

Coreso monitoring report SWE SOR

EU 2019/943

Art. 46

coreso



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List of abbreviations

ACER	Agency for the Cooperation of Energy Regulators
BD	Business Day
CA	Coordinated Action
CCC	Coordinated Capacity Calculation
CCR	Capacity Calculation Region
CEP	Clean Energy Package
CGM	Common Grid Model
CGMES	Common Grid Model Exchange Standard
CorNet	A co-operation programme between Coreso and TSCNET
CSA	Coordinated Security Analysis
DA	Day-Ahead
DACC	Day-Ahead Capacity Calculation
DACF	Day-Ahead Congestion Forecast
ECG	Electricity Coordination Group
EMF	European Merging Function
ENTSO-E	European Network of Transmission System Operators for Electricity
ICS	Incident Classification Scale
ID	Intra-Day
IGM	Individual Grid Model
KPI	Key Performance Indicator
N.A.	Not Applicable
NRA	National Regulatory Authority
NTC	Net Transfer Capacity
OPC	Outage Planning Coordination

OPDE	Operational Planning Data Environment
OPI	Outage Planning Incompatibility
RA	Remedial Action
RAA	Regional Adequacy Assessment
RCC	Regional Coordination Centre
RIAR	Regional Incident and Analysis Reporting
ROSC	Regional Operational Security Coordination
RSC	Regional Security Coordinator
STA	Short-Term Adequacy
SOR	System Operation Region
SPOC	Single Point of Contact
TS	Timestamp
TSO	Transmission System Operator
TTC	Total Transmissible Capacity
TYNDP	Ten Year Network Development Plan
UCTE DEF	Union for Co-ordination of Transmission of Electricity Data Exchange Format
WA	Week-Ahead
YA	Year-Ahead

1.

Introduction

Coreso has a long operational history in supporting the regional coordination of operational planning for their shareholders, the electricity Transmission System Operators (TSOs) in Europe. The journey started more than 15 years ago as a voluntary cooperation of the TSOs. With the progress of the regulatory framework, Coreso was established formally as Regional Security Coordinator (RSC). RSCs perform services for the TSOs, such as operational planning security analysis, outage planning coordination, coordinated capacity calculation, short-term and very short-term adequacy forecasts, and a common grid model with hourly updates.

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

Coreso as the RCC established in the Southern Western Europe System Operation Region (SWE SOR) became a regulated entity that will progressively have to meet the additional requirements set out in the European Regulation on the Internal Electricity Market (Regulation 2019/943). The geographical scope of the SWE SOR is visible on Figure 1.

According to Article 46 of the Regulation EU 2019/943, RCCs monitor their own operational performance, coordinated actions issues, effectiveness, and efficiency, and submit an annual report based on the outcome of this monitoring. This document is the first edition of this annual report.

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

- European Network of Transmission System Operators (ENTSO-E);
- European Union Agency for the Cooperation of Energy Regulators (ACER);
- National Regulatory Authorities of the SOR (SOR NRAs);
- Electricity Coordination Group (ECG).

This report is also publicly available on the website of Coreso. No confidential information is included.

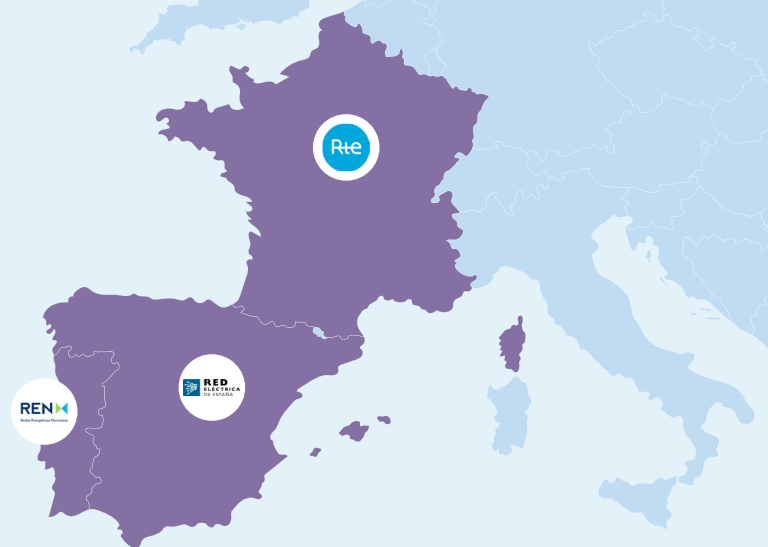


Figure 1: Overview of the SWE SOR

2.

Regulatory Context

Article 46

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

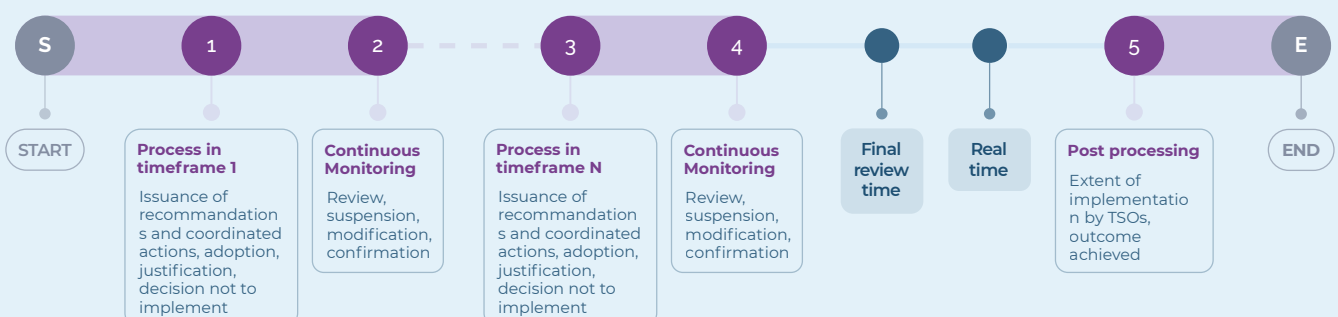
The present report offers information about the performance of our tasks in line with Regulation EU 2019/943 Article 46.1, 3, 4 and 5.

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

The provisions of article 46.2 are not considered in the present report. Coreso has submitted its cost report, which is the annual statutory report, to ACER and the NRAs of SWE SOR in Q2 2023 in accordance with Belgian regulation.

Furthermore, the Regional Coordination Assessment Annual Reporting (SOGL Art. 17) published by ENTSO-E includes Key Performance Indicators (KPIs) for the tasks provided by all the Regional Coordination Centres (RCCs). On the other hand, this report specifically focuses on the RCC tasks performed by Coreso.

Figure 2: A high-level business process of the concepts used in this report. The terms used have the meanings defined in Art42 and 46



3.

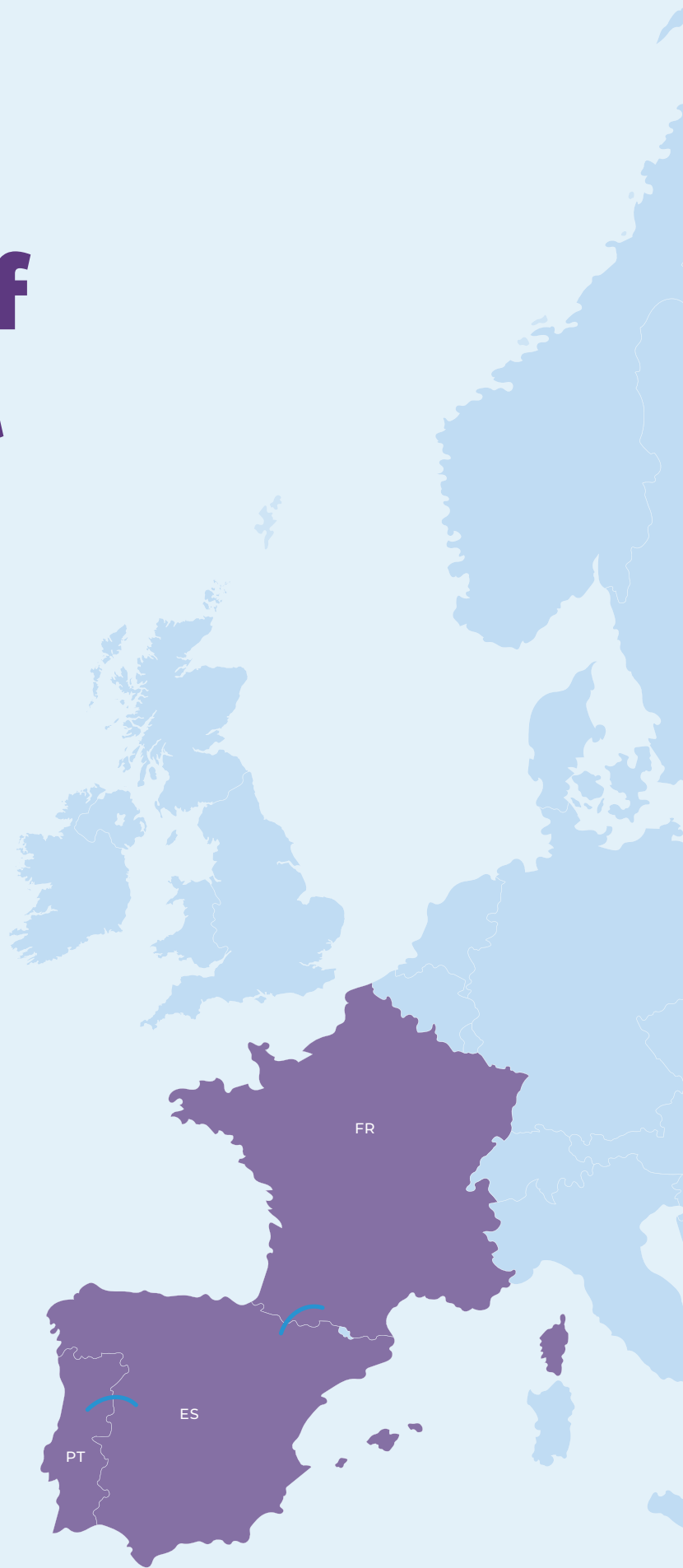
Content of the report

Coreso serves the SWE SOR region by performing tasks and providing services to various TSOs. The EU regulation 2019/943 Article 37 describes 16 tasks to be performed by RCC. 6 tasks originate from Network Codes and Guidelines as RCC responsibilities and are continued in Coreso RCC as part of the transition.

Coreso transitioned from RSC to RCC on 1 July 2022 to comply with EU regulation 2019/943, taking over the RSC services as well as taking on new tasks as regulated by the EU. After this legislation a new report that monitors the operational performance of the tasks of RCC has been requested.

The report covers RCC tasks and since Coreso transitioned from RSC to RCC on 1 July 2022, marking the start of this new reporting obligation, this yearly report therefore exceptionally covers a reporting period from 1 July to 31 December 2022.

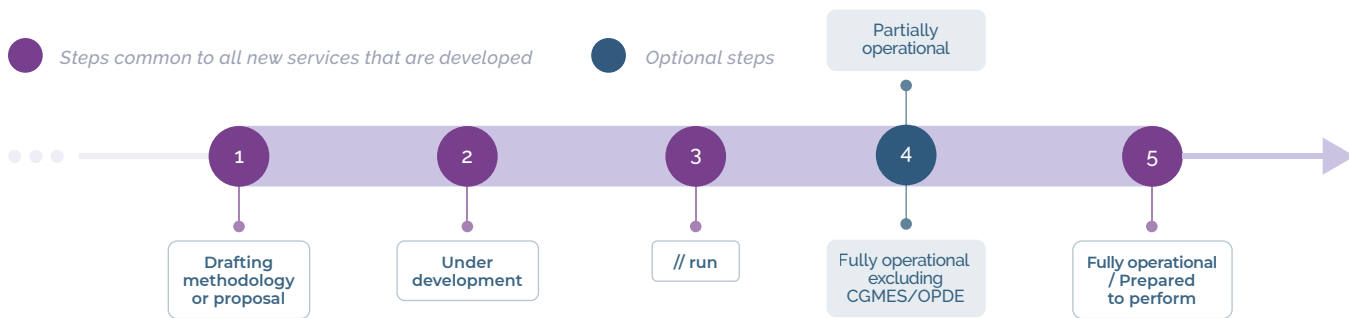
The different tasks are implemented to varying degrees and are still being developed.



¹ SWE SOR RCC calculate capacities for the Capacity Calculation Regions (CCRs) of SWE. The CCRs consist of bidding zones.

Figure 3: Bidding zones¹ that are part of the SWE SOR are indicated in purple and the additional bidding zones in blue make up the Pan-EU region

Figure 4: The different steps in the task implementation process



ART. 37.1	SERVICE/TASK	BP STATUS
a	CCC DA SWE	Fully operational excluding CGM/OPDE
	CCC ID SWE	Fully operational excluding CGM/OPDE
b	CSA SWE	Under Development
c	CGM	Live - operational (partial dev.)
d	Defense and restoration plan	Fully operational - Prepared to perform
Not. inc.	STA Pan-EU	Live - operational (partial dev.)
e	STA Regional	Live - operational (partial dev.)
Not. incl.	OPC Pan-EU	Fully-Operational Excl. CGM/OPDE
f	OPC Regional	Fully-Operational Excl. CGM/OPDE
g	Training	Under Development
h	Regional restoration	Drafting methodology or proposal
i	Post-disturbance analysis	Fully operational - Prepared to perform
j	Sizing	Under development
k	Procurement	Under development
l	Settlements	N/A
m	Crisis scenario	Under discussion at ENTSO-E
n	Seasonal adequacy	ENTSO-E does not delegate the task
o	MEC	Under development
p	Support TYNDP	Drafting methodology or proposal

STATUS	DEFINITION
Fully operational	Full development in line with the legal basis of the business process including the format if needed. There are no further functionalities to be added. This does not exclude the regular update and new releases. If there is no format needed, the business process will be considered also in this status.
Prepared to be performed	The task is not recurrent. Coreso is ready to perform the task when needed
Delivered and completed	The outcome is delivered and there are no operational activities anymore. It is mainly for one shot task.
Fully operational excl. CGM/OPDE	Full development of the business process excluding either the format or the use of the OPDE. There is no further functionalities to be added. This does not exclude the regular update and new releases.
Live-operational (partial dev.)	<p>The main outcome of the business process is used by the TSOs, it can be the first time of a go-live of the business process, however:</p> <ul style="list-style-type: none"> • There are still further functionalities to be developed or at least foreseen in the regulations, • It also includes the intermediate solutions • It does not include CGMES or CGM in OPDE
Ext. // Run	The main outcome of the business process is in // Run, meaning that the TSOs can see the outcome but do not use it.
Under dev.	The main outcome of the business process is being addressed within a project(s)
Dev of method/proposal	The methodology or proposal is under drafting or have been submitted but not yet approved by the NRA or ACER.
NA	Coreso is not required to provide the business process either because ENTSO-E/TSOs did not delegate the task.

Table 1: Status overview SWE SOR of the RCC tasks.

As not all tasks are implemented, monitoring is only possible for those tasks (partially) live. This operational report therefore analyses the following tasks:

- CCC
- CGM (OPDE)
- OPC
- RIAR
- STA

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

4.

CCC

The process to determine the cross-border capacities for both the day-ahead and intraday timeframe is based on the coordinated Net Transfer Capacity (NTC) methodology. According to the DA and ID methodologies approved by SWE NRAs, import and export scenarios of NTC allocation for each border within the CCR are to be computed as the outcome of the CCC process. To be compliant with the "70% requirement" described in the Clean Energy Package, capacities can be increased in the limit of redispatch potential to ensure that a minimum capacity of 70% of the max cross-zonal capacity is made available for trading.

4.1 Operational Performance

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

Coreso is responsible for the DACC and IDCC process computation and delivery. DACC and IDCC consists in the calculation of 6TS at each business day. Applying an interpolation process, those 6TSs are then spanned into 24TS for delivery of the capacity values. 4416 TS were calculated for each process in the reported process. The performance KPI of DACC and IDCC represents the percentage of TS, where Coreso delivered the calculated capacities or the appropriate fallbacks with the available inputs.

The table below demonstrates that for both DACC and IDCC process, Coreso was able to successfully deliver the capacity values or to apply fallbacks in 100% of timestamps.

PERFORMANCE KPI	D-2CC	IDCC
% of process successful delivery	100,00%	100,00%

Table 2: SWE CCR Operational Performance KPI Report

4.2 Coordinated actions and recommendations

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

Not providing minimum capacity requirements in case of insufficient available RAs is currently required by the methodologies and hence yet implemented in the operational processes. Therefore it is correct to state that the final objective of Coordinated Actions is already fulfilled in the CCR region.

There are however currently no explicit Coordinated Actions issued by RCCs as the existing operational process and methodology do not require this. Therefore no KPI is included in the report and additionally, no recommendations were issued for the reported period.

4.3 Effectiveness and efficiency

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

For the effectiveness KPI calculation, we use the timestamps when no fallback procedures had to be applied. Fallback is applied when the TTC calculation could not be performed or delivered because of missing/invalid TSO inputs or failure of RCC tools.

The Efficiency KPI is defined as the ratio of the total number of timestamps for which the TSOs used the initial computed TTC by the RCC without reduction to the total number of computed timestamps in the reporting period. The capacity reduction process could be triggered by any of the TSOs during the local validation step of the process; either as a bilateral reduction at a given border or as a global capacity reduction for the entire CCR.

Table 2 & Table 3 below shows the Q3 & Q4 Effectiveness and Efficiency KPIs respectively for both the intraday and day-ahead timeframes.

The combined effectiveness rate of 74.32% for Q3 and Q4 2022 in the intraday computation of capacities implies that in 19.64% of the reported period, the use of fallback procedures was necessary to ensure that coordinated capacities were delivered successfully to the TSOs. For the reporting period, 11.71% of the fallback procedures triggered within the IDCC process were due to missing or invalid inputs from the TSOs, 7.27% of the fallback procedures triggered were due to IT issues on RCC's tools side and cases where no secure TTC was found after the computation due to situation on the grid and 6.70% was mostly due to the an issue with the boundary set file update, which caused adaptation in the tools at the TSO side. However, thanks to fallback values, Coreso was able to provide values for all cases.

The DACC robustness is represented by 97.19% in effectiveness, and only in 2.81% of the cases Coreso had to apply fallback values. For the DACC process, 1.81% of the fallback procedures triggered were due to missing or invalid inputs from the TSOs, and 1% were due to IT issues on RCC's tools side.

The combined efficiency rate higher than 99% for the reporting of Q3 and Q4 of 2022 in the DACC and IDCC computation of capacities implies that for less than 1% of reported period at least one of the TSOs was requesting for a capacity reduction of the initially computed capacity for the region, either bilaterally between a relevant border or for the entire region, due to a relevant security issue on their local grid from the initial computed value.

PERFORMANCE KPI	D-2CC	IDCC
% of process successful delivery	97.19%	74.32%

Table 3: SWE CCR Effectiveness KPI Report

PERFORMANCE KPI	D-2CC	IDCC
% of process successful delivery	99.59%	99.32%

Table 4: SWE CCR Efficiency KPI Report

4.4 Shortcomings

For the reporting period, in IDCC process, it was necessary to apply fallback values 19.64% of the time, due to missing or invalid inputs, IT issues on RCC's tool side and an update of the boundary set format used in the process. Coreso is currently undergoing an adaptation of the current tooling to improve the performance of the process and its metrics. The current expected go-live of the adaptation will take place at the end of 2024.

5. CGM

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

The UCTE DEF format, however, does not provide enough flexibility to efficiently model the wide range of assets used in the European Grid. To fulfil the needs to model complex equipment and support the wide range of operational planning tasks, the TSOs and RCCs are working on the introduction of the more advanced grid model format called Common Grid Model Exchange Standard (CGMES) in the operational process.

The first step was the go-live of the CGM building process in CGMES format at the end of 2021. The pan-European CGM is created by merging the IGMs of the European TSOs, which was started in January 2022. CGMs are created for different timeframes (in 2022 we delivered CGM in the yearly, two days-ahead, day-ahead and intraday timeframes) based on an agreed rotational principle of the involved European RCCs and RSC (Baltic RCC, Coreso, SCC and TSCNET). This section describes the KPIs of this pan-European CGM process although these CGMs have not been used in operational processes during 2022.

It is worth noting that the SWE region was one of the first CCR to adapt their network models to the CGMES format. The region however doesn't make use of the so called 'OPDE' network to exchange the data, hence the PAN EU merging is not yet operationally used. As a transitional measure a specific regional merging is currently used for the running services in the region.

5.1 Operational Performance

During the reported period, the RCCs built CGMs in the following timeframes²:

- D-2 (1 run of CGM building process to provide 24 models for each day³)
- D-1 (1 run of CGM building process to provide 24 models for each day⁴)
- ID (3 runs of CGM building process to provide 24 models for each day⁵)

The operational performance was monitored based on the successful submission (i.e. building of CGM by the RCCs' tools) compared to the expected number of CGMs, and publication (i.e. successful validation of the CGM based on the Quality Assurance Portal) compared to the number of submitted CGMs.

DEFINITION	TIME-HORIZON		
	D-2	D-1	ID
% of submitted CGMs/due CGMs (as main or backup RCC)	99.95%	99.31%	98.71%
% of published CGMs/submitted CGMs (as main or backup RCC)	97.62%	96.4%	83.17%

Table 5: CGM Building process Operational Performance KPIs.

² Based on the number of published CGMs during the data collection phase of this report, accounting as successful also CGMs published after gate closure time, with the implementation of manual data quality intervention.

³ Or 23/25 timestamps due to Daylight saving time.

⁴ Or 23/25 timestamps due to Daylight saving time.

⁵ Or 23/25 timestamps due to Daylight saving time.

The high share of submitted CGMs show, that the RCC is capable to perform the process, however, manual data quality interventions are needed (resulting in exclusion of IGMs blocking the merge process). Furthermore, the manual interventions take time and these CGMs are published after gate closure time.

The high share of published CGMs show, that these CGMs could pass the validation on the common platform. Regarding the ID CGMs on Coreso side, the lower share of 83.17% of publication is caused by multiple reasons such as data quality, European Merging Function (EMF) readiness and mainly due to no manual data quality intervention after CGM publication Gate Closure Time.

5.2 Coordinated actions and recommendations

The RCCs do not issue recommendations for the CGM task.

5.3 Effectiveness and efficiency

Based on the experiences gained in the first year of the CGM task in December 2021, the community of TSOs and RCCs gained a lot of operational experience regarding the most critical points to perform this task effectively and efficiently. Based on these experiences, the inclusion of IGMs available in the CGM and the timely delivery of the CGMs are the key topics and the metrics to monitor effectiveness and efficiency. During the reported period the RCCs observed, that the CGM building process can fail without manual data quality interventions. These interventions often mean that certain IGMs – even if these were successfully validated - need to be excluded from the CGM, in order to reach convergence and be able to submit the CGM (see chapter 5.4).

Throughout the reported period, the tendency of IGM inclusion was regularly aligned among the RCCs on a weekly basis. The inclusion of IGMs is also reported on pan-EU level by ENTSO-E, to the national NRAs and ACER.

Based on the outcome of this monitoring, improving the quality of the CGMs (i.e. increase the number of IGMs included) was considered as the highest priority by the TSOs and RCCs.

To monitor the effectiveness and efficiency of the CGM process, the following monitoring processes are planned to be implemented:

Effectiveness of the CGM process was defined as:

- Percentage of IGMs included in the merged CGM based on the number of IGMs (validated by the OPDE platform) available before the merge
- Percentage of IGMs included in the merged CGM based on the number of IGMs (validated by the EMF tool on RCC side) available before the merge.

Efficiency of the CGM process was defined as:

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

5.4 Shortcomings

The accurate modelling of the very complex transmission network with all of its equipment is a challenging task for all involved parties. All involved RCCs and TSOs are working together to reach high quality pan-European CGMs. It seems, that further harmonization of technical details among the parties is needed to work towards this goal.

Currently the performance (timely delivery of CGM by RCCs) and quality requirements (IGM inclusion) are hard to meet at the same time during the CGM building process. It seems that successfully validated IGMs cannot be used in the merged grid models. The reason behind varies on TSO and RCC level – there is no single explanation and the issues needs to be investigated case by case. To solve this situation, the TSOs and RCCs established a 'Modelling Group' to align on the technical details and propose updated validation rules, where needed.

6.

STA

To ensure a good balance between supply and demand, the role of the Short-Term Adequacy (STA) service consists, in the D-1 to D-7 timeframe, of:

The goal of the pan European adequacy assessment is to detect situations where a lack of electricity adequacy is expected in any of the control areas or at regional level (pan-European view), considering the cross-border exchange limits. Pan European assessment is performed using two different approaches, namely the deterministic and probabilistic approach. The deterministic approach performs the assessment based on the best forecast from TSOs, whereas the probabilistic approach considers variations in generation, load and transmission asset availabilities. The pan European assessment performed by a central tool managed by ENTSO-E based on a rotational principle among RCCs.

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

6.1 Operational Performance

Operational performance is based upon the successfully completed executions of the STA calculations. Pan-European STA is triggered once a day regularly and in case of a request from a TSO, a second run is also performed. For the monitored period at the pan-European level, 196 calculations are triggered and only one calculation failed. On the other hand, no regional adequacy assessment is triggered.

ART.46 SWE SOR		TIME-HORIZON	REGION
PROCESS	DEFINITION	WA	
Pan-EU STA	% of process successes	99.49%	Pan-EU

Table 6: STA process Operational Performance KPIs.

6.2 Coordinated actions and recommendations

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

6.3 Effectiveness and efficiency

An efficiency KPI is defined as the percentage of days without the need of additional STA calculation which is generally triggered in case of an input data issues at the pan-European level. During the monitored period of 184 days, an additional run was triggered 12 times.

ART.46 SWE SOR		TIME-HORIZON	REGION
PROCESS	DEFINITION	WA	
Pan-EU STA	% of days without the need of additional run	93.48 %	Pan-EU

Table 7: STA process efficiency KPIs

On the other hand, an effectiveness KPI is defined by the capability of the process to provide a resolution to the adequacy issue identified at the regional level. Following information will be delivered in the future versions of the report per each RAA trigger:

NO	DATE OF ASSESSMENT	DATE OF EVENT	RCC LEADER	NO. OF CONCERNED TSOS	INADEQUACY DURATION	ENS [MWH]	PROPOSED MITIGATION ACTION	RESOLUTION STATUS
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 8: KPIs for Regional STA Triggers (sample). No values are available as no regional process was initiated.

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

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

RCC leader: RCC responsible for leading the Regional STA process

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

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

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

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

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

6.4 Shortcomings

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

7. OPC

The OPC task is performed at two levels: pan-European and regional. The pan-European process is performed by the RCCs on a rotational basis, using an ENTSO-E tool. The main purpose of this task is to harmonize the outage plans across Europe.

Regional OPC for SWE is performed by Coreso. During this process the RCC propose solutions to solve OPIs towards the TSOs in the form of costly remedial actions. However, KPIs for this process are not included in this report as they are not performed based on a methodology approved by the SWE SOR NRAs.

7.1 Operational Performance

Operational performance is considered in general as a percentage of processes triggered (irrespective of deadline) compared to the processes expected to be triggered. In 2022, all Pan-European OPC processes were successfully performed.

ART.46 SWE SOR			TIME-HORIZON		REGION
ID	PROCESS	DEFINITION	WA	YA	
1	OPC	% of process successes	100,00%	100,00%	SWE SOR

Table 9: OPC Operational Performance KPIs

7.2 Coordinated actions and recommendations

For the pan-European OPC process, there are no recommendations issued.

7.3 Effectiveness and efficiency

We measure the effective performance of the process from perspective of timely delivery of the results for the TSOs, so these can be used as input for further processes. The late delivery could cause delays and fallback procedures, resulting in lower effectiveness of the operational planning. In the reported period, all of the results of week-ahead and year-ahead process were communicated successfully on time to the TSOs.

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

ART.46 SWE SOR			TIME-HORIZON		REGION
ID	PROCESS	DEFINITION	WA	YA	
3.A	OPC	% of result delivery within defined deadlines	100,00%	100,00%	SWE SOR
3.B	OPC	% of consistent tie-line outages	100,00%	98,08%	SWE SOR
3.C	OPC	% of correctly mapped assets between OPC & CGM	98,55%	92,89%	SWE SOR

Table 10: OPC and OPI Efficiency KPIs

7.4 Shortcomings

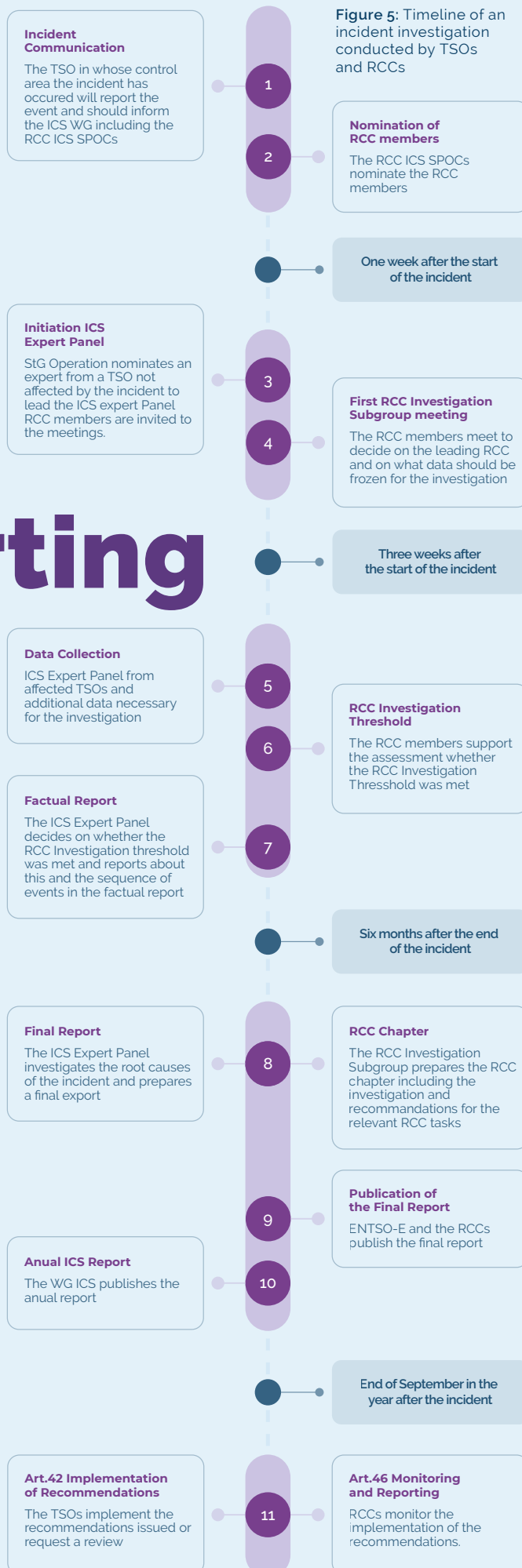
There are no shortcomings identified for the reported period.

8.

Regional Incident Analysis and Reporting

On 31 March 2022, the post-operation and post-disturbances analysis and reporting methodology⁹ was approved by ACER in accordance with the regulation. The task according to this methodology went live on 1 October 2022. In the everyday operations, this task is often referred to as Regional Incident Analysis and Reporting (RIAR). The RCCs' process to carry out the post-operation and post-disturbances analysis and reporting interacts with the existing process run by the ENTSOE ICS Expert Panel established for the investigation of incidents on scale 2 and scale 3 in accordance with the ICS Methodology¹⁰. After the incident threshold of scale 2 or 3 is triggered, a factual and final report shall be prepared by an expert panel. An RCC Investigation Subgroup is created within the ICS Expert Panel. This group validates whether the RCC Investigation Threshold defined in Article 5(1) is met and leads the subsequent investigation relating to RCC activities. A chapter pertaining to RCC activities will be prepared by the RCC subgroup and included in the final report. Details of the interactions and activities led by the ICS Expert Panel and the RCC subgroup are shown in figure 5 "Timeline of an incident investigation conducted by TSOs and RCCs".

Recommendations issued by the RCC subgroup will be tracked in a dedicated database and updated by each RCC for their respective SOR (Art. 46 (3)). For the SWE region, this will be detailed in this report.



8.1 Operational Performance

During the year 2022, and since the go-live of the RCC task 'Post-Operation and Post-Disturbances Analysis and Reporting', no scale 2 or 3 incident investigations in the synchronous areas of CE, GB, Nordic, IE/NI or Baltic took place. Therefore, there were no investigations to be reported on for the year 2022.

9.2 Coordinated actions and recommendations

No recommendations were made during the year 2022, since no incidents triggered the RCC Threshold. For reference all recommendations are stored in the Recommendation Database, maintained by the RCC ICS Single Point of Contact (SPOC).

8.3 Effectiveness and efficiency

Effectiveness of this task has been defined as:

- Nomination and communication of the RCC members within one week of the start of the scale 2 or 3 incident
- Publication of the final report, including the RCC chapter by the end of September in the year after the incident

Efficiency of this task has been defined as:

- The number of hours spent on the Post-Operation and Post-Disturbances Analysis and Reporting task (process implementation, training and certification, recommendation follow-up)
- The number of hours spent per incident triggering the ICS or RCC Threshold

8.4 Shortcomings

For the monitored period, there are no shortcomings to be reported.

Article 37

of the EU Internal Electricity Market Regulation 2019/943



TASK — a

Coordinated Capacity Calculation

Calculate the available cross-zonal transmission capacities that can be allocated to the electricity market. Provide improvement proposals to TSOs to optimise available capacities.



TASK — b

Coordinated Security Analysis

Perform security analysis to detect potential operational security violations on the grid, at a regional level. Recommend and coordinate remedial actions for TSOs to solve them.



TASK — c

Common Grid Model

Create a pan-European overview of the interconnected European grid by collecting, checking the quality, and merging the Individual Grid Models provided by TSOs.



TASK — d

Defence and Restoration Plans

Review of TSOs' defence and restoration plans (to be implemented in case of an emergency restoration state) to identify potential incompatibilities. Propose mitigation actions.



TASK — e

Short-Term Adequacy

Perform adequacy assessments to detect situations where a lack of electricity adequacy is expected in any of the control areas (pan-European) or at regional level, taking possible cross-border exchanges and operational security limits into account. Propose and coordinate solutions for TSOs to ensure generation meets consumption.



TASK — f

Outage Planning Coordination

Identify tie-line inconsistencies and outage planning incompatibilities between relevant grid assets, with cross-border impact at pan-European and regional level. Propose and coordinate solutions for TSOs to solve these incompatibilities.



TASK — g

Training and Certification

Train and certify staff working for RCCs. Put in place an internal structure to train and certify operators before operating any service while allowing traceability and transparency.



TASK — h

Regional Restoration

Support the coordination and optimisation of regional restoration as requested by TSOs. Task definition still in discussion at European level while RCC involvement needs to be determined.



TASK — i

Post-Operation Analysis

Carry out post-operation and post-disturbances analysis and reporting. Investigate and prepare reports on incidents strongly affecting the European Transmission Network, to support the European expert panel for further analysis.



TASK — j

Sizing

Regional sizing of reserve capacity. Task definition still in discussion at European level.



TASK — k

Procurement

Facilitate the regional procurement of balancing capacity. Task definition still in discussion at European level.



TASK — l

Settlement

Support TSOs, at their request, in the optimisation of inter-transmission system operators' settlement.



TASK — o

Maximum Entry Capacity

Calculate the value for the maximum entry capacity available for the participation of foreign capacity in capacity mechanisms for the purpose of issuing a recommendation.



TASK — p

Supporting Ten-Year Network Development Plan

Carry out tasks related to supporting TSOs in the identification of needs for new transmission capacity, the upgrade of existing transmission capacity or their alternatives. Task definition still in discussion at European level.

Note that task m.(crisis scenario's) and n. (seasonal adequacy assessment) are not delegated to ENTSO-E and not included in the overview

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