Annex 4: Policy on Coordinated Operational Planning

**Version History Table**

|  |  |
| --- | --- |
| **Date** | **Description** |
| 14/04/2019 | SAFA entry into force |
| 26/09/2019 | SAFA Amendment 2 is applied to Article C-2-1, after SAFA Parties’ approval |
| 15/02/2022 | Version history table added. |
| 20/09/2022 | SAFA Amendment 24 is applied to Article A-2, after SAFA Parties’ approval.  Editorial modification is applied to Article A-3. |
| 29/11/2022 | SAFA Amendment 25 is applied to Article C-2-2, after SAFA Parties’ approval. |
| 20/06/2023 | SAFA Amendment 29 is applied to Article C-3, after SAFA Parties’ approval |
|  |  |

Table of Contents

[Introduction 4](#_Toc141947037)

[A Methodologies, conditions and values subject to all regulatory authorities approval 5](#_Toc141947038)

[A-1 Common grid model methodology 5](#_Toc141947039)

[A-2 Coordinated security analysis methodology 5](#_Toc141947040)

[A-3 Relevance of assets for outage coordination methodology 5](#_Toc141947041)

[B Methodologies, conditions and values subject to approval by all TSOs 6](#_Toc141947042)

[C Methodologies, conditions and values agreed among the Parties 7](#_Toc141947043)

[C-1 Weekly Operational Teleconference (WOPT) 7](#_Toc141947044)

[C-2 Non-EU Outage Coordination and Capacity Calculation Regions 7](#_Toc141947045)

[C-2-1 Regional Outage Coordination 7](#_Toc141947046)

[C-2-2 Regional Security Coordination 8](#_Toc141947047)

[C-2-3 Change Decision Process 8](#_Toc141947048)

[C-3 Coordinated voltage management 8](#_Toc141947049)

# Introduction

This document is part of the Synchronous Area Framework Agreement for the Synchronous Area CE, constituting the Synchronous Area Operational Agreement as defined in SO GL Article 118.

This Policy makes reference in its Part A to the requirements set up in:

* Commission Regulation (EU) 2017/1485 of 02 August 2017 establishing a guideline on electricity transmission system operation (SO GL);
* the coordinated security analysis methodology developed pursuant to Article 75 and the relevance of asset for outage coordination methodology developed pursuant to Article 84 of the SO GL, expected to be approved first semester of 2019 by all NRAs;
* the methodology for the building of individual and common grid models developed pursuant to Article 67(1) and 70(1), approved by all NRAs.

It additionally introduces some additional operational requirements in Part C.

CGM MVS contract (signed in 2017) provides for the development of the governance framework for the building process, and for data quality monitoring of individual and common grid models.

# Methodologies, conditions and values subject to all regulatory authorities approval

The following section includes all methodologies, conditions and values jointly developed by all TSOs from the CE SA or at pan-EU level relative to coordination of operational planning activities and which are subject to approval by all regulatory authorities according to Article 6(3) of the SO GL.

## Common grid model methodology

The Parties agree that the document “*All TSOs’ proposal for a common grid model methodology in accordance with Articles 67(1) and 70(1) of Commission Regulation (EU) 2017/1485 of 02 August 2017 establishing a guideline on electricity transmission system operation*” that has been approved according to Article 5 of SO GL on 22 February 2018, submitted for approval to the NRAs in accordance with Article 6 (2) of SO GL and that all NRAs have agreed to approve on 11 June 2018 in accordance with Article 6 (7) of SO GL is accepted by all Parties.

## Coordinated security analysis methodology

The Parties agree that the document “*All TSOs’ proposal for a methodology for coordinating operational security analysis in accordance with Article 75 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation*” that has been approved by ACER with decisions 07/2019 of 19 June 2019 and 07/2021 of 14 June 2021, is accepted by all Parties and is an integral part of this Agreement.

## Relevance of assets for outage coordination methodology

The Parties agree that the document “*All TSOs’ proposal for a methodology for assessing the relevance of assets for outage coordination in accordance with Article 84 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation*” that has been approved by ACER with decision 08/2019 of 19 June 2019, is accepted by all Parties and is an integral part of this Agreement.

# Methodologies, conditions and values subject to approval by all TSOs

The Parties acknowledge that at the moment of entry into force of the Agreement there is no obligation arising from the SO GL to develop Part B within the subject scope of Policy on Coordinated Operational Planning.

# Methodologies, conditions and values agreed among the Parties

The following section includes all methodologies, conditions and values which are jointly developed and agreed among the Parties.

## Weekly Operational Teleconference (WOPT)

In order to coordinate possible congestions and other matters, TSOs and RSCs within regional groups organize on Friday a weekly teleconference call to share operational information regarding:

* Any significant operational situation from the past week and/or for the coming week;
* Outage Planning Coordination for coming week;
* Short and Medium Term Adequacy forecast for coming week;
* Potential coordinated actions arising from above forecast results.

The Parties agree to apply the “Target OPC Process – Implementation document” approved by SOC on December 6th 2017, or its future revisions approved by SOC, according to which each TSO reviews and confirms the outages and tests of relevant assets to involved neighbouring TSOs in the course of the week (but latest on Friday 14:00 CET because of operational security analyses and capacity calculations for coming week-end) before the week concerned during the WOPT.

## Non-EU Outage Coordination and Capacity Calculation Regions

In order to allow the participation of non-EU TSOs to Title 2 “Operational security analysis” and Title 3 “Outage coordination” of the SO GL it is necessary to identify to which Capacity Calculation Regions (for Title 2) and Outage Coordination Regions (for Title 3) they will be associated to.

In case EU TSOs must submit proposals based on Article 76 or 77 of the SO GL to NRAs for approval, associated non-EU TSOs shall not have any voting power with regard to the establishment of such proposal.

### Regional Outage Coordination

For the implementation of the requirements set out in Articles 82 to 103 of the SO GL, the following non-EU TSOs will be associated to the respective OCRs:

|  |  |  |
| --- | --- | --- |
| Region | Non-EU TSO | EU TSOs |
| OCR CORE | Swissgrid | 50Hertz, Amprion, APG, CEPS, CREOS, EAD, ELES, ELIA, HOPS, MAVIR, PSE, RTE, SEPS, TenneT BV, TenneT GmbH, Transelectrica, TransnetBW |
| OCR Italy North | Swissgrid | APG, ELES, RTE, Terna |
| OCR South-East Europe | CGES AD, EMS, MEPSO, NOSBiH, OST | ESO, IPTO, Transelectrica |

### Regional Security Coordination

For the implementation of the requirements set out in Articles 76 to 81 of the SO GL, the following non-EU TSOs will be associated to the respective CCRs:

|  |  |  |
| --- | --- | --- |
| Region | Non-EU TSO | EU TSOs |
| CCR CORE | Swissgrid | 50Hertz, Amprion, APG, CEPS, CREOS, EAD, ELES, ELIA, HOPS, MAVIR, PSE, RTE, SEPS, TenneT BV, TenneT GmbH, Transelectrica, TransnetBW |
| CCR Italy North | Swissgrid | APG, ELES, RTE, Terna |

### Change Decision Process

The configuration CCRs will be established or changed by decision of the relevant TSOs, according to the applicable provisions of GL CACM. However, no decision by or within RG CE about a definition or change of any border that has relevance for CCRs shall be taken without prior alignment with the competent (regional group) of the Market Committee of ENTSO-E.

The configuration of OCRs will be established or changed by decision of the relevant EU TSOs, according to the applicable provisions of the SO GL, and by amendment of this policy for non-EU TSOs.

## Coordinated voltage management

**C-3.1 Overview**

TSOs apply remedial actions for voltage control and reactive power management to keep or restore voltage within acceptable ranges as required by Article 29 of the SO GL. In case of regional voltage problems, close coordination between TSOs is needed to allow using all available means in an efficient way. This may help to avoid remedial actions with cost, in some very stressed situations it may even be essential to prevent the application of measures of last resort.

For guidance, a typical order of application of the remedial actions for voltage control and reactive power management is shown in the figure below. However, It must be noted that the actual order of application in real time operation may greatly vary depending on the situation requiring remedial actions (e.g. risk involved for the security of the grid and time frame within which the remedial action should be implemented).



Figure 1: List of remedial actions for voltage control and reactive power management (actual order of application may vary depending on the respective situation)

**C-3.2 Rules in case of remedial actions near an interconnection**

For the following remedial actions, when taken near an interconnection, coordination may play a particularly important role. Such remedial actions must be coordinated with affected TSOs according to the below Rules for coordinating operational security analysis:

* **C.3.2.1.** Modification of grid topology (incl. tap changes of PSTs) and set-points of synchronous VSC HVDC-Systems: With this measure, the average loading and correspondingly the (voltage decreasing) reactive power consumption of the grid elements is increased. This has a voltage decreasing effect. However, this measure, if taken near the interconnection, may lead to undesired effects on flows and voltage in the grids of neighboring TSO and thus needs to be coordinated with neighboring TSO. Furthermore, the effects of this measure, which depends on real time system condition, can only be analyzed close to real time operation, particularly in terms of effect on voltage. This is why these measures are taken in real time or close to real time.  
  In case of tap changes of PSTs, the impacted area can be reduced by changing taps of parallel PSTs in opposite directions (instead of in the same direction). This way, only flows on elements near the PSTs are significantly impacted. For this reason, changing taps of parallel PSTs in opposite directions is generally preferred over changes in the same direction.  
  In some cases, the (voltage decreasing) reactive power consumption can also be increased by changing taps of grid coupling transformers in the same substation in opposite directions. While this usually doesn't affect neighboring TSOs, potential risks for (n-1) voltage violations may need to be locally assessed.
* **C.3.2.2.** Switching off lines with low loading: With this measure, the reactive power production of the switched off line’s capacitance is eliminated while also increasing the loading of the remaining lines. This has a voltage decreasing effect. However, switching off lines near the borders may impact flows in the grids of neighboring TSOs.   
  In case of high voltages on a specific border, it may be a desirable result of coordination to distribute switching off lines between the involved TSOs. Switching off tie-lines is explicitly allowed after coordination with the other TSO.
* **C.3.2.3.** Redispatching of system users (incl. start-up of additional power plants or must run power plants): By starting up additional power plants or keeping must run power plants connected to the grid, the available means for reactive power management are increased. In a reduced extent, this effect may also be reached by changing the active power set-point of generation units. In case of too low voltages, paired redispatch may also be used to reduce the flows in the grid and thus the (voltage decreasing) reactive power consumption of the grid elements. However, if this measure can be avoided by applying other ones in coordination with neighboring TSO, and if the neighboring TSO assesses these measures as compatible with system security this should generally be preferred due to the redispatching costs.
* **C.3.2.4.** Cancellation of planned outages of grid elements and power plants: In case of deferrable planned outages, this measure allows an increase in available means for voltage control without impacting other TSOs. As for non-deferrable planned outages, coordinated actions among the relevant TSOs can avoid their cancellation, which may impact on assets reliability.
* **C.3.2.5.** Measures of last resort: If possible, the application of these non-obligatory measures should always be avoided by applying other measures in coordination with neighboring TSOs.