# Explanatory note to the Italy North TSOs proposal for common provisions for regional operational security coordination in accordance with Article 76 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

**December 2019**

**Disclaimer**: This explanatory document is submitted by the TSOs of the Italy North region for information and clarification purposes only accompanying the Italy North TSOs proposal for common provisions for regional operational security coordination in accordance with Article 76 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation.

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# 1 Introduction

The Italy North TSOs proposal for common provisions for regional operational security coordination (hereinafter: ROSC) in accordance with Article 76 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereinafter: SO Regulation) sets out the main principles for the organisation of regional operational security in Italy North capacity calculation region (hereafter: Italy North Region).

The participating TSOs for the processes described in the proposal are TERNA (IT), RTE (FR), Swissgrid (CH), APG (AT) and ELES (SI).

In particular, this document includes:

- the options currently under discussion within the TSOs of Italy North Region and Technical Counterparties to enable a transparent, effective and fair coordination of RAs in a consistent way with the general principles set forth in the methodology developed according to Article 75 of SO Regulation (hereinafter: CSAm);
- an initial assessment demonstrating that the proposed setup of regional security coordinators and allocation of tasks is efficient, effective and consistent with the regional coordinated capacity calculation established pursuant to Articles 20 and 21 of Regulation (EU) 2015/1222.

# 2 Rules for the coordination of RAs

This chapter describes the detailed options currently under discussion within the TSOs of Italy North Region and Technical Counterparties to enable a transparent, effective and fair coordination of RAs in a consistent way with the general principles set forth in the CSAm.

At this stage, no agreement was reached on one of the two options. Therefore, only high-level provisions have been included in Article 14 of the ROSC methodology. The two detailed options for Article 14 are described below.

Both the options foresee the:

- definition of the *scanned elements*:
  - A *scanned element* is an assessed element on which the electrical state (at least flows) may be computed and may be subject to an observation rule during the regional security analysis process.
- definition of the *scanned area*:
  1. Scanned area shall consist of all scanned elements.
  2. TSOs of Italy North Region and Technical Counterparties shall have the right at any time to include any element modelled in the IGM and excluded from the secured area in the scanned area.
  3. TSOs of Italy North Region and Technical Counterparties shall have the right at any time to exclude any of their element from the scanned area.

## 2.1 Option A

### 2.1.1 Proposed formulation for Article 14

1. Remedial actions which are specified as cross-border relevant (XRAs) in accordance with Article 8 need to be applied in a coordinated way, in order to prevent negative impact on affected TSOs. The rules regarding the starting point for the use of RAs will be according to the approval of the amendments of Article 21 of the CSAm.

2. TSOs of the Italy North Region and Technical Counterparties shall assess the impact of the Remedial Actions recommended by the RSCs.

3. The XRA-affected TSOs shall not reject the usage of any recommended XRA provided that:

    a) these XRAs are expected to be technically available in real time;

    b) these XRAs do not cause overloads on XNEs or scanned elements;

    c) these XRAs do not aggravate overloads on already overloaded XNEs or scanned elements

4. In case the application of XRAs causes overloads on XNEs or scanned elements or aggravates overloads on already overloaded XNEs or scanned elements, an additional loading of maximum 5% of PATL of the affected element shall be accepted by the XRA-affected TSO(s), as long as grid security is not endangered (e.g. not sufficient remedial actions available to solve additional overloads). The compliance with the threshold of maximum 5% of PATL for the sum of all proposed remedial actions is to be evaluated in relation to the neutral tap position for PSTs, normal switching state regarding to special switching states and generation and load patterns before any Redispatch activation.

5. XRAs which are implemented without coordination will be considered as non-coordinated action. The impacts of such non-coordinated actions are considered for cost sharing purposes pursuant to Article 19.

6. In case a network element fulfils the criteria for overlapping XNE, and after the approval of the amendments of Article 27 of CSAm, this element will be subject to the rules of overlapping zones.

### 2.1.2 Proposed addition for Annex 3

New constraint to be introduced for the RAO on the impact of the recommended RAs of Italy North Region on an overloaded scanned element:

$$I_{RAs\_IN,RSCs} \leq 0{,}05 \cdot PATL$$

Where:

- $I_{RAs\_IN,RSCs}$ is the impact the recommended RAs of Italy North Region;
- $PATL$ is the permanently admissible transmission loading on a scanned element.

## 2.2 Option B

### 2.2.1 Proposed formulation for Article 14

1. Remedial actions which are specified as cross-border relevant (XRAs) in accordance with Chapter 2 shall be applied in a coordinated way, in order to prevent negative impact on affected TSOs.

2. TSOs of Italy North Region and Technical Counterparties shall assess the impact of the Remedial Action recommended by the RSCs. The XRA-affected TSOs shall not reject the usage of any recommended XRA provided that:

    a) it is expected to be technically available in the real time;

    b) these XRAs do not cause overloads on their scanned elements or aggravate already overloaded scanned elements.

3. In case XRAs cause overloads on a scanned element or aggravate an already overloaded scanned element, the XRA-affected TSO or Technical Counterparty may ask for a review of the recommended XRAs. As long as the recommended XRAs have an impact higher than 5% of the PATL of the affected scanned element, RSC(s) shall recommend new XRAs in a way that TSOs of Italy North Region and Technical Counterparties reduce their impact on the affected scanned element to the maximum allowed value $I^{max}_{TOT\_IN}$.

4. The maximum allowed value $I^{max}_{TOT\_IN}$ is computed using the RAs agreed during the capacity calculation process according to the formulas described in Annex 4.

5. TSOs of Italy North Region and Technical Counterparties and RSCs of Italy North Region shall relieve congestions on overlapping XNEs and will coordinate XRAs impacting these overlapping XNEs in accordance with the proposal for amendment to be developed pursuant to Article 27 of CSAm.

6. Once approved and implemented, the rules that will be included in the proposal for amendment to be developed pursuant to Article 27 of CSAm shall supersede the process under paragraph 3 for overlapping XNEs and overlapping XRAs. Moreover, in case a network element fulfils the criteria for overlapping XNE, this network element cannot be classified as a scanned element.

### 2.2.2 Proposed addition for Annex 3

New constraint to be introduced for the RAO on the overall impact of Italy North Region on an overloaded scanned element with the recommended RAs:

$$I_{TOT\_IN,RSCs} \leq I^{max}_{TOT\_IN}$$

Where:

- $I_{TOT\_IN,RSCs}$ is the overall impact of Italy North Region with the recommended RAs.

### 2.2.3 Proposed formulation for Annex 4

The formulas referred to in Article 14 are the following:

a) Overall impact of the Italy North Region:

$$I_{TOT\_IN} = I_{PSTs\_IN} + I_{EX\_IN}$$

Where:

- $I_{TOT\_IN}$ is the overall impact of the Italy North Region on a scanned element obtained with the RAs agreed as outcomes of the capacity calculation process;
- $I_{PSTs\_IN}$ is the impact on a scanned element associated with the PST tap positions in Italy North Region agreed as outcomes of the capacity calculation process;
- $I_{EX\_IN}$ is the impact on a scanned element associated with the exchanges within Italy North Region.

b) Impact of the PST tap positions:

$$I_{PSTs\_IN} = \sum_{PST\_IN} PSDF \cdot tap$$

Where:

- $PSDF$ is the phase shifter distribution factor of a given PST on a scanned element, also reflecting the impact of topological measures different than PSTs;
- $tap$ is the tap position of each PST.

c) Impact of exchanges:

$$I_{EX\_IN} = PTDF_{FR\to IT} \cdot SCE_{FR\to IT} + PTDF_{CH\to IT} \cdot SCE_{CH\to IT} + PTDF_{AT\to IT} \cdot SCE_{AT\to IT} + PTDF_{SI\to IT} \cdot SCE_{SI\to IT}$$

Where:

- $PTDF$ is the zone-to-zone power transfer distribution factor, also reflecting the impact of topological measures different than PSTs;
- $SCE$ is the scheduled commercial exchanges between zones published in accordance with Article 12 of the Transparency Regulation 543/2013.

d) Contribution of Italy North Region to the loading of a scanned element:

$$C_{IN} = \max\left(0, \frac{I_{TOT_{IN}}}{PATL + X}\right)$$

Where:

- $C_{IN}$ is the contribution of Italy North Region to the loading of a scanned element;
- $PATL$ is the permanently admissible transmission loading on a scanned element;
- $X$ is the total overload on the scanned element.

e) Resulting loading on a scanned element after limitation of the impact of Italy North Region:

$$L' = PATL + X \cdot (1 - C_{IN}) = L - X \cdot C_{IN}$$

Where:

- $L$ is the initial loading of a scanned element;
- $L'$ is the resulting loading of the scanned element after limitation of the impact of Italy North Region.

f) Maximum impact allowed to Italy North Region on a scanned element:

$$I_{TOT\_IN}^{max} = I_{TOT\_IN} - X \cdot C_{IN}$$

# 3 Efficiency and Effectiveness Assessment

## 3.1 Executive summary

The RSCs have carried out an assessment of the efficiency and effectiveness of 3 likely operating models for allocation of tasks between RSCs: Rotational, Fully Rotational and Splitting Tasks. This assessment was carried against 4 key criteria: resourcing and high-level cost assessment, expertise, resilience and business change.

**Rotational Operating Model:** 2 (or more) RSCs carry out a task on a rotational/alternating basis, while both (all) RSCs have a role in the process at each rotation period. Leading RSC of a specific rotation period has the overall responsibility and liability for the whole process, Backup RSC contributes with its expertise to support the Leading RSC, for the parts of the process that require specific expertise on each TSO's grid and/or coordination/communication with the TSOs, and acts as redundancy to the Leading RSC in case of stressed situations on the network and/or inability of the Leading RSC in executing the process.

**Fully Rotational Model:** 2 (or more) RSCs carry out a task on a rotational/alternating basis. Each RSC carries out the task in full scope for a predetermined period, after which the RSC carrying out the task changes.

**Splitting Tasks:** for each of the tasks listed in SOGL article 77(3), one RSC carries out a task in full scope for all timeframes without support or backup from another RSC. Different tasks can be carried out by different RSCs, in which case the tasks are split between RSCs.

### 3.1.1 Advantages of the Rotational Operating Model

The significant advantages of the Rotational Model compared to other models are the following:

- **Resilience:** continuous backup by the Backup RSC ensures business continuity, minimises/avoids delays in the CSA process in case the Lead RSC process fails; Backup RSC role reduces the risks of miscommunication and lack of coordination in case of stressed situations
- **Resourcing and high-level cost assessment:** common IT solutions of RSCs provide significant savings in the development phase and reduce the operational costs of the IT solutions.
- **Expertise:** RSCs need less time compared to other models to build and maintain expertise on the TSOs power network and operational rules that is required to fulfil the obligation of

designing and optimising sets of RAs, which will provide a significant saving on the training costs

- **Business change:** smooth transition towards the target model optimises the expertise needed, reduces the implementation risks and increases the transparency, saving cost both in the development stage and in operation.

## 3.2 Introduction. High level explanation of operating models

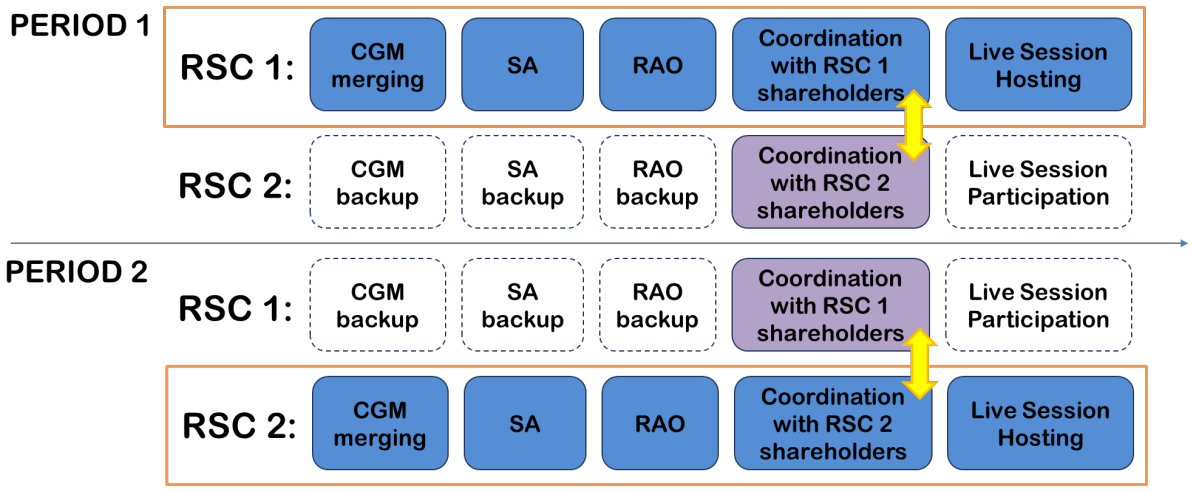
SOGL article 77(1)(c) requires that the proposals developed in each CCR include also '*an assessment demonstrating that the proposed setup of regional security coordinators and allocation of tasks is efficient, effective and consistent with the regional coordinated capacity calculation established pursuant to Articles 20 and 21 of Regulation (EU) 2015/1222*'.

There are several possible operating models; after initial analysis models based on parallel operation were excluded from the assessment because due to the overlapping implementation timelines compliance with CEP is recommended for the choice of operating model. The RSCs have carried out an assessment of the efficiency and effectiveness of 3 likely operating models for allocation of tasks between RSCs: Rotational, Fully Rotational and Splitting Tasks.

### 3.2.1 Rotational Operating Model

In case of the **Rotational Operating Model**, two (or more) RSCs carry out a task on a rotational/alternating basis, while both (all) RSCs have a role in the process at each rotation period. The Leading RSC of a specific rotation period has the overall responsibility for the whole process, carries out the process and shares the output with the other RSC(s). For the parts of the process that require specific expertise on each TSO's grid and/or coordination/communication with the TSOs, the Backup RSC contributes with its expertise to support the Leading RSC, whenever needed. The Backup RSC has the overall responsibility to act as a redundant RSC for the Leading RSC whenever needed.

**Example of the Rotational Model applied on CSA process:**



The roles and the responsibilities of the Leading and Backup RSC are the following:

- Leading RSC:
  - is legally and operationally responsible and accountable for the successful start, execution and conclusion of the process (both in Day Ahead and Intraday timeframe);
  - ensures that all the steps of the process are fulfilled: delivery of data sets by TSOs, start and finish of each process step, reporting and communication of process results.
- Backup RSC:
  - facilitates coordination with the TSOs that are non-shareholders of the Leading RSC; each TSO maintains their contact with their RSC;
  - supports the Leading RSC in the design and proposal of sets of RA;
  - acts as redundancy to the Leading RSC in case of stressed situations on the network and inability of the Leading RSC in executing the process.

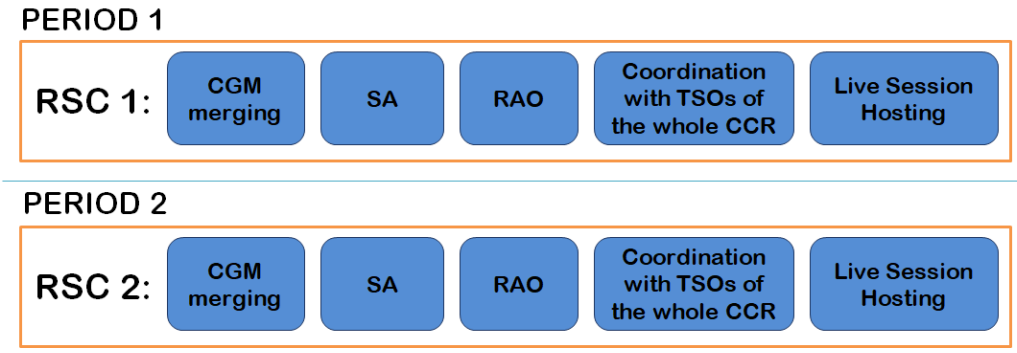
The proposed setup is consistent with the capacity calculation process. For consistency, the RSCs may rotate the CSA task on a predetermined period, but this is subject for future definition in a contractual framework.

The advantage of the Rotational Model with Leading RSC is that it is also in line with CEP requirements, meaning that no major changes in the process will be required for the proposal of establishment of RCCs due in June 2020.

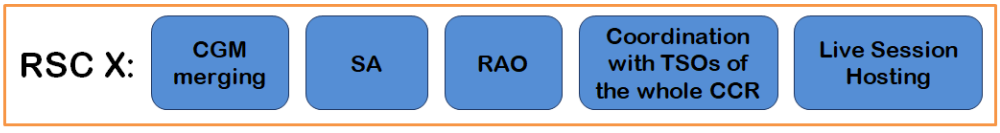
### 3.2.2 Fully Rotational Operating Model

In case of the **Fully Rotational Operating Model**, two (or more) RSCs carry out a task on a rotational/alternating basis. Each RSC carries out the task in full scope for a predetermined period, after which the RSC carrying out the task changes.

**Example of the Fully Rotational Model applied on CSA process:**




### 3.2.3 Splitting Tasks



In case of Splitting Tasks, for each of the tasks listed in SOGL article 77(3), one RSC carries out a task in full scope for all timeframes without support or backup from another RSC. Different tasks can be carried out by different RSCs, in which case the tasks are split between RSCs.

### 3.3 Comparison of the operating models

High-level benchmarking table below provides a summary of the assessment that was carried out for each operating model against several criteria: redundancy/backup ensured, efficiency, effectiveness, consistency with CCC and other services, effective coordination and decision-making process, expertise, relations with non-stakeholders, compliance with CEP and costs.

| | Fully Parallel | Parallel with different perimeter | Fully Rotational | Rotational | Splitting Tasks |
|---|---|---|---|---|---|
| *Description* | *Both RSCs carry out the task for the whole CCR* | *Each RSC carries out the task for part of the CCR* | *One RSC carries out the task for all TSOs alternating with another RSC over time* | *One RSC carries out the task alternating and with support of another RSC for expertise* | *Only one RSC is appointed for the task in a CCR* |
| Redundancy/ backup ensured | ✓ | ? | ? | ✓ | ✗ |
| Efficiency | ✗ | ✓ | ? | ? | ✓ |
| Effectiveness | ✓ | ? | ? | ✓ | ✓ |
| Consistency with CCC | ✗ | ✗ | ✓ | ✓ | ✓ |
| Effective coordination and decision making | ? | ? | ? | ✓ | ✓ |
| Expertise | ✗ | ✓ | ✗ | ✓ | ✗ |
| Relations with non-stakeholders | ? | ✓ | ✗ | ✓ | ✗ |
| Compliance with CEP | ✗ | ✗ | ✓ | ✓ | ✓ |
| Cost | ✗ | ✗ | ? | ? | ? |

✓ marks compliance with a criterion

✗ marks non-compliance with a criterion

? shows that further assessment is required to determine compliance with a criterion

It should be noted that the Parallel Operating Models are included in the comparison for reference; these models are considered rejected because significantly higher resources would be required, and these models are not compliant with CEP.

In the following chapters the 3 operating models – Rotational, Fully Rotational and Splitting tasks – are benchmarked against the key criteria.

### 3.3.1 Resourcing and high-level cost assessment

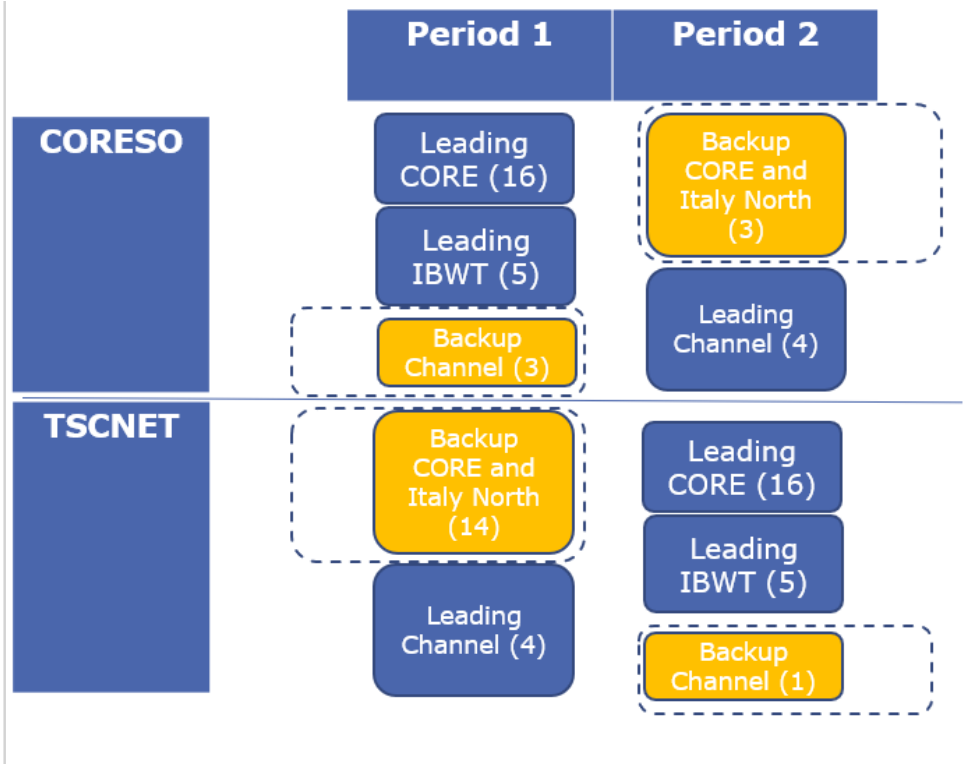
The key costs for RSCs are related to operational staff and IT tooling. **From the resourcing perspective, the Fully Rotational and the Rotational models present clear advantages.**

These operating models foresee only one RSC leading a task in a CCR at any given timeframe. In case of Rotational Model, only the Leading RSC will be responsible and accountable for the correct execution of the process and have dedicated resources to execute the task. The Backup RSC may share the workload of the Backup role between different regions.

The Rotational model would require 5 desks in 2 RSCs to cover the processes in 3 regions compared to 3 desks in case of the Fully Rotational Model or Splitting Tasks, but it ensures continuous backup that would not be there in case of the other 2 models. It is also important to note that since the implementation of the CSA service in full scope will be a major business change, Rotational Model is the only model that would allow a smooth transition optimising the expertise needed, saving cost both in the development stage and in operation.

**The second significant component of costs is related to IT tools. In case of the Rotational Model the RSCs would share common IT solutions, providing significant savings in the development phase and reducing the operational costs of the IT solutions. It is also important to note that in addition, common IT solutions ensure transparency and facilitate the fulfilment of reporting obligations.**

#### *3.3.1.1 Operational arrangement with Rotational Model*

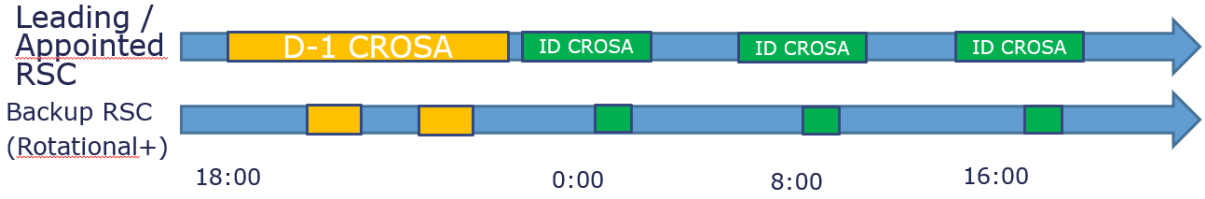



Shows potential combinations of backup desks with other regions (for example Channel backup and SWE). In (), the number of TSOs participating to the ROSC.

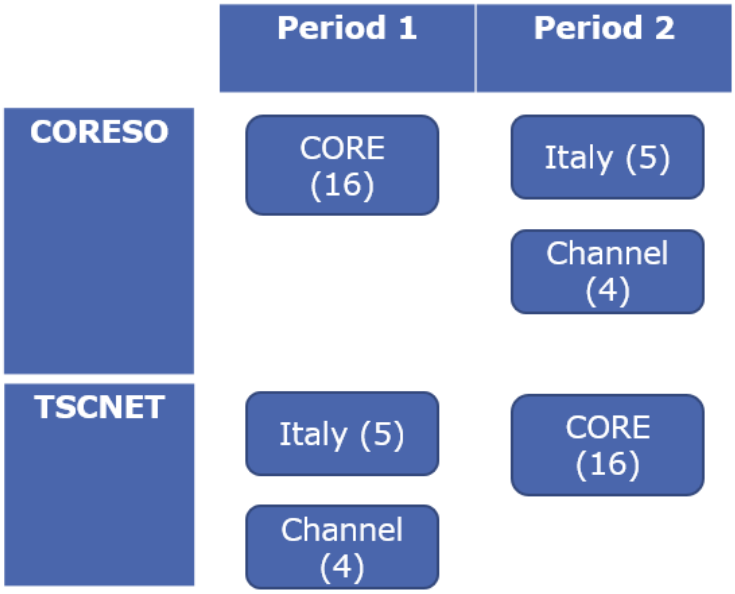
As shown above, the Leading RSC has one dedicated desk for each region that it is leading, for example CORE Lead has one desk dedicated to CORE CCR, Italy North Lead has one desk dedicated to Italy North CCR, while the Backup RSC has one desk for the backup function with the possibility to combine this backup desk also with other regions.

**The advantages of this setup are resilience/security, optimal use of expertise and smooth change, as further elaborated in chapters 3.2-3.4. The expected higher need for the number of desks across 2 RSCs is well balanced by ensuring business continuity through continuous backup. Continuous backup will allow the Backup RSC to take over running the process in case the Lead RSC fails with minimal or no delays in the process.**

The workload per desk in one RSC in the Rotational Model in day ahead and intraday timeframe is shown below:

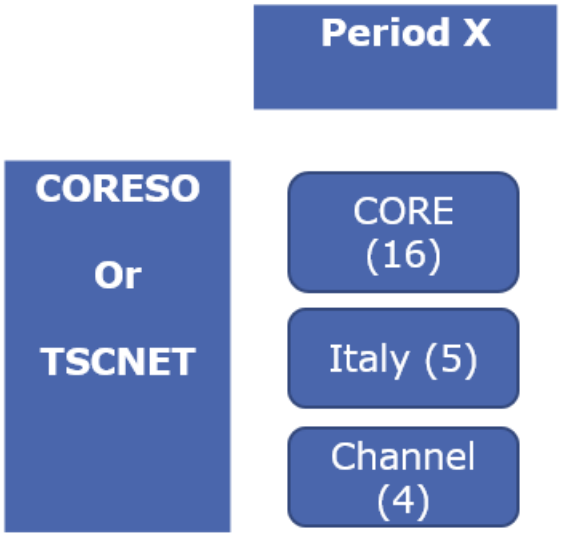


#### 3.3.1.2 *Operational arrangement with Fully Rotational Model*




The advantage of the setup is that only 3 desks will be required across 2 RSCs, while the disadvantages are: no immediate backup, high workload for one RSC and RSCs need to build expertise on the whole CCR.

#### 3.3.1.3 *Operational arrangement if RSCs split tasks*




The disadvantages for the setup are massive change required in each RSC (reallocation of resources, building expertise), no backup ensured and the risk of lack of transparency and discriminatory behaviour (1 RSC runs the service for all TSOs « forever »).

### 3.3.2 Expertise

The CSAm requires RSCs to analyse, design and propose sets of Remedial Actions. This can be only done when an adequate level of expertise is kept at the RSC level. Furthermore, the Clean Energy Package requires that there is an official training and certification process for RCC personnel.

All of the 4 RSC tasks defined in SOGL require that the RSC has expertise on the TSOs power network and operational rules. This is necessary to fulfil the RSC role of designing and optimising sets of RA and also to develop and improve the RAO, among other roles, and will be required even with a high level of automation for the target process. The Fully Rotational or the Splitting Tasks models would require that one RSC has all the network and operational expertise for one region.

Taking the above into account, it is more expensive and riskier for a RSC to build up expertise and achieve a high level of maturity in the operational relations for the whole CCR, giving a clear advantage to the Rotational Model.

To achieve the level of expertise required to perform all the tasks, most notably to be able to analyse the results of security assessment, design and propose remedial actions, each operator will have to follow a training plan consisting of at least (i) a theoretical training on each TSO's power network and operating rules, and the procedures in each region, (ii) a practical training in the RSC control room working in parallel with an instructor, and, ideally (iii) a practical training in the control room of each TSO to further improve the understanding about each TSO's grid.

Based on a rough estimation and an assumption that both RSCs follow the same training plan, the table below gives an indication of the total time required to train one new operator to perform the tasks in case of each operating model.

| | **ROTATIONAL** | | **FULLY ROTATIONAL** | **SPLITTING TASKS** |
|---|---|---|---|---|
| *Number of TSOs for which expertise is required* | *CORESO* | *TSCNET* | | |
| *CORE* | *3* | *14* | *16* | *16*[1] |
| *Italy North* | *2* | *3* | *5* | *5* |
| *Channel* | *3 + ICs* | *1 + ICs* | *4 + ICs* | *4 + ICs* |

[1] In the Core Region 50Hertz is counted on TSCnet and Coreso side, due to their participation in both RSCs.

| | | | | |
|---|---|---|---|---|
| **Initial training** | CORESO | TSCNET | | |
| **CORE** | 4 months | 15 months | 18 months | 18 months |
| **Italy North** | 3 months | 2 months | 5 months | 5 months |
| **Channel** | 4 months | 1 month | 5 months | 5 months |
| **Time required to maintain expertise** | CORESO | TSCNET | | |
| **CORE** | 5 days/year | 21 days/year | 26 days/year | 26 days/year |
| **Italy North** | 3 days/year | 5 days/year | 8 days/year | 8 days/year |
| **Channel** | 6 days/year | 3 day/year | 8 days/year | 8 days/year |

As seen in the table, the Rotational model will require less time both for initial training of the new operators, as well as for maintaining the expertise through continuous training.

**Considering the notable staff turnover in the RSC control rooms, due to the conditions of secondment from TSOs and natural career evolution, the reduced time required for both initial and continuous training would provide a significant saving on the training costs.**

### 3.3.3 Resilience

Ensuring security of supply requires that one RSC is available at all times, 24/7, to provide the coordination services to TSOs. In order to ensure this, a redundancy to the RSC that is executing the tasks is essential. The Fully Rotational and the Splitting Tasks operating models do not ensure redundancy. The Rotational Model ensures that there are RSC coordination rooms focused on the European network 24/7 so that there is full readiness to deal with critical grid situations, IT failures and other force majeure situations. With a Leading RSC and with a Backup RSC, there are also faster response times given the higher level of availability.

The communication and coordination between RSCs and TSOs are essential and, in case of stressed situations, the workload in the RSC's control rooms is very high, increasing the risk of miscommunication or even lack of coordination. There is a high number of stakeholders participating to in the CSA process that justify a structured coordination between RSCs and TSOs, and not only multiple TSOs to one RSC. **In case of the Rotational Model the Backup RSC can significantly reduce the risks mentioned above by supporting the Lead RSC with communication and coordination with its shareholder TSOs.**

In the last decade there is a notable increase of operational risks due to increase of intermittent generation, increased capacity and variability of flows in the European network. The fact that no extensive or wide area incidents have been recorded in the interconnected European electricity network since the establishment of RSCs in 2009 is the best indicator of the effectiveness of the regional coordination.

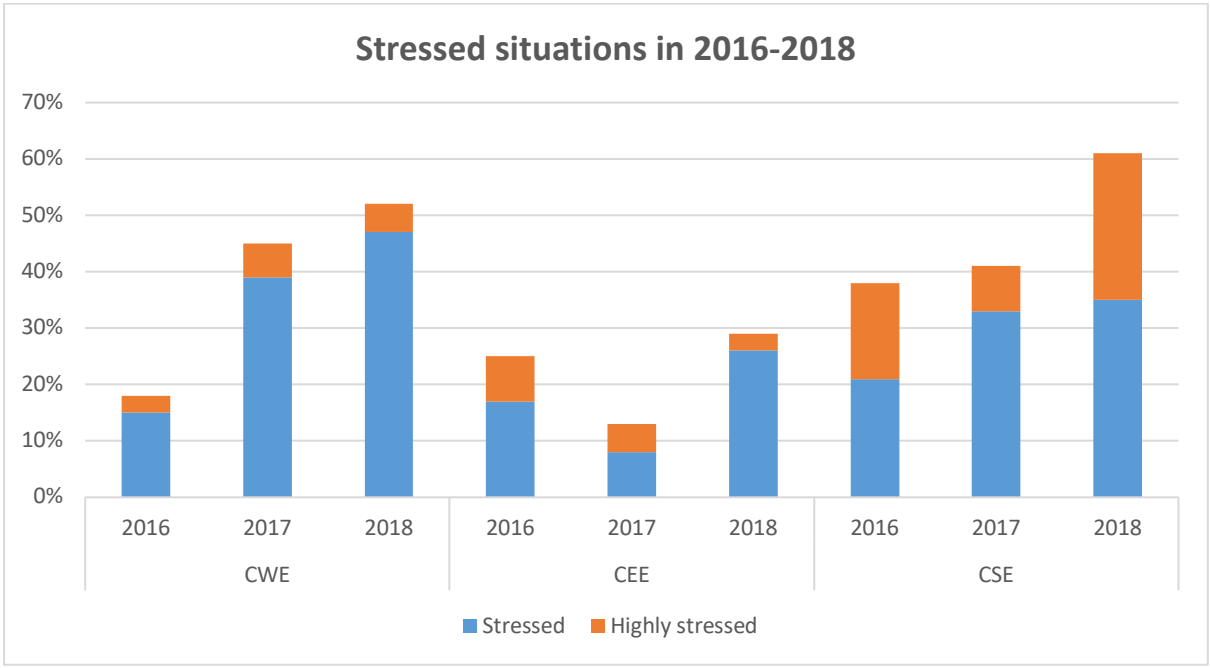
ENTSO-E annual reports on Incident Classification Scale[2] show that since the beginning of reporting in 2013 no blackouts (classified as scale 3 incidents according to the Incident Classification Scale) have occurred in any of the synchronous areas, and only a limited number of extensive incidents (classified as scale 2 incidents), when a TSO is in emergency state, have occurred, mainly in isolated systems of Iceland and Cyprus, where the SOGL requirements on regional coordination do not apply. Notable scale 2 incidents outside isolated systems were three N-violations (overloads on transmission lines classified as scale 2 incidents) in 2018 reported in Continental Europe, which were caused by unexpected high flows on the Switzerland and Italian border due to unexpected high production in Italy demonstrating further how crucial is the need for effective coordination in case of stressed situations.

CORESO Yearly Operational Reviews[3] show that the number stressed situations has been increasing in most regions, for example in 2018 in South Central Europe (Italy North region) there were stressed situations in 61% of the business dates.

In case of stressed situations and/or when a TSO rejects a remedial action, the remedial action coordination step in the CSA process (between timings T1 and T2 in the 1st coordination run and between T3 and T4 in the 2nd coordination run) becomes more challenging, the number interactions between RSC and TSOs increase – on average there are 6 interactions (e.g. phone calls, e-mails) between a RSC and a TSO in such stressed situations. **In case of the Rotational Model these RSC-TSO interactions are divided between the RSCs, improving the quality of the services and reducing the risks of delay in the process.**

[2] ENTSO-E reporting on Incident Classification Scale starting from 2017 (SOGL compliant) is available here - https://www.entsoe.eu/network_codes/sys-ops/annual-reports/#incident-classification-scale, earlier reports covering the years 2013-2016 are available here - https://www.entsoe.eu/publications/system-operations-reports/#steering-group-operations

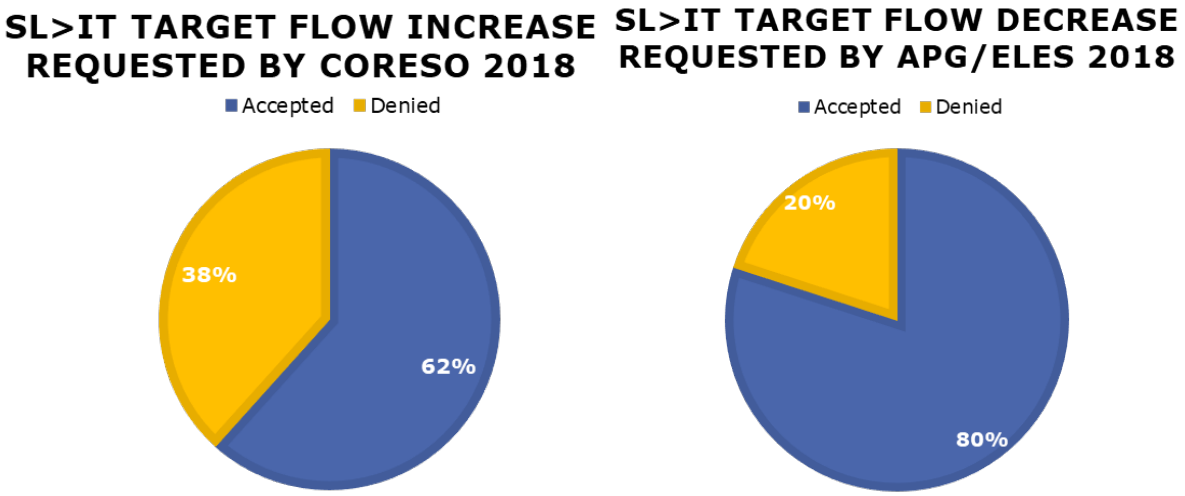
[3] Coreso Yearly Operational Reviews are available on Coreso website - https://www.coreso.eu/operational-data/operational-review-2/




It is also important to note that often the interactions are multilateral including several TSOs in order to propose an acceptable set of remedial actions. The estimated total number of interactions between Coreso and TSOs during D-1 studies in case of data quality issues or conflicting remedial actions is **4745 interactions per year**.

| | **CORE (CWE+CEE)** | **IBWT** |
|---|---|---|
| Number of days with coordinated actions | 190 (52%) | 222 (61%) |
| Estimated number of coordinated RAs | **950 RAs (2018)** | **1110 RAs (2018)** |
| Number of days with rejected RA | TBD | 213 (58%) |
| Estimated amount of cross-border RDCT avoided with the proposed coordinated RAs | TBD | **15 GW** |

The graphs below illustrate the proportion between accepted and rejected RAs in the Italy North region in 2018 – sets of remedial actions proposed by TSOs have been rejected in more than 73 business dates, and RAs proposed by RSCs have been rejected on 140 business occasions.




The coordination step can be supported by an IT solution (such as the Coordination Function) but it cannot be automated, especially in case of stressed situations and in case remedial actions proposed by RSC/RAO have been refused by a TSO. In addition, on the way to a fully automatized remedial action optimisation, while RAO tools are being developed and in a transition phase, RAO results may have to be challenged by an operator.

**In case of the Rotational Model the Backup RSC can support the Lead RSC in the coordination step with the interactions with TSOs, finding alternative RA proposals in case of refusals by TSOs, challenging the results of RAO and also supporting in case of failures of the RAO tool. Based on the current experience, without the support of the backup RSC, it is unlikely that one RSC can complete the process in a timely manner. Especially in case of stressed situations there would be delays in the process that will affect all CCRs.**

Also, the Rotational Model ensures that the relation between the Leading RSC and the non-shareholder TSOs will be efficient without the need for building trust and new operational relations. In case of the other models – Fully Rotational and Splitting Tasks – building relations between one RSC and non-shareholder TSOs will require time-consuming discussions around operational processes, contracts and operational interactions overall, which would be challenging or maybe even not feasible considering the current expectations of NRAs regarding the implementation timeframe.

Regarding decision-making, the concept of one Leading RSC adequately supported by a Backup RSC provides a robust decision-making process between the RSC and the remedial action owner (TSO). The complexity of the network, the intermittent generation and the number of parties involved result in risks for the security of the network that are more difficult to address when increasing the distance between the remedial action owner (TSO implementing the RA) and the decision-making stakeholders.

### 3.3.4 Business change

Implementation of the CSA process will require development of several tools (RAO, Coordination Function, CSA Input Consistency Function, etc), establishment of the operational processes, introducing a link with other processes (STA, OPC, CCC), with other regions, etc. This is without a doubt a challenging undertaking, causing a huge change for both TSOs and RSCs. Considering this, it would be more reasonable to introduce the change in operational processes step-by-step, taking the maximum of the already existing processes and expertise, instead of making a dramatic change of all the processes/tools all at once. Implicitly, smoother change in the processes will minimise the impact on the security of supply.

The Rotational Model allows for a pragmatic and agile approach to the implementation, the already existing expertise and experience with the already established processes would be used most efficiently. The Rotational Model also prepares the RSCs and TSOs for the CEP implementation without creating new risks in the operational processes.

It is also important to note that implementation of other services already foresees huge change for TSOs and RSCs. Looking at the experience with other major projects, for example CGM Project, such step-by-step approach might be the only way to avoid critical delays in implementing the CSA process.

**Main advantages of the Rotational Model:**

- **Reduction of implementation risks:** minimising the magnitude of change over a time period will also minimise costs for RSCs and TSOs, dividing the total costs over a longer period of time, as well as ensuring that the costs borne are justified and contribute towards the end target (reducing also the risks related to managing the budget in case of scope changes), as well as minimising the risk for delays in the overall implementation project
- **Transparency:** through the Rotational Model, with both RSCs involved in the effective regional operational security coordination, the interoperability of tools and processes in one region and between different regions will be ensured. This will reassure that RSCs report on behalf of all TSOs and reinforce transparency and neutrality for the European consumer.

**Main advantages of Splitting Tasks:**

- **Effectiveness:** for the processes which are perceived not as critical to maintain a backup entity within the Region, the splitting of tasks allows the RSCs to focus their resources on less number of processes and at the same time increases their efficiency in terms of operational staff to be trained as well as the maintenance of IT tools and resources.

The Rotational model for time critical processes of high availability, including a Leading RSC and a Backup RSC, ensures an efficient and effective regional operational security coordination and allows for the correct, safe and timely execution of RSC tasks. While splitting the tasks for processes which are not as critical in terms of impact and timings, would be the most efficient way regarding staffing and IT resources.

It is also important to note that RSCs will annually have to detect the issues reducing the effectiveness and efficiency of the processes, allowing to suggest improvements in processes and allocation of tasks

between the RSCs, covering also the requirements of Article 77. These assessments will allow to identify possible inefficiencies early on.

### 3.4 Concluding remarks

Based on the above, the chosen model is to have splitting of tasks for STA and OPC while having the rotational principle for CSA and CGM.