test phase and the merging process for the reporting period was only performed on the Winter Peak I scenario. In its report, Coreso notes that the high shares of CGMs show that the RCCs can perform the process.

On coordinated security analysis, the legacy security assessment is currently in operation and Coreso started working on the future regional operational security coordination.

ACER notes that the development and implementation of SWE projects, namely the regional operational security coordination, are facing successive delays due to the dependence on other IT modules that are being developed for other regions. This dependency on modules that are being developed for other regions should be avoided, to prevent delaying the development of other regions.

2.5. Baltic RCC

2.5.1. Fulfillment of reporting obligations

Table 9. Overview of fulfilment of reporting obligations for implemented tasks (Baltic RCC)

Reporting obligations	Article 37 tasks reported on
RCC's operational performance Article 46(1)(a)	b) (CSA) c) (CGM) d) (consistency defence and restoration plans) e) (STA) f) (OPC) i) (post disturbance analysis) o) (maximum entry capacity for capacity mechanisms)
Coordinated actions and **recommendations** issued, the extent to which those have been implemented by the TSOs and the outcome achieved Article 46(1)(b)	Reported that none were issued regarding: c) (CGM) d) (consistency defence and restoration plans) e) (STA) f) (OPC) i) (post disturbance analysis)
Effectiveness and **efficiency** of each of the tasks for which they are responsible and, where applicable, the rotation of those tasks Article 46(1)(c)	c) (CGM) d) (consistency defence and restoration plans) e) (STA) f) (OPC) i) (post disturbance analysis)
Costs Article 46(2)	✓
Shortcomings Article 46(4)	✓

The remaining tasks are not yet fully implemented; task d) (consistency defence and restoration plans) was reported to have become implemented in 2023. The tasks below are applicable and will be implemented as planned:

- a) (coordinated capacity calculation)

-g) (training and certification of staff)

-j) (reserve sizing)

-k) (balancing procurement)

-h) (supporting restoration): methodology under development

-p) (needs for new infrastructure): methodology under development

The tasks below will be applicable on demand:

-l) (optimisation inter TSO settlement)

-m) (crisis scenarios)

-n) (seasonal adequacy)

2.5.2. Summary of the report

This subsection presents a high-level summary of the performance of the RCCs, based solely on the information provided in the reports as published by the RCCs.

Table 10. High-level summary of the report (Baltic RCC)

Article 37 tasks	Article 46(1)(a)	Article 46(1)(b)		Article 46(1)(c)	
	Operational performance	Coordinated actions	Recommendations	Effectiveness	Efficiency
a) Coordinated Capacity Calculation	Planned for Q1/2025 (with new capacity calculation methodology triggered with syncronisation)				
b) Coordinated Security Analysis	CSA M1 Service daily runs triggered and operated manually or automatically CSA M2 % of regional operational security assessment service performed within process deadline CSA R1 % of failures to fulfil the function of RCCs (independent from remedial actions) and reasons for failures (1. Data delivery issue, 2. Data Quality issue, 3. Tool issue, 4. Absence of Solution for solving operational security violations)	Planned for Q2/2024	Planned for Q2/2024	CSA R5 (planned for Q1/2024) RA costs in EUR (should be available from Mapping process)	CSA R2 Average duration in minutes of service process (planned for Q1/2024)
c) (Common Grid Model)	Pan-European Process based on a rotational principle. • Planning Pre-processing Data alignment for D-2 and Y-1 IGM creation by TSOs and RCCs; • Schedule alignment for D-1 and ID IGM creations by TSOs and RCCs; • IGM model creation and provision to OPDE by TSO; • IGM model validation by RCC; • CGM model merging and provision to OPDE by RCC.	None		The CGMs are merged and provided to the OPDE platform in timeframes defined by the service methodology (if all IGMs of Baltic TSOs are provided): 83% for day-ahead time horizon and 81% for two days ahead time horizon. (In 2022, 78%, no specification)	The Regional Merged Model merging algorithm is improved, the merging time is decreased from 40-55 minutes to 20-30 minutes (in 2022, Merging time is decreased from ~2 hour to 40-55 minutes) The CGM merging algorithm takes around 50-60 minutes.
d) (Defence & Restoration Plans)	The Baltic RCC reviews the coordinated restoration and coordinated defence plans of Baltic TSOs in line with Article 6(3) of the Commission Regulation (EU) 2017/2196 of 24 November 2017 establishing a network code on electricity emergency and restoration.	None		In the reviewed coordinated restoration and coordinated defence plans of Baltic TSOs no potential incompatibilities have been identified.	By the end of 2023, each of the Baltic TSOs have prepared the preliminary documentation of the coordinated restoration and coordinated defence plans.
e) (Short-Term Adequacy)STA)	- the duty of the pan-European STA service was accomplished 100% of days/weeks as expected by the agreements;	None (as no RAA was triggered)		The ratio of initiated RAA adequacy issues in Baltic SOR compared to the total number of the	The ratio of finalized RAA adequacy issues compared to the number of triggered RAA issues in Baltic SOR.

	- RAA was not triggered for the service area of the RCC, therefore there were nothing to be reported on for year 2023. (In 2022, Pan-EU STA: 100%, Regional adequacy assessment not triggered)			RAAs triggered for this area. Result for 2023: 100% (same in 2022).	Result for 2023: 100% (same in 2022).
f) (OPC)	During 2023, the Company has not observed any major and critical incidents in Baltic TSOs outage coordination procedures and schedules. A regional outage planning incompatibility assessment was performed for the year 2024 and the report was successfully acknowledged by Baltic TSOs OPC operators. Therefore, there were no investigations to be reported on for year 2023.	Monitors outage schedule of generation units > 50 MW.		None	Within W-1 OPC process the RCC implemented coordination of in reserve elements. During year ahead OPC process the RCC coordinated overlapping generation and HVDC.
g) (Training and certification for staff)	Task is planned to go live in May 2024. Training materials and courses developed for both Pan-EU and Regional tasks. Target for all Employee certification for end of 2024				
h) (Supporting restoration)	planned for 2025. Methodology currently in coordination with ACER				
i) (Post-disturbance analysis)	In 2023, one incident that was suspect to be classified as scale 2 was reported to the RCCs. On 19 September 2023, RCCs were informed that an incident had occurred in Montenegro on 28 May 2023	None	No actions or recommendations were made during year 2023.	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. A nomination of the RCC members within one week deadline for the incident on 28 May 2023 was not possible since RCCs became only aware of the incident on 19 September 2023. Once the RCCs became aware of the incident, they nominated and communicated RCC members within three days. No final reports were published since no incident was above the threshold.	Efficiency of this task has been defined of hours spent on the post-disturbances analysis task (process implementation, training and certification, recommendation follow-up) and the number of hours spent per incident investigation. The Company spent 160 hours for the process implementation and for the improvement of training materials for certifying additional investigators. There was no incident investigation initiated.
j) (Reserve sizing)	Methodology confirmed and to be implemented in Q1 2026				
k) (Balancing procurement)	Methodology confirmed and to be implemented in Q1 2025				

l) (Optimisation Inter-TSO Settlement)	Available on demand
m) (Crisis Scenario)	Available on demand
n) (Seasonal adequacy)	Available on demand
o) (Maximum Entry Capacity for CMs)	Common pan-EU tooling is under development. Open cross-border Capacity Remuneration Mechanisms is not implemented in the Baltic region, due to IT issues, for 2025 it was not applicable for the Baltic region.
p) (Needs for new infrastructures)	Planned for Q1 2025. Methodology currently under development within ENTSO-E

2.6. Nordic RCC

2.6.1. Fulfilment of reporting obligations

Table 11. Overview of fulfilment of reporting obligations for implemented tasks (Nordic CC)

Reporting obligations	Article 37 tasks reported on
RCC's operational performance Article 46(1)(a)	a) CCC Nordic & HANSA) c) (CGM) e) (STA) f) (OPC) i) (Post-disturbance Analysis)
Coordinated actions and **recommendations** issued, the extent to which those have been implemented by the TSOs and the outcome achieved Article 46(1)(b)	Reported that none were issued regarding: a) CCC Nordic & HANSA) c) (CGM) e) (STA) i) (Post-disturbance Analysis) Reported issuing regarding: f) (OPC)
Effectiveness and **efficiency** of each of the tasks for which they are responsible and, where applicable, the rotation of those tasks Article 46(1)(c)	e) (STA) f) (OPC) (Efficiency was not monitored)
Costs Article 46(2)	✓
Shortcomings Article 46(4)	✓

2.6.2. Summary of the report

This subsection presents a high-level summary of the performance of the RCCs, based solely on the information provided in the reports as published by the RCCs.

Table 12. High-level summary of the report (Nordic CC)

Article 37 tasks	Article 46(1)(a)	Article 46(1)(b)		Article 46(1)(c)	
	Operational performance	Coordinated actions	Recommendations	Effectiveness	Efficiency
a) (CCC) NORDIC	- CCC flow-based (FB): KPI: 97% target model for successful calculations in the External Parallel Run (EPR) for the flow-based method (with 3% for fallback/back-up usage). The target level of **97%** was met for all months except for 1 back-up FB in March (because a model update conflicted with a temporary fix). The first publication deadline (9:30) was reached in **96.40%** of the 365 days, with 1 late publication (12:00) due to a file transfer issue to the publication platform. The total FB domains published is 372 (more than 365) which is due to the fact that for 7 days, the FB domain was updated and republished. • CCC1c: The target level of **100%** was met for all months. In October, an Incident Committee was triggered due to a directional misalignment for Last Hour Flow (LHF) value in the validation process. With a LHF of 0, after clarifications, it had no impact on capacities.	No coordinated actions were issued. Currently, the Nordic RCC only coordinates, delivers, and verifies D-1 capacities. The calculation is made by the TSOs, and no coordinated actions are issued. From go-live of the flow-based (FB) capacity calculation, Nordic RCC will issue coordinated actions and monitor and report their implementation.		Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. Once the go-live of the FB capacity calculation has taken place and more experience gained, additional KPIs on effectiveness and efficiency can be defined, monitored, and reported on.	
a) (CCC) HANSA	Currently the CCC1c task described for the Nordic CCR also includes relevant Hansa borders. Therefore, performance is shown in the row above.	No coordinated actions were issued.		Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. The current task performance of CCC1c is running efficient as an integrated part of the same task for the Nordic CCR.	
b) (CSA)	The RCC did not monitor operational performance. The trial operation of the CSA has been discontinued in early 2023. Hence, here are no meaningful monitoring results.	No coordinated actions were issued. CSA version 1.0 is still under development.		Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. The CSA task is still under development.	
c) (CGM)	- Unique valid IGMs: IGM substitution is the process of replacing one or more of the IGMs received for a specific	No coordinated recommendations were in 2023. The CGM task and its results do not lead to any recommendations for TSOs. Merged		Effectiveness and efficiency are not being meaningfully monitored at the current stage of the task. Insights on effectiveness and	

	energy delivery day with another, similar IGM from a previous delivery: **1.71%** of all MTUs. (↑ from 0.97% in 2022). This increase is rather a result of tool improvements and automatic IGM substitution. - Unique merged CGMs: New measure to create CGMs based only on unique IGMs. Whenever one IGMs is substituted, no unique CGM is achieved for the respective market time unit (MTU). In 2023, **92.3%** of CGMs were produced without using a single substituted IGM. - Successfully merged CGMs: If IGM substitution fails, sometimes the only option is to replace the entire CGM with a CGM from a previous energy delivery day. The average of substituted CGMs was 1.12% (↓ from 2.63% in the 2nd half of 2022) - Y-1: Performed for 10 different scenarios. The process was done manually and it was **successful for 7 out of 10 scenarios**.	CGMs (regional or Pan-European) are input to other tasks, but not an instruction for the TSOs.	efficiency are to be expected when more operational experience is gained.
d) (Consistency defence and restoration Plans)	In 2023, no consistency assessment was done. Therefore, no monitoring was performed. The Nordic RCC will perform a consistency assessment in 2024.		
e) (STA)	- Number of days the process was performed successfully before 8:30 a.m.: from **100%** (first 5 months during 2023) to the lowest of **93%** (November). - Number of days of successfully sent TSO data to the Pan-European STA tool before 9:00 a.m.: from **100%** (first 5 months during 2023) to **94%** (March). Unsuccessful cases are due to IT issues that were solved after the deadline. - Number of days when whole data files were missing: in 2 months there was no data missing; ~25% of days in March the data was missing. This can be due to data creation issues at either the TSO or the RCC. - Number of identified adequacy warnings by the Pan-European STA tool: 9 identified warnings that after analysis from TSOs and RCC proved to be unrealistic or false. Therefore, they did not require any further action from the TSOs or Nordic RCC.	In case of an identified adequacy issue, remedial actions are taken. The TSOs suggest and agree upon the remedial actions which will be most efficient for solving the observed issue.	Nordic RCC and other RCCs are in dialogue to determine possible ways of defining and monitoring effectiveness and efficiency for the STA task. The Nordic RCC continuously assesses the efficiency of the Nordic and Pan-European processes. It constantly evaluates the benefits of having both processes and works to combine them to ensure efficiency.

f) (OPC)	Nordic RCC competed the Y-1 process (main OPC process) for 2024, on 1 December 2023. The number of outages coordinated for 2024 was 261 in the Nordic region, including outages between the Nordic region and the neighbouring regions. Outages have increased due to grid developments and strengthening for the green energy transition. The W-1 and M-1 coordination has been performed on a weekly basis in the WOPT (Weekly Operational Planning Teleconference) calls since the establishment of Nordic RCC.	For the Y-1 process in 2023, the Nordic RCC and the Nordic TSOs agreed on 18 recommendations for 2024. • 33% of TSOs followed the recommendation and took action, 6 cases • 56% of TSOs followed the recommendation and concluded in no action, 10 cases • Y-1 process did not allow for follow-up – TSOs opted to address them bilaterally (conclusion unknown to Nordic RCC). 11% of TSOs, 2 cases	Defined with parameters like TSO, transparency and access to tools used, how complicated it is to update the outage plan and results overview when assessing security analysis. Both the regional and Pan-European processes have showed to be effective, as outages were coordinated in time and fitting the grid's needs.	Not measured (defined to have as little impact as possible on security of supply and market)	
g) (Training and certification of staff)	The task is still under implementation and no monitoring has been started. It will be implemented in 2024.				
h) (Supporting restoration)	The task proposal is still under development within ENTSO-E.				
i) (Post-disturbance Analysis)	No incidents were concluded to have reached the RCC threshold. No RCC task was performed. However, ENTSO-E and RCCs investigated two incident cases to determine if the scale 2 or 3 threshold has been reached. In both cases it was concluded that an RCC investigation shall not be triggered. RCCs also worked on developing common training material for the post-operation and post-disturbances analysis task.				
j) (Reserve sizing)	The task is still under development and no monitoring has been started. The next step is to review the findings with the Nordic TSOs and together determine how this will translate into practice and implement processes accordingly.				
k) (Balancing Procurement)	The task is still under development and no monitoring has been started. The next step is to review the findings with the Nordic TSOs and together determine how this will translate into practice and implement processes accordingly.				
l) (Optimisation Inter-TSO Settlement)	Neither for the Nordic CCR nor for the Hansa CCR, this task has been requested by the relevant CCR TSOs. Nordic RCC is at this point not performing the task.				
m) (Crisis Scenario)	This task has not been performed in 2023 and there has been no monitoring. The next process for identification of regional electricity crisis scenarios has been initiated end of 2023 and will be finalised in 2024.				
n) (Seasonal adequacy)	European TSOs have decided not to request this task of RCCs for the time being, and no task proposal has been developed by ENTSO-E.				
o) (Maximum Entry Capacity for CMs)	Individual TSOs delivered input to ENTSO-E in September 2023 in the need for maximum entry capacity calculations. For the time being, no TSO in the Nordic SOR has indicated the use of a capacity mechanism with cross-border participation, and the task is therefore not performed by the Nordic RCC as of now.				
p) (Needs for new infrastructures)	Task not reported on.				

2.6.3. Observations

The Nordic RCC's task on coordinating capacity calculation was particularly prioritised due to work towards the go-live of the flow-based methodology. In 2023, the Nordic RCC reported for the first time on operational performances, effectiveness and efficiency concerning this task. The day-ahead flow-based capacity calculation go-live was postponed from the first quarter of 2023 to October 2024.

In 2023, the RCC also gave priority to the common grid model and coordinated security Analysis as they were seen as prerequisites for a successful go-live of the D-1 flow-based capacity calculation. The regional Y-1 CGM was merged for the first time and the go-live of the regional CGM for D-1. The Y-1 CGM was also used for the first time for the Y-1 outage planning coordination process. In addition, the RCC added an automatic IGM substitution feature.

On the coordinated security analysis, the RCC decided to shift the focus from the regional Nordic STA towards the pan-European STA process. The first version of the CSA is expected to go live in the third quarter of 2024.

2.7. SEleNe CC

2.7.1. Fulfillment of reporting obligations

Table 13. Overview of fulfilment of reporting obligations for implemented tasks (SEleNe CC)

Reporting obligations	Article 37 tasks reported on
RCC's operational performance Article 46(1)(a)	a) (CCC) b) (CSA) c) (CGM) e) (STA) f) (OPC) i) (post disturbance analysis)
Coordinated actions and **recommendations** issued, the extent to which those have been implemented by the TSOs and the outcome achieved Article 46(1)(b)	Reported that none were issued regarding: a) (CCC) b) (CSA) e) (STA) f) (OPC) i) (post disturbance analysis)
Effectiveness and **efficiency** of each of the tasks for which they are responsible and, where applicable, the rotation of those tasks Article 46(1)(c)	a) (CCC) b) (CSA) c) (CGM) e) (STA) f) (OPC)
Costs Article 46(2)	✓
Shortcomings Article 46(4)	✓

The remaining tasks are not yet fully developed / implemented / operational, and therefore not reported on by SEleNe CC.

All tasks are applicable (once developed and implemented), except for the following tasks:

l) (Optimisation inter TSO settlements) - No requirement

n) (Seasonal adequacy) – ENTSO-E does not delegate this task

2.7.2. Summary of the report

This subsection presents a high-level summary of the performance of the RCCs, based solely on the information provided in the reports as published by the RCCs.

Table 14. High-level summary of the report (SEleNe CC)

Article 37 tasks	Article 46(1)(a)	Article 46(1)(b)		Article 46(1)(c)	
	Operational performance	Coordinated actions	Recommendations	Effectiveness	Efficiency
a) (CCC) SEE CCR	A KPI report for all time horizons (M-1, D-2, D-1 and ID) is created by SEleNe CC and Esperia on a quarterly and yearly basis in order to evaluate the performance of the CC process. The percentage of successful computations for GR-BG and RO-BG borders is equal to 100% for all time horizons (D-2, D-1, ID and M-1 Time Horizon).	None issued.		**For D-2 and D-1:** For the GR-BG border the effectiveness was 99.95%. Between 2022 and 2023 the increase in effectiveness was about 2%. For the RO-BG border the effectiveness was about 99%. **For ID:** The effectiveness was 99% in both borders. There was not enough data for 2022 for comparison. **For M-1:** For off-peak scenario the total transmissible capacity was calculated successfully for more than 94% of timespans (TSs). For peak scenarios, the effectiveness was around 97% for GR- BG and 94% for RO-BG border.	**For D-2 and D-1:** For GR-BG efficiency equals to 52% and 55% respectively. There was a very big increase in the efficiency of the CC process between the years, about 113% and 98% for D-2 and D-1 respectively. For RO-BG, it was calculated at 58% and 62% respectively, whereas the increase of the efficiency of the CC process between the years, is about 17% and 19% respectively. **For ID**, the efficiency was 58% for GR – BG and 65% for RO-BG. **For M-1**, it equals to around 30% for the GR - BG border for both the peak and off-peak-scenario, while it equals to 63% and 53% for the respective scenarios at the RO-BG border.
a) (CCC) GRIT CCR	For GRIT CCR Esperia CC provides D-1, ID, LT capacity calculation	None issued.			The overall efficiency levels for D-1 was equal to 96%, and respectively 90% for IDCC 1 and 96% for IDCC 2. It was reported to be at 100% efficiency for the LT horizon.
b) (CSA)	The CSA was successfully executed from its go-live date on 5 September 2022 until 31 December 2023 without any data quality issues or tool failures. The curent version of CSA does not include RA optimisation, and the RCC	None issued.		As RAs for the SEE region are not currently defined through an optimisation routine, their effectiveness and efficiency cannot be evaluated and quantified.	

[18] The effectiveness is measured as the number of TSs which were computed successfully without resulting in fallback during the reporting period. The efficiency index expresses the number of TSs where the SEE TSOs used the final validated NTC values.

	tool does not automatically propose RAs to the TSOs.				
c) (CGM)	SEleNe started using the CGMES CGM in January 2023, as a merging agent for the D-1 and D-2 time-horizons. Throughout the year, the RCC switched between D-1/D-2 merges and ID merges. The first participation in the ID merging role started in August 2023, with SEleNe merging ID IGMs on a daily basis, 24 times per day. The RCC executes on a rotational basis the **CGMES** CGM creation for all EU synchronous areas.			**On the UCTE:** The success rate of the CGM creation reaches almost 100% throughout 2023 for all the TSs of D-1, D-2, and ID processes. The model quality of the CGM creation became steadily sufficient for the the CGM use in CCA and CSA. **On the CGMES:** there was a great increase in the effectiveness of the European Merging Function Tool and OPDE IT infrastructures of SEleNe CC throughout 2023. Since August 2023, SEleNe CC achieved over 94% of successful publications in D-1, 97% in D-2, and over 99% in ID.	SEleNe CC is aiming for optimal IGM inclusion rated (efficiency). The RCC achieved 100% inclusion of all published IGMs in Y-1 TH. This Y-1 CGM is considered the most complete CGMES CGM created so far in the CGM community, scoring 80% of CGM completeness.
d) (Consistency defence and restoration plans)	TSOs are required to review their defence and restoration plans at least every five years with a subsequent consistency assessment. In December 2023, a new process for defence and restoration plans was initiated by European TSOs which aims to be coordinated and completed in 2024. SEleNe RCC shall carry out a consistency assessment for the first time in 2024.				
e) (STA)	Operational performance[19] reached 98% for the RCC. The number of runs in 2023 was 389, while both calculations and the reporting part of the process failed 4 times.	In 2023, no regional STA process was triggered for the SEE region. Therefore, there were no coordinated actions and recommendations issued.		Since no regional STA process was triggered in 2023, there was no effectiveness to be reported.	Efficiency concerns the pan-European STA process, and it was calculated to be 99%. For 2023 the monitored period was 365 days. The days that required an additional calculation were 3.
f) (OPC) [20]	The operational performance for the outage planning coordination (OPC) was above 99% for the W-1 time horizon, and it equals 100% for the Y-1 time horizon. For the outage planning incompatibility, the operational performance was more than 99% for the W -1 time-horizon, and 100% for the Y-1 time horizon.			The effectiveness of OPI and OPC for W-1 and Y-1 is 100%	Efficiency is almost 96% taking into account the % of Tie-Lines Inconsistencies comparing 1st and 4th OPC UAP merge for the W-1 and Y-1 THs. Taking into account the % of correctly mapped network elements between OPC data & CGM, the efficiency is almost 94% for W-1 and Y-1 THs.
g) (Training and certification of staff)	The task is still under development and no monitoring has been carried out yet. The implementation is progressing as planned and is consistent with the relevant methodology. The training and certification program implementation will start in 2024.				

[19] Operational performance is defined as the percentage of successful processes compared to all processes performed on the pan-European level.

[20] Defined as process successes in case of failure for reasons such as data quality, applications, infrastructure and other.

h) (Supporting restoration)				
i) (Post-disturbance analysis)[21]	In 2023 there was an incident (Montenegro on 28 May 2023), that was assessed and defined as ICS scale 1, so the RCC investigation threshold was not met and no investigation initiated and carried out.	No recommendations were made during the year 2023, since no incidents triggered the RCC Threshold.	Effectiveness not calculated since no incident triggered the RCC threshold.	100 hours were spent on the task for process implementation and training and certification preparation
j) (Reserve sizing)	Preparatory works for the development of these tasks are expected to start during Q3 2024. The go-live of the tasks is scheduled for Q2 2026.			
k) (Balancing procurement)	Preparatory works for the development of these tasks are expected to start during Q3 2024. The go-live of the tasks is scheduled for Q2 2026.			
l) (Optimisation Inter-TSO Settlement)				
m) (Crisis Scenario)	ENTSO-E has not yet developed a dedicated task proposal where tasks relating to the identification of regional electricity crisis scenarios to the RCCs are delegated to RCCs. The next process of identifying regional electricity crisis scenarios commenced towards the end of 2023 and is expected to conclude in 2024.			
n) (Seasonal adequacy)				
o) (Maximum Entry Capacity for CMs)				
p) (Needs for new infrastructures)				

[21] Interacts with the investigation of incidents on scale 2 and scale 3 in accordance with the ICS Methodology

2.7.3. Observations

Throughout 2023, SELeNe developed all tools to provide long-term (Y-1 and M-1) **coordinated capacity calculation** to Southeast European TSOs. The go-live for M-1 was on 1 January 2023 and for Y-1 it was on 15 November 2023.

SEleNe CC plans to develop a new tool in 2024 for the SEE region to incorporate the minimum capacity target, known as 70% capacity rule, which is a requirement of the Electricity Regulation[22]. Both costly (redispatching) and non-costly remedy actions will be used to reach the target. The go-live will be on 1 January 2025.

Concerning the **common grid model**, the RCC further developed its European merging function tool and efficiently participated in the common grid model Exchange Standard (CGMES) rotational calendar, developing CGMs for day-ahead, intra-day and year-ahead in the CGMES format. In 2023, all the tasks delivered by SEleNe CC were executed on the UCTE data exchange format.

During 2024, efforts will focus on improving IT tools, training operators, further enhancing operational tasks provided to TSOs and cooperation with other RCCs. The regional operational security coordination is expected to replace the coordinated security analysis currently used by SEleNe following the approval of the amended regional operational security coordination methodology, focusing on the implementation of DA CROSA in the fourth quarter 2025 and ID CROSA by the third quarter of 2027.

The RCC plans to start working in 2024 on tasks reserve sizing and balancing procurement. The preparatory steps for the development of these tasks are expected to start during the third quarter of 2024. The go-live of the tasks is scheduled for the second quarter of 2026.

[22] Article 16 of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity

2.8. Reported shortcomings

This section lists the shortcomings as reported by the RCCs in 2023, in accordance with Article 46(4) of the Electricity Regulation. It includes relevant information where shortcomings had already been identified in 2022.

RCCs have identified shortcomings in relation to the tasks of coordinated capacity calculation, coordinated security analysis, common grid model, outage planning coordination, and post-disturbance analysis.

- **Task a) – Coordinated Capacity Calculation**

Coreso & TSCNET: For ID capacity calculation in Italy North, 22,15% of fallback procedures were triggered due to missing/invalid TSO input. This percentage dropped from 30,95% in 2022. 15,61% of fallback procedures were triggered due to RCC or TSO tool IT issues and cases where no secure total transmissible capacity was found due to grid constraints. This shortcoming had already been identified in 2022 (the percentage dropped from 18.64% in 2022).

Coreso (SWE): For ID capacity calculation, 24.99% of the fallback and backup procedures were triggered due to issues with the performance of the tool, grid situations cases that led to values lower than the transmission reliability margin and missing or invalid inputs from the TSOs. This shortcoming had already been identified in 2022 (the percentage increased from 19.64% fallback procedures in 2022).

Nordic CC: The complexity of the development and alignment of the various Nordic IT systems and processes which are needed to implement Nordic flow-based capacity calculation in single day-ahead coupling have led to a postponement of the go-live date from the first quarter of 2024 to October 2024.

- **Task b)- Coordinated Security Assessment**

Nordic RCC: The previous IT infrastructure had inadequate computational and delayed implementation and progress for the coordinated security analysis. Only a limited number of market time units (MTUs) were calculated in a limited timeframe, reducing possibilities for gaining experience and test data quality. At the end of 2023, the upgraded IT infrastructure allowed for a much faster execution of the CSA analysis. Now is possible to perform 24 calculations in parallel and all MTUs can be analysed at the same time.

- **Task c) – Common Grid Model**

Coreso (SWE), Coreso & TSCNET: the performance (timely CGM delivery and quality requirements for IGM inclusion) is difficult to meet during the CGM building process. Similarly, successfully validated IGMs cannot always be used in the merged CGMs.

In 2022, the RCCs had already reported shortcomings in the CGM performance (CGM building failures without manual data quality interventions, i.e., IGMs exclusion from the CGM.

No regional operational process is currently based on the CGM for several reasons, which need to be investigated case by case by the established "Modelling Group" at ENTSO-E to align on issues, root causes and to agree on adequate solutions. Individual data quality assessments across all RCCs started, which partly allowed resolving issues preventing the inclusion of certain IGMs. The CGM Action Plan is in place since April 2024.

Nordic RCC: In the Y-1 merge manual process, there was a mismatch in 3 out of 10 net positions between the common grid model alignment and IGMs, and validation rules had not been reached. Since the end of Y-1 process, two additional scenarios were merged, whereas there is an ongoing issue resolution for one scenario.

Challenges related to information security when sharing IGMs and forecast data were identified. Some data are regulated as sensitive and can lead to conflicts with EU obligations and national security law. The merging into a regional or Pan-European CGM is still challenging as it must ensure high-level data quality and compatibility.

In 2022, the RCC had reported shortcomings related to the creation of IGMs and a CGM based on the common grid model Exchange Standard (CGMES), as well as the requirements for information security, IGM quality, and the delay of the external parallel run for flow-based capacity calculation.

Baltic RCC: Related to the unavailability of the IGMs (in 2023 the availability was up to 53%) and robustness of the IT systems used (the availability has been lower on specific time periods).

In 2022, the main shortcomings reported were related to the availability of the IGM and the robustness of the used IT systems. The availability of the common IT systems used was lower on specific time periods.

SELeNe: Discrepancies among the reported absent CGMs and the actually absent ones were identified. The RCC had to investigate the reported missing CGM timestamps, to identify the incorrect ones.

- **Task f) – Outage planning coordination**

Coreso SWE, Coreso & TSCNET: Pending development of the regional coordination operational procedure and the subsequent reporting from the RCCs to TSOs as part of the regional OPC process is required in collaboration with the RCCs and the delegated outage coordination region.

Baltic: For the Y-1, Baltic TSOs delivered unbalanced grid net positions for Baltic. The RCC had to adjust the generation and production positions for Y-1 timestamps to meet balance model requirements.

SELeNe: During two days there were shortcomings for the W-1 timeframes due to IT infrastructure/tool. No shortcomings were reported for the Y-1 timeframe.

General comment from ACER: while coordination on grid outages is taking place, it appears that RCCs are not carrying out outage planning on power generating modules and demand facilities. This is a requirement of the outage planning coordination task, as provided in the Electricity Regulation, Annex I, points 10.1 and 10.2.

- **Task i) Post-disturbance analysis**

Coreso & TSCNET: Need to improve communication towards RCCs for cases such as the incident that occurred in 2023. The RCCs should have enough time to nominate members within the envisaged time frame of one week and ensure data could be collected for investigation.

Baltic: The communication during the incident occurring in 2023 towards RCCs was not sufficient for allocation of resources.

3. Conclusions

This section of the Report presents, as conclusions to the monitoring of the RCCs' performances in 2023, identified areas for improvement of the reporting, as well as suggestions to RCCs for reaching their tasks' objectives.

Some of the suggestions below relate to recent events, taking place in 2024. Despite not being strictly linked to monitoring of RCC reporting obligations in 2023, ACER considers that these could be aspects for the RCCs to take into account in their monitoring and future reports. ACER will ensure that timely feedback is provided to the RCCs via continued cooperation.

In terms of reaching their tasks' objectives, ACER encourages RCCs to:

1. **Ensure that the implementation of the RCC tasks is done without delay**. The RCCs perform crucial tasks that are a crucial contribution to the greater integration of the electricity market in the EU. ACER encourages the RCCs to tackle the complete implementation of their tasks as a matter of priority, not to delay the objectives of the internal electricity market. RCCs should ensure to include in their reporting implementation plans for the not yet implemented mandatory tasks.
2. **Explain and clarify the rotation of tasks among RCCs**. It would be important to have clarity on how the rotation of tasks took place during the reporting year, such as for the common grid model task. To improve the understanding and clarity of the reporting, RCCs should also consider assessing the effectiveness and efficiency of the rotation principle where relevant.
3. **Progress on the CGM task.** Together with ENTSO-E, RCCs should regularly update ACER on the performance of this task, any issues or progress on the identified shortcomings. TSOs and RCCs should investigate the root cause of the issues and perform data quality assessments to explain where progress is delayed. In their reporting, RCCs should explain the reasons for the difficulties faced in the CGM process and how the RCCs are addressing the issues (e.g. in case IGMs are missing or do not pass the quality checks), and explain where and how CGMs have not been used in regional operational processes throughout 2023.
4. **Ensure capacity calculation is extended to all timeframes.** Following the changes to Article 37(1)(a) and Annex I, 1.2 of the Electricity Regulation introduced in 2024 to improve the EU's electricity market design, capacity calculation now needs to be performed for all allocation timeframes, meaning that the task of the RCCs has been extended to both long-term and balancing timeframes.
5. **Generation and outage planning maintenance.** While we understand that there may be some constraints concerning the access to the relevant data, RCCs should ensure that, in order to comply with the legal obligations as provided in Article 37(1)(f) and Annex I, 10.1 and 10.2 of the Electricity Regulation, outage planning coordination (OPC) is extended to power generating modules and demand facilities as well. Price spikes in the summer of 2024 illustrate that coordination within and between SORs is crucial to guarantee a good operation of the system and markets.
6. **In light of the recent incident, understand if relevant RCCs could help bridge the gaps in the individual TSOs' observability areas, where necessary.** Considering the conclusions from the Incident Classification Scale (ICS) expert panel[23] [24], it would be important to check if certain RCCs, being equipped with close to real time supervisory control and data acquisition

[23] Grid Incident in South-East Europe on 21 June 2024 » CS Investigation Expert Panel » Interim (factual) Report » 4 November 2024

[24] Final Report on the Grid incident in South-East Europe

systems[25], could assist combining the individual observability areas of TSOs, where necessary, ensuring that no gaps persist. ACER will be looking into this area in 2025 monitoring.

To improve the quality of the reporting, thereby facilitating the monitoring of the performance and the progress made by each RCC every year, ACER encourages RCCs to take the following actions:

7. Consolidating KPIs and criteria for ease of comparison

- Regarding the KPIs used by RCCs in their respective reports, in line with the suggestion made last year, it could be clarified in the RCC reports whether the same KPIs are being used across all RCCs or if they could be harmonised in the future. It is important to have clarity on which KPIs are used to allow for comparison of the reported performance of the same RCC over the years. This is important to ensure the correct understanding of the reported performance for each task and would assist the reading of the reports. At the same time, it is important to stress that each RCC can amend any set KPIs if needed.
- To facilitate the comparison of the performance of the RCCs over the years, where KPIs are used, ACER suggests to including also the KPI values (KPI comparison %) not only for the current reporting year but for the previous reporting years. This would provide clarity to the reported performance for each task and its development over the years.
- Using the same criteria when reporting on the implementation status of RCCs' regulated tasks (in the *'task overview tables'* of each RCC report). For ease of comparison, ACER suggests that RCCs use the terminology from Table 4 of this report: *in operation and under further development; in operation; under development; not yet started; not requested by the TSOs*.
- In the TSCNET and Coreso reports, clarifying whether the definition of the effectiveness KPI of the CGM process based on the data collected by ENTSO-E (definition M09 from ENTSO-E CGM building dashboard) is the same as metrics monitored by all RCCs. In this regard, consistency and overlaps between the RCC reporting and ENTSO-E's regional coordination assessment annual report (Article 17 of Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation) could be considered.

8. Including relevant detail on the implementation status of each task

- Providing complete information about the exact timeframes in which the tasks have been operational or not, and the timeframes where further work is undergoing (for example for the CCA, CGM, CSA and other tasks where timeframes apply).
- If a certain task was not performed, explaining why it has not yet started, including the related timeline and/or plan for implementation, or why it has not been requested by the TSOs. Also, explain why a certain task was not performed.
- report on any constraint faced in the proper exertion of the tasks, together with a suggested way forward.
- For the Baltic RCC, specify the level of detail in the implementation status of each task by providing additional information for tasks that are '*implemented and operational'* or undergoing *'initial implementation'* envisaged in the following years.

9. Using clear, easy-to-understand visuals and text to describe changes

- Comparing changes in performances over time both qualitatively and quantitatively in a clear way. Describe the latest status, the change from the previous year and the remaining work for the next year(s). This would help to better pinpoint the changes, assist the reading of the reports, and ensure faster monitoring.

10. Clarifying terms, notions and abbreviations to allow for easier reading

[25] As prescribed for in 5.3 of Annex I of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity

- Clearly using the notion of "task" instead of "service" in the reports when referring to obligations under Article 37. Services are voluntary and out of scope of the Electricity Regulation.
- Clearly explaining notions and references used: e.g. (‘metric M09 from ENTSO-E CGM Building dashboard’, referenced in the Coreso report).
- Explain abbreviations that are used in the reports.

11. Ensure the correct submission of reports

- Ensuring that the reports are submitted to ACER and the relevant NRAs, as per the legal requirements, via email to the functional mailboxes and to the relevant contact person(s) indicated during previous exchanges. RCCs are also encouraged to use the appropriate ACER tool to facilitate this process for future reporting periods.

4. List of acronyms

Acronym	Meaning
ACER	European Union Agency for the Cooperation of Energy Regulators
CC	Capacity calculation
CCC	Coordinated capacity calculation
CCR	Capacity calculation region
CGM	Common grid model
CGMES	Common Grid Model Exchange Standard
CORE	Core capacity calculation region
CROSA	Cross-regional operational security analysis
CMs	Capacity mechanisms
CSA	Coordinated security analysis
D-1	Day-ahead
D-2	Two days ahead
DACC	Day-ahead capacity calculation
ENTSO-E	European Network of Transmission System Operators for Electricity
EU	European Union
FB	Flow-base
GRIT	Greece-Italy capacity calculation region
ICS	Incident Classification Scale
ID	Intra-day
IDCC	Intra-day capacity calculation
IGM(s)	Individual grid model(s)
IT	Information technology
IN	Italy North capacity calculation region
KPI(s)	Key performance indicator(s)
LT	Long-term
MTU	Market time unit
M-1	Month-Ahead
NRAO	Non-costly Remedial Action Optimizer
NTC	Net transfer capacity
OPC	Outage planning coordination
OPDE	Operation Planning Data Environment
RA	Remedial action
RAA	Regional adequacy assessment
RCC	Regional Coordination Centre
SEE	Southeast Europe
SEIeNe CC	Southeast Electricity Network Coordination Centre
SOR	System Operation Region
STA	Short-term adequacy
SWE	Southwest Europe
TSO	Transmission system operator
TYNDP	10-year network development plan
UCTE	Union for the Co-ordination of Transmission of Electricity
W-1	Week-ahead
Y-1	Year-ahead

5. List of tables and figures