Definition of System Operation Regions


29 June 2021
Definition of System Operation Regions

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Definition of System Operation Regions


ENTSO-E, taking into account the following,

Whereas

(1) This document defines ENTSO-E is mandated to develop a proposal defining the system operation regions (hereafter referred to as “SOR Proposal”) in accordance with Article 36 of Commission Regulation (EU) 2019/943 of the European Parliament and of the Council on the internal market for electricity (hereafter referred to as “Regulation 2019/943”).

(2) This document, The SOR Proposal, takes into account the general principles and goals set out in the Electricity Regulation 2019/943, as well as in:
   b. all the applicable Network Codes and Guidelines referred to in the Regulation 2019/943, adopted on the basis of Article 18(5) of Regulation (EC) No 714/2009 such as the Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation (hereafter referred to as “SO Regulation GL”), Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion management (hereafter referred to as “CACM Regulation GL”), Regulation (EU) 2016/1719 establishing a guideline on forward capacity allocation (hereafter referred to as “FCA Regulation GL”), Regulation (EU) 2017/2196 establishing a network code on electricity emergency and restoration (hereafter referred to as “ER Regulation NC”) and Regulation (EU) 2017/2195 establishing a guideline on electricity balancing (hereafter referred to as “EB Regulation GL”).

(3) This document specifies The SOR Proposal intends to specify the geographical scope in which technical processes need to be coordinated in a harmonised way in an SOR, by specifying which transmission system operators (between TSOs), bidding zones, bidding zone borders, capacity calculation regions, while preserving a smooth and outage coordination regions are covered by each security of operation of electricity exchanges with third countries, which safeguards the SORs.

(4) Regulation 2019/943 recognises, in its recitals 42 and 53, that an effective progress towards the optimal management of the electricity transmission network can be achieved by establishing the regional geographical scope for which harmonisation of the cooperative operational processes should take place. This document, The SOR Proposal, clarifies the regional scope for optimising processes, and consequently contributes to the general objectives of the Regulation 2019/943 to the benefit of all market participants and electricity end consumers and to contribute effectively to enhance system security and market efficiency.

(5) TSOs of an SOR shall establish a flexible RCC organisational structure that allows for regional desks to tackle sub-regional specificities, where relevant.

(6) In accordance with Article 36(2) of Regulation 2019/943, this document also specifies the coordination between regional coordination centres for the borders adjacent to SORs.

(5) The SOR Proposal should clarify Article 36(2) requirement on the coordination between regional coordination centres for the borders adjacent to SOR without prejudice of the creation of Regional Coordination Centres (hereafter referred to as “RCCs”) in line with Article 35(1) of the Electricity Regulation. The SOR Proposal cannot be interpreted as direct or indirect TSOs’ intention to create a specific RCC. Consequently, when establishing RCCs, TSOs should be

allowed the flexibility needed in that regard to ensure a suitable level of coordination of technical processes within the geographical scope of the SOR and with the borders adjacent to the SOR.

(6) TSOs of the SOR should have the flexibility to describe the business processes in the region in a way best fitting the coordination requirement for TSOs to ensure efficient and secure system operation.

(7) The European electricity network evolves with the primary goal of ensuring stability of the system and security of supply while enabling the integration of the EU energy markets and fulfilling the ambitious objectives for RED deployment objectives of renewable energy sources in the EU. This is only possible if all relevant operational processes are coordinated and applied by all TSOs across Europe (EU and non-EU TSOs) in Europe. The need to strengthen and deepen coordination with the synchronously interconnected TSOs not bound by the respective EU legislation was highlighted and implemented based on the current Network Codes and Guidelines, notably by EU Regulation 2017/1485 on electricity transmission system operation and EU Regulation 2017/2196 on electricity emergency and restoration.

(8) Synchronous areas do not stop at the Union's borders and can include the territory of third countries. The Union, Member States and TSOs should aim for secure system operation inside all synchronous areas across the Union. They should support third countries in applying similar rules to those contained in Regulation 2019/943. ENTSO for Electricity should facilitate cooperation between Union TSOs and third country TSOs concerning secure system operation.

(9) In this respect, Regulation 2019/943, in its recital 70, further stresses the need for close cooperation with Member States, the Energy Community Contracting Parties and other third countries which apply the Regulation 2019/943 or are part of the synchronous area of Continental Europe. This cooperation should cover all matters concerning the development of an integrated electricity trading region and ensure that the Member States take no measures that endanger the further integration of electricity markets or security of supply of Member States and Contracting Parties.

(10) This document, in line with this provision, the SOR proposal provides that all TSOs of those SORs involving third country TSOs should endeavour where necessary to enter into agreements setting the basis for their technical cooperation and compliance with the relevant EU legislation.

(11) With the departure of the UK from the EU, it is important that Ireland becomes interconnected with continental Europe to facilitate the market integration as well as to ensure the efficient and secure operation of electricity systems across the Union. In accordance with Recital (53) of Regulation 2019/943, the definition of SOR must be efficient and take into account existing or planned regional coordination initiatives and should support the increasingly integrated operation of electricity systems across the Union. Bearing in mind that EirGrid has been participating in Coreso RSC since 2017, and that the Celtic interconnector between Ireland and France is due to be completed in 2026, this document places the Irish TSO in CE SOR. However, given that the Celtic interconnector is not yet constructed, the TSO’s obligations pertaining to the RCC’s tasks shall become effective only upon the start of operation of the Celtic Interconnector. The Northern Irish TSO has also been participating in Coreso RSC since 2017; in accordance with the Protocol on Ireland/Northern Ireland 1, this document also includes the Northern Irish TSO in CE SOR. The scope of this cooperation is included in the informative Annexes to this proposal.

1 Article 9 and Annex 4 of the Protocol on Ireland/Northern Ireland, included in the Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy
Definition of System Operation Regions


(6)(12) ENTSO-E structures and regional agreements, provisions and methodologies listed in Article 6(2) and 6(3) of the SOR RegulationGL, and in particular the synchronous area agreements implemented in line with Article 118 of SO Regulation (GL including as applicable the agreements with TSOs not bound by the SO Regulation, implementing the SO GL, Article 13 of the SO Regulation), and the ERC Article 10 of the ER Regulation, will be tools for TSOs to ascertain and clarify operational coordination.

SUBMITS THE FOLLOWING SOR PROPOSAL TO ACER:

Article 1
Subject matter and scope

1. This document specifies, in Article 3, According to Article 36(1) of Regulation 2019/943, Article 3 of this SOR Proposal specifies which transmission system operators, bidding zones, bidding zone borders, capacity calculation regions and outage coordination regions are covered by each of the system operation regions, taking into account the grid topology, including the degree of interconnection and interdependency of the electricity system in terms of flows.

2. This document specifies, in Article 4, According to Article 36(2) of Regulation 2019/943, Article 4 of this SOR Proposal specifies how the coordination between regional coordination centres is to take place for bidding zone borders adjacent to SOR.

Article 2
Definitions and interpretation

1. For the purposes of this document, the SOR Proposal terms used in this document shall have the meaning of the definitions included in Article 2 of the Regulation 2019/943, in the Directive 2019/944, in the SO RegulationGL, and CACM RegulationGL.

2. The in this SOR Proposal, the following acronyms are used in this document:

   a. CCR means capacity calculation region as determined pursuant to Article 15 of the CACM-RegulationCapacity Calculation Region;
   b. OCR means outage coordination regionOutage Coordination Region;
   c. BZ means bidding zoneBidding Zone;
   d. APG means Austrian Power Grid AG;
   e. VUEN means Vorarlberger Übertragungsnetz GmbH;
   f. Elia means Elia System Operator SA;
   g. ESO means Elektroenergien Sistemen Operator EAD;
   h. ČEPS means ČEPS a.s.;
   i. TransnetBW means TransnetBW GmbH;
   j. TemT DE means TemT TSO GmbH;
   k. Amprion means Amprion GmbH;
   l. 50Hertz means 50Hertz Transmission GmbH;
   m. Energinet means Energinet Electricity System Operator;


(n) Elering means Elering AS;
(o) REE means Red Electrīca de España S.A.;
(p) Fingrid means Fingrid Oyj;
(q) Kraftnät Åland means Kraftnät Åland Ab;
(r) RTE means Réseau de Transport d'Electricité;
(s) SONI means System Operator for Northern Ireland Ltd;
(t) IPTO means Independent Power Transmission Operator S.A.;
(u) HOPS means HOPS d.o.o.;
(v) MAVIR 2Zt Means MAVIR Magyar Villámosenergia-ipari Átviteli Rendszerirányító Zártkörű Működő Részvénytársaság;
(w) EirGrid means EirGrid plc;
(x) Terna means Terna - Rete Elettricità Nazionale SpA;
(y) Litgrid means Litgrid AB;
(z) Cyros means Cyros Luxembourg S.A.;
(aa) AST means AS Augstsprieguma tīkls;
(bb) TenneT NL means TenneT TSO B.V.;
(cc) PSE means Polskie Sieci Elektroenergetyczne S.A.;
(dd) Transelectrica means C.N. Transelectrica S.A.;
(ee) Svenska Kraftnät means Svenska Kraftnät;
(ff) ELES means ELES, d.o.o.; and
(gg) SEPS means Slovenská elektrizačná prenosová sústava, a.s.

3. Unless in this SOR Proposal, unless the context requires otherwise:
(a) the table of contents and headings are inserted for convenience only and do not affect the interpretation of this document SOR Proposal;
(b) any reference to legislation, regulations, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force.

Article 3
Proposal for System Operation Regions (SOR) SOR

1. System operation regions include only TSOs that have been designated or assigned with responsibilities that are relevant for system operations, such as, but not limited to: calculation of capacity, assessment of needed remedial actions to ensure security of the whole system, coordination of all the outages to ensure security and efficiency, adequacy assessment and tasks related to the provision of system balancing, shall be included in the relevant SOR.

2. Where more than one TSO exists in a Member State, the list of TSOs contained in this Article shall be without prejudice to the Member States' ability to designate or assign, or the regulatory authorities' ability to assign, one or several responsibilities to other TSOs in accordance with the Electricity Directive.

3 In accordance with Article 40 (2) of the Electricity Directive
4 In accordance with Article 59 (6) (h) of the Electricity Directive
Definition of System Operation Regions


3. TSOs included in a CCR but not incorporated in the SOR of the mentioned CCR are considered relevant stakeholders for the purpose of the SOR definition and shall be properly consulted by the TSOs of each SOR. When consulting the relevant stakeholders, the TSOs of each SOR shall take the utmost account of the views expressed by the TSOs included in a CCR but not incorporated in the SOR of the mentioned CCR. Proposal and shall be properly consulted.

4. In case of amendments to the Determination of CCRs pursuant to Article 15 of the CACM Regulation and until such amendments are incorporated in this document, the list of bidding zones, bidding zone borders and TSOs in SORs defined pursuant to paragraph 5 shall be understood as reflecting the changes to the Determination of CCRs. This is without prejudice to the relevant TSOs’ right under Article 36(4) of Regulation 2019/943 to submit a proposal to ACER for amendments.

5. The SORs shall be defined as follows:

Within 18 months after the approval of this proposal, all TSOs of a System Operation Region neighbouring third country TSOs shall endeavour to conclude with the third country TSOs not bound by the Regulation EU 2019/943 agreements setting the basis for their cooperation concerning secure system operation and setting out arrangements for the compliance of the third country TSO with the obligations set in this Regulation EU 2019/943.

1. (a) Baltic SOR

<table>
<thead>
<tr>
<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltic CCR</td>
<td>Baltic (1)</td>
<td>Litgrid</td>
<td>LT</td>
<td>Baltic CCR borders</td>
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<td>AST</td>
<td>LV</td>
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<td>Elering</td>
<td>EE</td>
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</table>

(1) The Baltic OCR equals the Baltic CCR.

i. When developing procedures for the adoption and revision of coordinated actions and recommendations, in line with Article 42 of the Regulation 2019/943, TSOs of Baltic SOR shall consult relevant TSOs of Nordic SOR and relevant TSOs of Central Europe SOR. When consulting the relevant TSOs of Nordic SOR and Central Europe SOR, the TSOs of the Baltic SOR shall take the utmost account of the views expressed by the relevant TSOs of Nordic SOR and Central Europe SOR.

ii. When the respective regulatory authorities of the TSOs of the Baltic SOR approve the procedures referred to in paragraph i., as a result of the implementation of requirements in Article 35(1)(e) of the Regulation 2019/943, they should do so in consultation with the respective regulatory authorities of the relevant TSOs of Nordic SOR and Central Europe SOR, upon individual request by these regulatory authorities.

2. (b) Nordic SOR

<table>
<thead>
<tr>
<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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</thead>
<tbody>
<tr>
<td>Nordic</td>
<td>Nordic (2)</td>
<td>Energinet Fingrid</td>
<td>DK1, DK2 F1 SE1, SE2, SE3, SE4</td>
<td>Nordic CCR borders</td>
</tr>
</tbody>
</table>

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### Definition of System Operation Regions (SOR)


(2) The Nordic OCR encompasses the Nordic assets relevant for outage coordination in accordance with the Nordic System Operation Agreement.

#### 3. IU SOR

<table>
<thead>
<tr>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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<tbody>
<tr>
<td>IU Channel</td>
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<tr>
<td>IU (1)</td>
<td>SÖNEN</td>
<td>SEM</td>
<td>GB-SEM Channel CCR borders</td>
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<td>Channel (4)</td>
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</table>

(1) The IU OCR is the Outage Co-ordination Region associated with the IU CCR.

(4) The Channel OCR is the Outage Co-ordination Region associated with the Channel CCR.

#### 4.(c) Central Europe SOR

<table>
<thead>
<tr>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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<tbody>
<tr>
<td>Core</td>
<td>SÖNEN</td>
<td>FR</td>
<td>Core CCR borders</td>
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<tr>
<td>Italy North OCR based on Core</td>
<td>RTE-Elia</td>
<td>BE</td>
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<td>OCR based on Italy North (5)</td>
<td>TenneT NL</td>
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<td>Amprion</td>
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<td>SWE (6)</td>
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<td>PL</td>
<td>Core CCR borders</td>
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<td>CZ</td>
<td>Italy North CCR borders</td>
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<td></td>
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<td>SWE CCR borders</td>
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</tbody>
</table>

(3) The SWE OCR is the Outage Co-ordination Region associated with the SWE CCR.
The Outage Coordination Regions involving the TSOs of the Synchronous Area Continental Europe are defined in the Synchronous Area Framework Agreement for RG CE – Annex 4: Policy on Coordinated Operational Planning, Article C-2-1.

The SWE OCR is equal to the SWE CCR.

(4) EirGrid and SONI participate in the Central Europe SOR, however their obligations pertaining to the RCCs’ tasks shall become effective only upon the start of operation of the Celtic Interconnector 5.

### SEE SOR

<table>
<thead>
<tr>
<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEE</td>
<td>OCR based on SEE (7)</td>
<td>ESO IPTO</td>
<td>BG GR</td>
<td>SEE CCR borders</td>
</tr>
<tr>
<td>GRIT</td>
<td>OCR based on GRIT (6)</td>
<td>Terna</td>
<td>IT CNOR IT SARD IT CALA IT SIC</td>
<td>GRIT CCR borders</td>
</tr>
</tbody>
</table>

5 The Celtic interconnector is a Project of Common Interest for a planned undersea link (HVDC) to allow the exchange of electricity between Ireland and France (700 MW). The total length of the HVDC interconnector between the two countries would be about 575 km.

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of the Regulation 2019/943, they should do so in consultation with the respective regulatory authorities of the relevant TSOs of Central Europe SOR, upon individual request by these regulatory authorities.

6. GRIT SOR

<table>
<thead>
<tr>
<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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<tbody>
<tr>
<td>GRIT</td>
<td>GRIT (7)</td>
<td>Terna</td>
<td>IT NORD, IT CNOX, IT CSUD, IT SUD, IT SARD, IT RODM</td>
<td>GRIT CCR borders</td>
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(7) The GRIT OCR is equal to the GRIT CCR.

7. SWE SOR

<table>
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<tr>
<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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</thead>
<tbody>
<tr>
<td>SWE</td>
<td>SWE (8)</td>
<td>RTE, REE, REN</td>
<td>ER, ES, FI</td>
<td>SWE CCR borders</td>
</tr>
</tbody>
</table>

(8) The SWE OCR is equal to the SWE CCR.

Article 4

Coordination of the bidding zone borders adjacent to SORs

1. Bidding Zone borders adjacent to Baltic SOR and Nordic SOR

1.a. The bidding zone borders adjacent to Baltic SOR and Nordic SOR are:

1.b. Estonia - Finland (EE - FI)

1.c. Lithuania – Sweden fourth bidding zone (LT-SE4)

2. The RCC established by the TSOs of the Baltic SOR shall coordinate these bidding zone borders in accordance with applicable terms, conditions and methodologies, covering

2.a. Baltic capacity calculation methodologies

2.b. Baltic common methodology for coordinated redispatching and countertrading pursuant to Articles 35 of the CACM Regulation and Baltic common methodology for redispatching and countertrading cost sharing, pursuant to 74 of the CACM Regulation, if relevant;

2.c. Baltic common provisions for regional operational security coordination
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c.iv. Common grid model methodology pursuant to Articles 67 and 70 of the SO RegulationGL

D.v. Baltic Regional Outage Coordination according to Article 80 of the SO RegulationGL

E.vi. Cooperative processes established pursuant to Article 38 of Regulation 2019/943.

The RCC established by the TSOs of the Baltic SOR shall allow Svenska Kraftnät and Fingrid to participate in the coordination of the borders through the RCC established by Nordic TSOs, which will have an agreement with the RCC established by Baltic TSOs.

2. Bidding Zone borders adjacent to Baltic SOR and Central Europe SOR

1.a. The bidding zone border adjacent to Baltic SOR and Central Europe SOR is Lithuania- Poland (LT-PL).

2.b. The RCC established by the TSOs in the Baltic SOR shall coordinate the LT-PL bidding zone border in accordance with applicable terms, conditions and methodologies, covering inter alia the:

a.i. Baltic Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM RegulationGL and Article 21 of the FCA RegulationGL,

ii. Baltic common methodology for coordinated redispatching and countertrading and Baltic common methodology for redispatching and countertrading cost sharing, pursuant to Articles 55 and 74 of the CACM Regulation,

b.iii. Baltic Coordinated Security Analysis Methodology pursuant to Article 76 of the SO RegulationGL,

c.iv. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO RegulationGL.

1.aa. Baltic Regional Outage Coordination according to Article 80 of the SO RegulationGL (c) of the Regulation 2019/943.

c) Moreover, the RCC established by TSOs in the Baltic SOR shall coordinate:

a. The tasks of regional relevance for the Baltic SOR with regards to this border, in cooperation with PSE, which will have a contractual relationship with the RCC established by Baltic TSOs, and

ii. the tasks of cross-regional relevance together with the RCC(s) established by the TSOs of Central Europe SOR, as necessary.

3. Bidding Zone borders adjacent to Nordic SOR and Central Europe SOR

1.a. The bidding zone borders adjacent to Nordic SOR and Central Europe SOR are the bidding zone borders of Hansa CCR.

The

2.b. RCC established by the TSOs in the Nordic SOR and the concerned RCC established by the TSOs in the Central Europe SOR shall coordinate those bidding zone borders in accordance with the applicable terms, conditions and methodologies, covering inter alia the:

a.i. Hansa Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM RegulationGL and Article 21 of the FCA RegulationGL.

ii. Common methodology for coordinated redispatching and countertrading and common methodology for redispatching and countertrading cost sharing, pursuant to Articles 35 and 74 of the CACM Regulation.

b.iii. Hansa Coordinated Security Analysis Methodology pursuant to Article 76 of the SO Regulation.

iv. Hansa Regional Outage Coordination according to Article 80 of the SO Regulation.

v. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO Regulation.

vi. the cooperative processes established for the interface between the Nordic SOR and the Central Europe SOR pursuant to Article 38 of the Regulation 2019/943.

4. Bidding Zone borders adjacent to SEEIU SOR and Central Europe SOR

1. The bidding zone borders adjacent to IU SOR and Central Europe SOR are the bidding zone borders of Channel CCR.

2. The RCC established by the TSOs in the IU SOR and the RCC established by the TSOs in Central Europe shall coordinate those three bidding zone borders in accordance with the applicable terms, conditions and methodologies, covering inter alia:

   a. Channel Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 24-21 of the FCA GL.
   b. Channel Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL.
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL.
   d. Channel Regional Outage Coordination according to Article 80 of the SO GL.
   e. the cooperative processes established for the interface between the IU SOR and the Central Europe SOR pursuant to Article 38 of the Regulation 2019/943.

2. Bidding zone borders adjacent to GRIT SOR and Central Europe SOR

1. Taking into account that bidding zone IT NORD is part of both SOR, the bidding zone borders adjacent to GRIT SOR and Central Europe SOR are the bidding zone borders of Italy North CCR, which are integrated in the Central Europe SOR, and the border Italy NORD - Italy CNORD (IT NORD-IT CNORD), which is integrated in the GRIT SOR.

2. The RCC established by the TSOs in Central Europe SOR shall coordinate the bidding zone borders of Italy North CCR in accordance with the applicable terms, conditions and methodologies, covering inter alia:

   a. Italy North Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 24-10 of the FCA GL.
   b. Italy North Coordinated Security Analysis Methodology applicable pursuant to Article 76 of the SO GL.
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL.
   d. Regional Outage Coordination according to Article 80 of the SO GL.
   e. the cooperative processes established for the tasks of regional relevance for the Central Europe SOR with regards to this border.
3. The RCC established by TSOs in the GRIT SOR shall coordinate the IT NORD-IT CNORD bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. GRIT Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 21-10 of the FCA GL,
   b. GRIT Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d. GRIT Regional Outage Coordination according to Article 80 of the SO GL,
   e. cooperative processes established for the tasks of regional relevance for the GRIT SOR with regards to this border.

4. The RCCs established by the TSOs in the Central Europe SOR and by the TSOs in the GRIT SOR shall coordinate the bidding zone Italy NORD in accordance with the cooperative processes pursuant to Article 38 of Regulation (EU) 2019/943.

3. Bidding zone borders adjacent to SEE SOR and GRIT SOR

1. The bidding zone borders adjacent to SEE SOR and Central Europe GRIT SOR are the border IT SUD - GR.

2. The RCC established by the TSOs in the GRIT SOR shall coordinate the bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. GRIT Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 21-10 of the FCA GL,
   b. GRIT Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d. GRIT Regional Outage Coordination according to Article 80 of the SO GL,
   e. cooperative processes established for the tasks of regional relevance for the GRIT SOR, and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

4. Bidding Zone borders adjacent to SWE SOR and Central Europe SOR

1. Taking into account that the BZ France is part of both SOR, the bidding zone borders adjacent to SWE SOR and Central Europe SOR are:
   a. France – Spain (FR-ES), which is integrated in the SWE SOR, and
   b. France- Belgium (FR-BE)
   c. France-Germany/Luxembourg (FR-DE/LU)
   d. Italy NORD – France (IT NORD – FR),
   which are integrated in the Central Europe SOR.

2. The RCC established by the TSOs in SWE SOR shall coordinate the FR-ES bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. SWE Calculation Methodology pursuant to Articles 20 et 21 of the CACM GL and Articles 21-10 of the FCA GL,
   b. SWE Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL.

d. Regional Outage Coordination according to Article 80 of the SO Regulation.

e. Cooperative processes established for the tasks of regional relevance for the SWE SOR, and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

3. The RCC established by TSOs in Central Europe shall coordinate the FR-BE, FR-DE/LU, FR-CH and IT-NORD-ER bidding zone borders in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. CORE and North Italy Calculation Methodologies pursuant to Articles 20 and 21 of the CACM Regulation and Article 21(10) of the FCA Regulation and applicable agreements with Swissgrid,
   b. CORE and North Italy Coordinated Security Analysis Methodology pursuant to Article 76 of the SO Regulation and applicable agreements with Swissgrid,
   c. Common Grid Model Methodology pursuant to Article 67 and 70 of the SO Regulation,
   d. Regional Outage Coordination according to Article 80 of the SO Regulation,
   e. Cooperative processes established for the tasks of regional relevance for the Central SOR, integrating applicable description of the arrangements pursuant to Article 35(1)(g), and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

4. The RCC established by the TSOs in the Central Europe SOR and by the TSOs in the SWE SOR shall coordinate the bidding zone France in accordance with the cooperative processes pursuant to Article 38 of Regulation (EU) 2019/943.

6. Bidding Zone borders adjacent to SEE SOR and Central Europe SOR

1. The bidding zone borders adjacent to SEE SOR and Central Europe SOR is:
   a.i. Bulgaria-Romania (BG-RO), which is integrated in the SEE SOR,
   a.ii. IT NORD – IT CNOR,

2b. The RCC established by the TSOs in the SEE SOR shall coordinate the BG-RO bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a.i. SEE Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM Regulation and Article 21(10) of the FCA Regulation, and applicable agreements with Swissgrid,
   a.ii. SEE methodology for coordinated redispatching and countertrading and SEE methodology for redispatching and countertrading cost sharing, pursuant to Articles 35 and 74 of the CACM Regulation,
   b.iii. SEE Coordinated Security Analysis Methodology pursuant to Article 76 of the SO Regulation,
   c.iv. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO Regulation,
   d.v. SEE Regional Outage Coordination according to Article 80 of the SO Regulation,
   e.vi. Cooperative processes established pursuant to Article 38 of Regulation 2019/943 for the tasks of regional relevance for the SEE SOR, and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

Concerning the BG-RO bidding zone border and considering the related tasks listed in Article 37(1) of the Regulation 2019/943, the
Definition of System Operation Regions


c. The RCC established by the TSOs in the SEE SOR shall coordinate:

3.i. the BG-RO bidding zone border in accordance with the tasks of regional relevance for the SEE SOR pursuant to Article 35(1)(b) of Regulation (EU) 2019/943 and in cooperation with Transelectrica, which will have a through contractual relationship with the RCC established by TSOs in the SEE SOR and

4. The interface between SEE and the tasks Central SOR will be further clarified by cooperation between the RCCs established in both regions and by making best use of cross-regional agreements and structures within ENTSO-E.

Article 5

Consultation with the RCC NRAs and relevant stakeholders

Where the SOR definition includes BZ borders and transmission assets that span into a TSO(s) established by control area of a different SOR, the TSOs of Central Europe SOR, as necessary.

Concerning the IT NOR – IT CNOR bidding zone border, the RCC that SOR shall consult in the development of the applicable co-operative processes with all relevant stakeholders which will include, where required, the NRA(s) established by the other TSOs in the SEE SOR shall coordinate cross-regional aspects of the tasks listed in Article 37(1) control area.

When clarifying cooperative processes in accordance with Article 38 of the Regulation 2019/943 with the relevant RCC established by the TSOs of Central Europe SOR, as necessary, the RCC shall describe the operational procedures to be applied for the existing grid. These procedures can describe also the future evolution applicable in line with network or other legal developments. Otherwise, TSOs shall send updated coordination procedures to the affected NRAs when the network is developed or when there is a change of the regional applicable methodologies.

e. The tasks listed in Article 37(1) of the Regulation 2019/943 are relevant to the entire control area of Terna, the RCC established by the TSOs in the Central Europe SOR or the RCC established by the TSOs in the SEE SOR shall coordinate with Terna the execution of these tasks.

Article 6

Implementation of the SORs Proposal

1. No later than ten months after the approval by ACER of this document, all TSOs of an SOR that is neighbouring to a third country TSOs shall endeavour to conclude with the third country TSOs not bound by the Regulation 2019/943 agreements setting the basis for their cooperation concerning secure system operation and setting out arrangements for the compliance of the third country TSOs with the obligations set in Regulation 2019/943.

The SORs, as defined in this document.
Definition of System Operation Regions


2. The TSOs shall apply the SORs as described in Article 3 as soon as the decision has been taken and published by ACER on its webpage in accordance with Article 36(3) of the Regulation 2019/943 and published on ACER website.

Article 62

Language

The reference language for the document shall be English. For the avoidance of doubt, where TSOs need to translate this document into their national language(s), in the event of inconsistencies between the English version published by ACER in accordance with Article 36(3) of the Electricity Regulation 2019/943 and any version in another language, the relevant TSOs shall, in accordance with national legislation, provide the relevant national regulatory authorities with an updated translation of the Proposal.
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Annex 1

Full list of TSOs, BZ and BZ borders in SOR defined in article 3

Where a SOR encompasses the European Economic Area, reference is made to the EEA Agreement.

Where a SOR neighbours both Union TSOs and Energy Community TSOs, all Union TSOs in that SOR shall endeavour to conclude with the Energy Community TSOs not bound by Regulation (EU) 2019/943 agreements setting forth the agreements for their compliance with, including but not limited to, all necessary technical procedures, governance structures and cost-sharing obligations with the obligations set out in the aforementioned Regulation. These agreements shall be subject to NRAs’ approval of the respective SOR.

1. Baltic SOR

<table>
<thead>
<tr>
<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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AST
ELERING AS | LT      | LT-LV
LT-EE |

2. Nordic SOR

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<th>OCR</th>
<th>TSOs</th>
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<th>BZ borders</th>
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</table>
| Nordic | Nordic | Energinet
Fingrid
Svenska Kraftnät | DK1
DK2
SE1
SE2
SE3
SE4
NO1
NO2
NO3
NO4
NO5 | DK1-SE3
DK2-SE4
DK1-DK2
DK1-NO2
SE1-SE3
SE3-SE2
SE3-SE1
SE3-NO3
SE3-NO4
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NO1-NO3
NO1-NO2
NO1-NO5

3. IU SOR

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**Definition of System Operation Regions (SOR)**


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<td>GB</td>
<td>GB-IR</td>
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<td>SONI</td>
<td>SEM</td>
<td>GB-IL</td>
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<td>FR</td>
<td>FR-BE</td>
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<tr>
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<td>OCR-based on Italy North</td>
<td>FIDT</td>
<td>BE</td>
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<td>DE-FR/LU</td>
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<td>TERNA</td>
<td>IT-NORD</td>
<td>IT-NORD-CH</td>
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</table>

4. *SEE SOR this document.*
**Definition of System Operation Regions**


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<th>CCR</th>
<th>OCR</th>
<th>TSOs</th>
<th>BZ</th>
<th>BZ borders</th>
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</table>

**6. GRIT SOR**

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<td>IT-NORD-IT-CNOR, IT-CNOR-IT-CSUD, IT-CNOR-IT-SARD, IT-SARD-IT-CSUD, IT-CSUD-IT-SUD, IT-SARD-IT-RISON, IT-RISON-IT-SIC, IT-SUD-IT-GR</td>
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**7. SWE SOR**

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<th>TSOs</th>
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<td>RIE</td>
<td>ER, ES</td>
<td>ER-ES, ES-IT</td>
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</tbody>
</table>
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Annex 2

Coordination of the bidding zone borders adjacent to SORs with full list of TSOs, BZ and BZ borders in SOR defined in article 4

Where a SOR encompasses the European Economic Area, reference is made to the EEA Agreement.

Where a SOR encompasses both Union TSOs and Energy Community TSOs, all Union TSOs in that SOR shall endeavour to conclude with the Energy Community TSOs not bound by Regulation (EU) 2019/943 agreements setting forth the agreements for their compliance with, including but not limited to, all necessary technical procedures, governance structures and cost-sharing obligations with the obligations set out in the aforementioned Regulation. These agreements shall be subject to NRAs’ approval of the respective SOR.

1. Bidding Zone borders adjacent to Baltic SOR and Nordic SOR

1. The bidding zone borders adjacent to Baltic SOR and Nordic SOR are:
   a) Estonia - Finland (EE - FI)
   b) Lithuania - Sweden fourth bidding zone (LT-SE4)

2. The RCC established by the TSOs of the Baltic SOR shall coordinate these bidding zone borders in accordance with applicable terms, conditions and methodologies, covering inter alia:
   a) Baltic Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 21-10 of the FCA GL,
   b) Baltic Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c) Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d) Baltic Regional Outage Coordination according to Article 80 of the SO GL,
   e) Cooperative processes established pursuant to Article 38 of Regulation 2019/943.

3. The RCC established by the TSOs of the Baltic SOR shall allow Svenska Kraftnät and Fingrid to participate in the coordination of the borders through the RCC established by Nordic TSOs, which will have an agreement with the RCC established by Baltic TSOs.

2. Bidding Zone borders adjacent to Baltic SOR and Central Europe SOR

1. The bidding zone border adjacent to Baltic SOR and Central Europe SOR is Lithuania - Poland (LT-PL).

2. The RCC established by the TSOs in the Baltic SOR shall coordinate the LT-PL bidding zone border in accordance with applicable terms, conditions and methodologies, covering inter alia:
   a) Baltic Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 21-10 of the FCA GL,
   b) Baltic Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c) Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d) Baltic Regional Outage Coordination according to Article 80 of the SO GL,
   e) Cooperative processes established pursuant to Article 38 of Regulation 2019/943.

3. Moreover the RCC established by TSOs in the Baltic SOR shall coordinate the tasks of regional relevance for the Baltic SOR with regards to this border, in cooperation with PSE, which will have a contractual relationship with the RCC established by Baltic TSOs.

3. Bidding Zone borders adjacent to Nordic SOR and Central Europe SOR
1. The bidding zone borders adjacent to Nordic SOR and Central Europe SOR are the bidding zone borders of Hansa CCR and
   a. Norway 2 – Netherlands (NO2-NL)
   b. Norway 2 – Germany/Luxembourg (NO2-DE/LU)
   c. Sweden 4 – Germany/Luxembourg (SE4-DE/LU)

2. RCC established by the TSOs in Nordic SOR and RCC established by the TSOs in Central Europe SOR shall coordinate those bidding zone borders in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. Hansa Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 2110 of the FCA GL,
   b. Hansa Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d. the cooperative processes established for the interface between the Nordic SOR and the Central Europe SOR pursuant to Article 38 of the Regulation 2019/943.

4. Bidding Zone borders adjacent to IU SOR and Central Europe SOR
   1. The bidding zone borders adjacent to IU SOR and Central Europe SOR are the bidding zone borders of Channel CCR.
   2. The RCC established by the TSOs in the IU SOR and the RCC established by the TSOs in Central Europe shall coordinate those bidding zone borders in accordance with the applicable terms, conditions and methodologies, covering inter alia:
      a. Channel Capacity Calculation Methodology pursuant to Articles 20 et 21 of the CACM GL and Articles 2110 of the FCA GL,
      b. Channel Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
      c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
      d. Channel Regional Outage Coordination according to Article 80 of the SO GL,
      e. the cooperative processes established for the interface between the IU SOR and the Central Europe SOR pursuant to Article 38 of the Regulation 2019/943.

5. Bidding zone borders adjacent to GRIT SOR and Central Europe SOR
   1. Taking into account that bidding zone IT NORD is part of both SOR, the bidding zone borders adjacent to GRIT SOR and Central Europe SOR are:
      a. the bidding zone borders of Italy North CCR, and the border Italy NORD – Switzerland (IT NORD-CH), which are integrated in the Central Europe SOR, and
      b. the border Italy NORD – Italy CNORD (IT NORD-IT CNORD), which is integrated in the GRIT SOR.
   2. The RCC established by the TSOs in Central Europe SOR shall coordinate the the bidding zone borders of Italy North CCR in accordance with the applicable terms, conditions and methodologies, covering inter alia:
      a. Italy North Capacity Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 2110 of the FCA GL,
      b. Italy North Coordinated Security Analysis Methodology applicable pursuant to Article 76 of the SO GL,
      c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
      d. Regional Outage Coordination according to Article 80 of the SO GL,
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e. cooperative processes established for the tasks of regional relevance for the Central Europe SOR with regards to this border.

3. The RCC established by TSOs in the GRIT SOR shall coordinate the IT NORD-IT CNORD bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. GRIT Calculation Methodology pursuant to Articles 20 and 21 of the CACM GL and Articles 2110 of the FCA GL,
   b. GRIT Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d. GRIT Regional Outage Coordination according to Article 80 of the SO GL,
   e. cooperative processes established for the tasks of regional relevance for the GRIT SOR with regards to this border.

4. The RCCs established by the TSOs in the Central Europe SOR and by the TSOs in the GRIT SOR shall coordinate the bidding zone Italy NORD in accordance with the cooperative processes pursuant to Article 38 of Regulation (EU) 2019/943.

6. Bidding zone borders adjacent to SEE SOR and GRIT SOR

1. The bidding zone borders adjacent to SEE SOR and GRIT SOR in the border IT SUD - GR and the border Italy Centre Sud – Montenegro (IT CSUD-ME) between Balkans countries and GRIT SOR.

2. The RCC established by the TSOs in the GRIT SOR shall coordinate the adjacent bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. GRIT Calculation Methodology pursuant to Articles 20 et 21 of the CACM GL and Articles 2110 of the FCA GL,
   b. GRIT Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d. GRIT Regional Outage Coordination according to Article 80 of the SO GL,
   e. cooperative processes established for the tasks of regional relevance for the GRIT SOR, and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

3. As an interim solution, the interconnection between IT CSUD and ME is not assigned to any SOR. The coordination of the border shall be ensured through bilateral agreements between Terna and CGES. This proposal shall be reviewed at the latest when Montenegro will accommodate in its national law the rights and obligations in the electricity sector common to and binding on the Member States of the European Union.

7. Bidding Zone borders adjacent to SWE SOR and Central Europe SOR

1. Taking into account that the BZ France is part of both SOR, the bidding zone borders adjacent to SWE SOR and Central Europe SOR are:
   a. France – Spain (FR-ES), which is integrated in the SWE SOR and
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a. France-Belgium (FR-BE)
b. France-Germany/Luxembourg (FR-DE/LU)
c. France-Switzerland (FR-CH)
d. Italy NORD—France (IT NORD—FR), which are integrated in the Central Europe SOR.

2. The RCC established by the TSOs in SWE SOR shall coordinate the FR-ES bidding zone border in accordance with the applicable terms, conditions and methodologies, covering inter alia:
   a. SWE Calculation Methodology pursuant to Articles 20 et 21 of the CACM GL and Articles 2110 of the FCA GL,
   b. SWE Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
   d. Regional Outage Coordination according to Article 80 of the SO GL,
   e. cooperative processes established for the tasks of regional relevance for the SWE SOR, and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

3. The RCC established by TSOs in Central Europe shall coordinate the FR-BE, FR-DE/LU, FR-CH and IT-NORD-FR bidding zone borders in accordance with the applicable terms, conditions and methodologies covering inter alia:
   a. CORE and North Italy Calculation Methodologies pursuant to Articles 20 et 21 of the CACM GL and Articles 2110 of the FCA GL and applicable agreements with Swissgrid,
   b. CORE and North Italy Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL and applicable agreements with Swissgrid,
   c. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL (tbd FCA y CACM),
   d. Regional Outage Coordination according to Article 80 of the SO GL,
   e. cooperative processes established for the tasks of regional relevance for the Central SOR, and in line with other applicable cooperative processes pursuant to Article 35(1)(g) of Regulation 2019/943 or developed in line with Article 38 of Regulation 2019/943.

4. The RCCs established by the TSOs in the Central Europe SOR and by the TSOs in the SWE SOR shall coordinate the bidding zone France in accordance with the cooperative processes pursuant to Article 38 of Regulation (EU) 2019/943.

8. Bidding Zone borders adjacent to SEE SOR and Central Europe SOR

1. The bidding zone borders adjacent to SEE SOR and Central Europe SOR are:
   a. Bulgaria-Romania (BG-RO), which is integrated in the SEE SOR.
   b. The bidding zone borders between the Balkan countries and the Central Europe SOR are:
      i. Croatia-Bosnia (HR-BA)
      ii. Croatia-Serbia (HR-RS)
      iii. Hungary-Serbia (HU-RS)
      iv. Romania-Serbia (RO-RS)

2. The RCC established by the EU-TSOs in the SEE SOR shall coordinate the BG-RO bidding zone border in accordance with the applicable terms, conditions and methodologies covering inter alia.

1. SEE Calculation Methodology pursuant to Articles 20 et 21 of the CACM GL and Articles 2110 of the FCA GL,
2. SEE Coordinated Security Analysis Methodology pursuant to Article 76 of the SO GL,
3. Common Grid Model Methodology pursuant to Articles 67 and 70 of the SO GL,
4. Regional Outage Coordination according to Article 80 of the SO GL,
5. Cooperative processes established for the tasks of regional relevance for the SEE SOR, and in line with other applicable cooperative processes developed in line with Article 38 of Regulation 2019/943.

3. The RCC established by the EU-TSOs in the SEE SOR shall coordinate the BG-RO bidding zone border in accordance with the tasks of regional relevance for the SEE SOR pursuant to Article 35(1)(b) of Regulation (EU) 2019/943 and in cooperation with Tranellectrica through contractual relationship.

4. The RCC established by the EU-TSOs in the SEE SOR and the RCC established by TSOs in the Central Europe SOR shall coordinate their proposals in line with the cooperative processes established in line with Article 38 Regulation 2019/943.

5. The interface between SEE and the Central SOR will be further clarified by cooperation between the RCCs established in both regions and by making best use of the regional agreements and structures within ENTSO-E.

9. Bidding zone border adjacent to IU SOR and Nordic SOR – future definition

This interface will relate to a HVDC link between Norway (NO2) and GB, currently under construction. Such interface is subject to a future CCR and SOR allocation. The interface will be managed in accordance with the applicable terms, conditions and methodologies.
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### Annex 3—List of acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Name</th>
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Definition of System Operation Regions


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