All TSOs' draft proposal for Capacity Calculation Regions (CCRs)

- Draft Version 1.0 -

24 September 2015

DISCLAIMER

This document is a common proposal developed by all Transmission System Operators (hereafter referred to as "TSOs") regarding the determination of capacity calculation regions (hereafter referred to as "CCR proposal") in accordance with Article 15 of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management (hereafter referred to as "CACM Regulation").



Contents

1.	Introduction	3
2.	Legal requirements for the CCR determination	2
3.	Proposal for Capacity Calculation Regions	5
3.1.	General principles	5
3.2.	Capacity Calculation Region 1: Nordic	8
3.3.	Capacity Calculation Region 2: Hansa	9
3.4.	Capacity Calculation Region 3: Central-west Europe (CWE)	10
3.5.	Capacity Calculation Region 4: Italian north borders	11
3.6.	Capacity Calculation Region 5: Italian borders 2	12
3.7.	Capacity Calculation Region 6: Central Eastern Europe (CEE)	13
3.8.	Capacity Calculation Region 7: South-west Europe (SWE)	14
3.9.	Capacity Calculation Region 8: Ireland and United Kingdom (IU)	15
3.10	D. Capacity Calculation Region 9: Channel	16
3.11	1. Capacity Calculation Region 10: Baltic	17
3.12	2. Capacity Calculation Region 11: South-east Europe (SEE)	19
4.	Expected impact of the proposed CCRs on the objectives of the CACM Regulation	20
5.	Implementation timeline	21
INA	NEX 1 – Future composition of CCRs including various non-EU bidding zone borders	22
1.	Introduction	22
2.	Capacity Calculation Regions	22
ANI	NEX 2 – Future bidding zone borders	30



1. Introduction

This document is a common proposal developed by all Transmission System Operators (hereafter referred to as "TSOs") regarding the determination of capacity calculation regions (hereafter referred to as "CCR proposal") in accordance with Article 15 of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management (hereafter referred to as "CACM Regulation").

First, the CCR proposal includes a chapter about the relevant legal provisions of the CACM Regulation (Chapter 2). The detailed description of the capacity calculation regions (hereafter referred to as "CCR(s)"), including maps covering the existing bidding zone borders between European Union (EU) Members States and some new ones expected to be established by the end of 2018 and to be operated by TSOs certified at the moment of submission of this proposal, follows in Chapter 4. The CCR proposal further includes a chapter on the expected impact of the proposed CCRs on the objectives of the CACM Regulation as well as a timescale for implementation as required by Article 9(9) of the CACM Regulation (Chapters 4 and 5).

To achieve the targets set in the CACM Regulation to promote the completion and efficient functioning of the internal market and ensure the optimal management, coordinated operation and sound technical development of the electricity transmission system in Europe, EC, ACER, NRAs, TSOs and ENTSO-E acknowledge the importance of involving non-EU TSO members of ENTSO-E, especially those responsible for electricity systems physically connected to EU member states, in defining the CCRs. We believe this is the best way forward to assure the efficiency, relevance and accuracy of the capacity calculations.

For this reason, Annex 1 (Future composition of CCRs including various non-EU bidding zone borders) is attached to the CCR proposal for informational purposes. The composition of the CCRs presented in this Annex reflects the interdependencies between EU and non-EU bidding zones borders as well as cooperation between some non-EU and EU TSOs, and it forms the basis for future implementation of the CACM Regulation by non-EU TSOs/non-EU NRAs. To avoid doubt, such CCR composition can only take legal effect when the legal conditions for the integration of the CACM Regulation are fulfilled in the non-EU countries, e.g., when the CACM Regulation becomes an effective law within the legal framework of each of these countries and respective NRA approvals take place as required at that point. TSOs expect that these legal conditions will be fulfilled in some non-EU countries by the time the capacity calculation methodologies developed by the CCRs will be approved by the NRAs (i.e., at the latest, 25 months after the entry into force of the CACM Regulation). Thus, to facilitate the implementation by the non-EU TSOs and the cooperation of the EU and non-EU NRAs at an early stage, within the legal boundaries set by EU or national laws, the involved TSOs (EU and non-EU) will start working informally together based on the future CCR composition presented in Annex 1 to achieve the targets set in the CACM Regulation to promote the completion and efficient functioning of internal markets and ensure the optimal management, coordinated operation and sound technical development of the electricity transmission system in Europe. For these reasons, Annex 1 is therefore published for consultation and will be submitted after consultation by TSOs to all affected NRAs for their information or eventual approval, whereby non-EU NRAs have this competence based on EU and national law ensuring compliance with CACM at the time of the submission of the CCR proposal by EU TSOs to EU NRAs.

EC, ACER, TSOs and ENTSO-E agree to work from the beginning to implement the CCRs as proposed in Annex 1 to this proposal to achieve the target of efficiency in Europe. However, the capacity calculation methodologies shall be designed in such a way that they can be performed in a robust manner even before the non-EU countries included in the capacity calculation regions are bound to apply the EU rules. In no case shall the capacity calculation be critically dependent on a third country not bound by EU rules.

Annex 2: Future bidding zone borders is also attached for informational purposes only, describing some new bidding zone borders to be included in the future due to interconnections still under construction and to



be commissioned after 2018 or not yet operated by legal entities certified as TSOs. Any changes in the future will have to be reflected in the CCR composition by amending this proposal in accordance with the CACM Regulation.

Terms used in this document have the definitions included in Article 2 of the CACM Regulation.

2. Legal requirements for the CCR determination

Capacity calculation for the day-ahead and intraday market timeframes should be coordinated at least at the regional level to ensure that capacity calculation is reliable and that optimal capacity is made available to the market. For this purpose, regions where such coordination is needed will be defined by all TSOs. In accordance with Article 2 of CACM Regulation (Definitions), these regions are defined as "capacity calculation regions", meaning "the geographic area in which coordinated capacity calculation is applied". Therefore, a CCR needs to consist of a set of bidding zone borders for which the capacity calculation shall be coordinated by TSOs in accordance with the CACM Regulation.

Article 3 defines the objectives of the CACM Regulation as follows.

This Regulation aims at:

- (a) promoting effective competition in the generation, trading and supply of electricity;
- (b) ensuring optimal use of the transmission infrastructure;
- (c) ensuring operational security;
- (d) optimising the calculation and allocation of cross-zonal capacity;
- (e) ensuring fair and non-discriminatory treatment of TSOs, NEMOs, the Agency, regulatory authorities and market participants;
- (f) ensuring and enhancing the transparency and reliability of information;
- (g) contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union;
- (h) respecting the need for a fair and orderly market and fair and orderly price formation;
- (i) creating a level playing field for NEMOs;
- (j) providing non-discriminatory access to cross-zonal capacity.

Furthermore, Article 9(9) requires that the description of the expected impact on the objectives set in Article 3 of the CACM Regulation be included in the proposal along with a proposed timescale for the implementation. It provides the following requirements.

The proposal for terms and conditions or methodologies shall include a proposed timescale for their implementation and a description of their expected impact on the objectives of this Regulation. Proposals on terms and conditions or methodologies subject to the approval by several or all regulatory authorities shall be submitted to the Agency at the same time that they are submitted to regulatory authorities. Upon request by the competent regulatory authorities, the Agency shall issue an opinion within three months on the proposals for terms and conditions or methodologies.

Article 15 of the CACM Regulation sets the requirements for the determination of CCRs.

1. By three months after the entry into force of this Regulation all TSOs shall jointly develop a common proposal regarding the determination of capacity calculation regions. The proposal shall be subject to consultation in accordance with Article 10.



- 2. The proposal referred to in paragraph 1 shall define the bidding zone borders attributed to TSOs who are members of each capacity calculation region. The following requirements shall be met:
- (a) it shall take into consideration the regions specified in point 3(2) of Annex I to Regulation (EC) No 714/2009;
- (b) each bidding zone border, or two separate bidding zone borders if applicable, through which interconnection between two bidding zones exists, shall be assigned to one capacity calculation region;
- (c) at least those TSOs shall be assigned to all capacity calculation regions in which they have bidding zone borders.
- 3. Capacity calculation regions applying a flow-based approach shall be merged into one capacity calculation region if the following cumulative conditions are fulfilled:
- (a) their transmission systems are directly linked to each other;
- (b) they participate in the same single day-ahead or intraday coupling area;
- (c) merging them is more efficient than keeping them separate. The competent regulatory authorities may request a joint cost-benefit analysis from the TSOs concerned to assess the efficiency of the merger.

3. Proposal for Capacity Calculation Regions

3.1. General principles

The CCR proposal takes into account the general principles and goals set in the CACM Regulation as well as Regulation (EC) No 714/2009. The goal of CACM Regulation is the coordination and harmonisation of capacity calculation and allocation in the day-ahead and intraday cross-border markets, and it sets requirements for the TSOs to co-operate on the level of CCRs, on a pan-European level and across bidding zone borders. To achieve this, the CACM Regulation requires the definition of CCRs in which coordinated capacity calculation is applied and introduced.

In particular, based on the CACM regulation, the following terms and conditions or methodologies shall be developed and approved on a CCR level:

- (a) the common capacity calculation methodology in accordance with Article 20;
- (b) the methodology for coordinated redispatching and countertrading in accordance with Article 35(1);
- (c) the fallback procedures in accordance with Article 44; and
- (d) the redispatching or countertrading cost sharing methodology in accordance with Article 74(1).

The obligations and rights related to CCRs as determined in the CACM Regulation remain with the TSOs assigned to the respective CCR. To take into account interdependencies between capacity calculation, security analysis coordination and outage scheduling, TSOs should coordinate with TSOs beyond their respective CCR. For each CCR, a Coordinated Capacity Calculator needs to be established to define crosszonal capacities for day-ahead, intraday timeframes and long-term timeframes using the European Common Grid Model (hereafter referred to as "CGM") by extracting relevant parts of data from the CGM. To further ensure coordination of capacity calculation between the CCRs, each Coordinated Capacity Calculator will cooperate with the neighbouring Coordinated Capacity Calculators.

The CCR proposal takes into consideration the regions specified in point 3(2) of Annex I to Regulation (EC) No 714/2009. The CCR proposal also includes all existing bidding zone borders from EU member



states that joined the EU after the entry into force of Annex I of Regulation (EC) No 714/2009 and that were not yet listed in Annex I. The CCRs in this proposal are further specified to adapt to the legal requirements of the CACM Regulation mentioned above and to reflect a better coordination foreseen in the near future regarding the capacity calculation and the progressive introduction of flow-based approach (when applicable). It also takes into account that the goal of coordinated congestion management methods between the neighbouring regions required in Annex I of Regulation (EC) No 714/2009 is reinforced by Article 29(9) of CACM Regulation, which requires cooperation between neighbouring coordinated capacity calculators regarding exchanging and confirming information on interdependency with the relevant regional coordinated capacity calculators. Such a dynamic approach is in line with Regulation (EC) No 714/2009 (see recital 7), which requires member states to promote cooperation and monitor the effectiveness of the network at the regional level so cooperation at regional level is compatible with progress towards a competitive and efficient internal market in electricity.

Each existing bidding zone border where CACM obligations are in force has been assigned only to one CCR in accordance with Article 15 of CACM Regulation. In addition, some bidding zone borders to be created by construction of new interconnections foreseen to be commissioned by the end of 2018 and to be operated by TSOs certified at the moment of submission of this proposal are also proposed to be included in the respective CCRs so as to receive an NRA approval.

Cases in which it is not agreed between the respective and other affected member states whether there is or shall be a bidding zone border (e.g., the Germany-Austria border)¹ are at this stage not included in this CCR proposal.

In conclusion, this CCR proposal represents a dynamic and pragmatic pan-European approach with a shortand mid-term view of the geographical scope of CCRs that supports coordination across the bidding zone borders where there is the highest observed interdependence. The need for larger CCRs will be assessed in due time and as early as possible by the relevant TSOs after some experience on coordination within a CCR and between CCRs in accordance with the CACM Regulation has been gained.

Regarding the geographical borders towards non-EU countries not bound by CACM regulation, Figure 1 presents the rough geographic location of the proposed eleven (11) CCRs (without prejudice to the changes presented in Chapters 3.2 to 3.12), and Figures 2-12 present in more detail the bidding zones, which are connected through a bidding zones border in each of the proposed CCR via one or more interconnections. Figures in Annex 1 present the bidding zones of the relevant CCRs, taking into account the future composition of CCRs, including various non-EU bidding zone borders.

¹An opinion on the border between Germany-Austria is expected in the near future from ACER following a request by the Polish Regulatory Authority to ACER to assess the compliance of the congestion management rules on the Germany-Austria border with existing European Regulation.



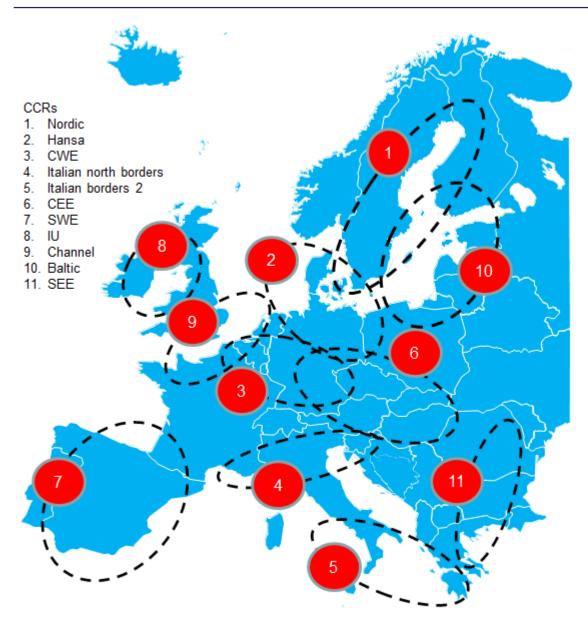


Figure 1. Rough geographic location of the proposed CCRs (without prejudice to the changes presented in Chapters 4.2 to 4.12).



3.2. Capacity Calculation Region 1: Nordic

The CCR Nordic should consist of the bidding zone borders and involve the TSOs/NRAs/Member states delineated in the table below.

Bidding zone borders	TSOs involved	NRAs involved ²	Member states involved
DK1-SE3, DK2-SE4, DK1-DK2, SE4-SE3, SE3-SE2, SE2-SE1 SE3-FI, SE1-FI	Energinet.dk, Svenska kraftnät, Fingrid	DERA, EI, Energy Authority	Denmark, Sweden, Finland

The CCR Nordic is a part of the region "Northern Europe" as defined in point 3(2) of Annex 1 to Regulation (EC) No 714/2009 and consists of the eight bidding zone borders connecting Denmark, Sweden and Finland, i.e., the member states within the Nordic area (hereafter referred to as the "Nordic Area") and internal bidding zone borders within Denmark and Sweden as indicated in the table above.

The assignment of these bidding zone borders to the CCR Nordic takes into account that the high-voltage electricity systems in the Nordic CCR are well developed and closely integrated. In addition, it reflects the present market conditions, including regulation power, day-ahead, intraday and financial markets. Based on this strong interdependency between these bidding zone borders, coordinated procedures already exist on capacity calculation, including arrangements on remedial actions and cost sharing. Moreover, Article 20 paragraph 1 of CACM Regulation stipulates that there must be one *common* Capacity Calculation Methodology per CCR. Thus, the CCR proposal will also allow the involved TSOs to assess the possibility and prepare for the application of flow-based capacity calculation methodology therein.

Figure 2: Bidding zones of the CCR Nordic



²Names of all NRAs and their abbreviations can be found at: http://www.acer.europa.eu/The agency/Organisation/Board of Regulators/Pages/BoR-Members.aspx.



3.3. Capacity Calculation Region 2: Hansa

The CCR Hansa should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone border	TSOs involved	NRAs involved	Member states involved
DK1-DE/AT/LUX, DK2-DE/AT/LUX, SE4 – PL	Energinet.dk, TenneT TSO GmbH, 50Hertz, Svenska kraftnät, PSE	DERA, BNetzA, EI, URE	Denmark, Germany, Sweden, Poland

The Hansa CCR is a part of the region "Northern Europe" as defined in point 3(2) of Annex 1 to Regulation (EC) No 714/2009 and consists of the five cross-border interconnections running between the Nordic Area and continental Europe.

The assignment of these bidding zone borders in the Hansa CCR takes into account that on the one hand, the interconnections in this CCR are closely linked to the electricity systems in the Nordic area as well as the ones in continental Europe, but on the other hand, one Common Capacity Calculation Methodology per CCR, as stipulated in Article 20 paragraph 1 of CACM Regulation, may be difficult to achieve. In the case of cross-border interconnections forming, Hansa CCR would instead be assigned to the Nordic CCR or the CWE/CEE CCR. In addition, the Hansa CCR reflects the influence between the market conditions at the respective bidding zone borders.

Moreover, Article 20 paragraph 1 of CACM Regulation stipulates that there must be one *common* Capacity Calculation Methodology per CCR. This proposal supports various possibilities for capacity calculation methodologies to ensure efficiency in capacity calculation. In particular, the definition of the CCR Hansa allows for the evolution of CCRs and should facilitate the involvement of these bidding zone borders in CWE/CEE/Nordic regions as the level of interconnection increases in the future from Nordic countries to Continental Europe.

Figure 3: Bidding zones of the CCR Hansa





3.4. Capacity Calculation Region 3: Central-west Europe (CWE)

The CCR CWE should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone borders	TSOs involved	NRAs involved	Member states involved
FR-BE, BE-NL, FR-DE/AT/LU, NL-DE/AT/LU,	Elia, RTE, TenneT BV, Amprion, TransnetBW, TenneT GmbH, 50Hertz, APG, Creos	CREG, CRE, ACM, BNetzA, E-Control, ILR	Belgium, France, The Netherlands, Germany, Austria, Luxembourg
New bidding zone border: BE-DE/AT/LU	No change	No change	No change

The CWE CCR is based on the region "North-West Europe" as defined in point 3(2) of Annex 1 of Regulation (EC) No 714/2009. The proposed CWE CCR is extended to include Austria, due to the decision of the Pentalateral Energy Forum of 07.06.2013. In this Forum the concerned ministries together with the EC have signed a declaration to extend the CWE region to Austria. This decision of the Pentalateral Energy Forum is taken into account when defining the CWE CCR and is seen as a further specification of the regions set in Regulation (EC) No 714/2009. Moreover, this actually fulfills what is requested in recital 7 of Regulation (EC) No 714/2009, which requires Member States to promote cooperation and monitor the effectiveness of the network at regional level so that cooperation at regional level is compatible with the progress towards a competitive and efficient internal market in electricity.

New Bidding Zones Border: in addition, it is foreseen that a new interconnection between Belgium and Luxembourg for bidding zone border BE-DE/AT/LU, will be in operation by 2016. This bidding zone border should upon its creation be part of the CCR CWE and therefore, an NRA approval is sought already at this stage.

Figure 4: Bidding zones of the CCR CWE





3.5. Capacity Calculation Region 4: Italian north borders

The CCR Italian north borders should consist of the bidding zone borders and involve the TSOs/NRAs/Member States mentioned in the table below.

Bidding zone borders	TSOs involved	NRAs involved	Member states involved
NORD-FR, NORD-DE/AT/LU, NORD-SI	Terna, RTE, APG, ELES	AEEG, CRE, E-Control, Energy Agency	Italy, France, Austria, Slovenia

The CCR Italian north borders and the CCR Italian borders 2 described below under point 3.6 of this chapter have been defined by taking into consideration in particular:

- the region "Italy" as specified in point 3(2) of Annex I to Regulation (EC) No 714/2009 and involving Italy, France, Germany, Austria, Slovenia and Greece as well as the dynamic approach towards a competitive and efficient internal market in electricity; and
- specific provisions set in the CACM Regulation enhancing the promotion of such a competitive and efficient internal market in electricity, with particular reference to Articles 15 and 20.

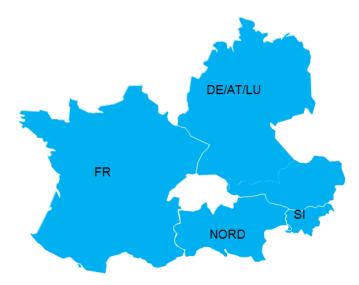
In particular, the definition of these CCRs takes into account not only the borders between the member states involved in the region "Italy" as specified in point 3(2) of Annex I to Regulation (EC) No 714/2009, but also the borders between bidding zones within Italy. This is because while Annex I of Regulation (EC) No 714/2009 defines the regions where a common coordinated congestion-management method and procedure for the allocation of capacity between countries has to be implemented across countries, the CACM Regulation requires that the regions, to be defined for the purpose of capacity calculation, have to consist of a set of bidding zone borders that may not coincide with geographical borders between two countries, as is the case for Italian internal bidding zones.

Furthermore, Articles 15 and 20 of the CACM Regulation set the requirements for the definition of the CCRs and the development of the capacity calculation methodologies to be applied in the different regions as well as the deadlines for the development of the mentioned methodologies. Article 20 paragraph 1 of CACM Regulation stipulates that there must be one *common* Capacity Calculation Methodology per CCR. As far as the region "Italy", as defined in point (c) of point 3.2 of Annex I to Regulation (EC) No 714/2009, is concerned, paragraph 3 of article 20 of CACM regulation requires the involved TSOs to submit a proposal for the development of a common coordinated capacity calculation methodology using a flow-based approach and clarifies that the proposal does not have to include bidding zone borders within Italy and between Italy and Greece. To prepare the work towards this mid-term goal, the CCR Italian north borders needs to be established now to set the basis for the future implementation of CACM.

Finally, this proposal supports the development of the capacity calculation methodology in accordance with the CACM Regulation. In particular, the distinct CCR Italian north borders allows for the evolution of CCRs and should facilitate the involvement of Italy in CWE/CEE regions as the development of the flow-based capacity calculation methodology evolves in the future in accordance with CACM Regulation.



Figure 5: Bidding zones of the CCR Italian north borders



3.6. Capacity Calculation Region 5: Italian borders 2

Keeping in mind the explanation about the definition of the CCR Italian borders 2 above under point 4.5, this CCR should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone borders	TSOs involved	NRAs involved	Member states involved
BRNN-GR, NORD-CNOR, CNOR-CSUD, CNOR-SARD, SARD-CSUD, CSUD-SUD, SUD-BRNN, SUD-FOGN, SUD-ROSN, ROSN-SICI, SICI-PRGP	Terna, IPTO	AEEG, PAE / RAE	Italy, Greece

The internal Italian bidding zones configuration includes also the virtual bidding zones of Malta, Corsica and Corsica AC. The borders connecting these bidding zones are not included in the CCR Italian borders 2 and, thus are not listed in the table above or shown on the map below. This is because Terna is the only certified TSO bound by the CACM Regulation operating on the one side of these bidding zones borders. Furthermore, considering that an electricity market is not in place in these virtual bidding zones, they have been created for the sole purpose of monitoring the energy consumption schedules in these bidding zones that need to be imported from the adjacent Italian geographical bidding zones. In this respect, the abovementioned virtual bidding zones function in the management of the Italian electricity market only.



Figure 6: Bidding zones of the CCR Italian borders 2



3.7. Capacity Calculation Region 6: Central Eastern Europe (CEE)

The CCR CEE should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone border	TSOs involved	NRAs involved	Member states involved
First step: DE/AT/LU-PL, DE/AT/LU-CZ, DE/AT/LU-HU, DE/AT/LU-SI, CZ-SK, CZ-PL, HU – SK, PL – SK,	50Hertz, TenneT GmbH, PSE, CEPS, APG, MAVIR, ELES, SEPS	BNetzA, URE, ERÚ, E-Control, MEKH, Energy Agency, RONI	Germany, Poland, Czech Republic, Austria Hungary, Slovenia, Slovakia
Second step: in addition to above: HR-SI, HR-HU, RO-HU,	HOPS, Transelectrica	HERA, ANRE	Croatia, Romania
New bidding zone border: HU-SI	No change	No change	No change

As a first step, the CCR CEE includes, without any changes, as specified in point 3.2(d) of Annex I to Regulation (EC) No 714/2009, the bidding zone borders of Germany, Poland, Czech Republic, Slovakia, Hungary, Austria and Slovenia. TSOs on these bidding zone borders aim at introducing the flow-based capacity calculation methodology as soon as possible.



As a second step, it is foreseen that the CCR CEE will be amended to include the bidding zone borders HR-SI, HR-HU and RO-HU. The inclusion of these bidding zone borders in the CCR CEE should take effect from the date of implementation of flow-based capacity calculation on the bidding zone borders included in the CCR CEE as a first step. Such transition should already be approved by NRAs upon submission of the proposal to become effective when the condition above is met. To ensure smooth transition to the second step, as from the entry into force of the CACM Regulation and up to the date of implementation of flow-based capacity calculation methodology in the CCR CEE, the TSOs responsible for additional bidding zone borders (i.e., HR-SI, HR-HU and RO-HU) will work voluntarily, in close cooperation with the other TSOs in the CCR CEE, on preparing the implementation of flow-based capacity calculation in the entire CCR CEE.

New Bidding Zones Borders: in addition, it is foreseen that a new bidding zone border, i.e., the HU-SI indicated in the table above, will be created before the end of 2018. This bidding zone border should upon its creation be part of the CCR CEE based on point 3.2(d) of Annex I to Regulation (EC) No 714/2009. Therefore, an NRA approval is being sought already.

Figure 7: Bidding zones of the CCR CEE



3.8. Capacity Calculation Region 7: South-west Europe (SWE)

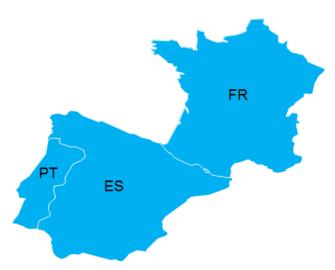
The CCR SWE should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone borders	TSOs involved	NRAs involved	Member states involved
FR-ES, ES-PT	RTE, REE, REN	CRE, CNMC, ERSE	France, Spain, Portugal

CCR SWE is configured as specified in point 3(2)(e) of Annex I to Regulation (EC) No 714/2009, including the bidding zone borders of France, Portugal and Spain.



Figure 8: Bidding zones of the CCR SWE



3.9. Capacity Calculation Region 8: Ireland and United Kingdom (IU)

The CCR IU should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone border	TSOs involved	NRAs involved	Countries involved
SEM* – GB	EirGrid, Moyle, NGET, SONI	Ofgem, UR, CER	Ireland, United Kingdom

^{*}SEM = Single Energy Market in Ireland and Northern Ireland

The CCR IU and the CCR Channel described under points 4.9 and 4.10 are based on the region "UK, Ireland and France" as defined in point 3(2) of Annex 1 of Regulation (EC) No 714/2009 (hereafter referred to as "FUI region"). As outlined in Article 3 of the CACM Regulation, this regulation aims at ensuring optimal use of the transmission infrastructure and at optimising the calculation and allocation of cross-zonal capacity. It is understood that the proposal on CCRs plays a large role in supporting these aims and should do so while ensuring operational security. It is noted that some operational security issues seen on smaller synchronous areas are not experienced within larger synchronous areas. For instance, National Grid Electricity Transmission (NGET) manages low inertia and ROCOF (Rate of Change of Frequency) risks not seen on continental Europe. These risks can and do affect cross border exchanges to Great Britain (GB).

There is operational evidence that the flows on both interconnections between GB and continental Europe (IFA and BritNed) do interact on the GB network in a combined manner. This implies that these two interconnections should be within the same CCR. It is expected that a similar level of interaction will be seen for future interconnections with connection sites on the south coast of the United Kingdom, and hence, these future interconnections should be included within the same CCR. The same will apply to future interconnections that will be operational in the longer term (beyond 2018) creating new bidding zone borders and will be operated by legal entities to be certified as TSOs. Such future bidding zone borders are included in annex 2 to this CCR proposal.

On the other hand, the interconnections on the bidding zone border between GB and the Single Energy Market in Ireland and Northern Ireland (hereafter referred to as "SEM-GB") have been judged not to



interact significantly with the interconnections on the south coast of the United Kingdom (UK). It is therefore proposed that the SEM-GB-bidding zone border should form a distinct CCR. Moreover, Article 20 paragraph 1 of CACM Regulation stipulates that there must be one *common* Capacity Calculation Methodology per CCR. A methodology that is common to both the SEM-GB bidding zone border and the GB-FR, GB-NL and GB-BE bidding zone borders may have difficulty fully achieving required efficiency in the near term given the unique challenges associated with operating the comparatively small synchronous system of SEM, which is not connected to the highly meshed AC network in continental Europe. The ratio of interconnection capacity to total system demand in SEM is high, as is the proportion of wind generation. These factors present difficulties in terms of system stability that will need to be addressed in the capacity calculation methodology for the SEM-GB biding zone border. These issues are not likely to be as acute on other borders within the FUI region as defined in point 3.2 of Annex I to Regulation 714/2009.

Furthermore, the SEM is currently undergoing significant change to ensure it is compliant with the European Network Codes/Guidelines and has received a derogation in CACM Regulation until the end of 2017 in acknowledgement of the unique challenges involved. Given the levels of risk and uncertainty associated with the implementation of the new arrangements, it would be advisable to treat the SEM-GB bidding zone border separately before attempting deeper integration with the rest of the FUI region.

Finally, this proposal supports various possibilities for capacity calculation methodologies to ensure efficiency in capacity calculation. In particular, the distinct CCR IU allows for the evolution of Capacity Calculation Regions and should facilitate GB involvement in CWE/CEE regions as the level of interconnection increases in the future from United Kingdom to Continental Europe. Therefore, the determination of the CCRs as proposed herein under points 4.9 and 4.10 is deemed necessary.

Figure 9: Bidding zones of the CCR IU



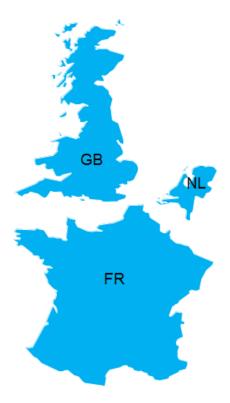
3.10. Capacity Calculation Region 9: Channel

Bearing in mind the explanation about the definition of the CCR IU and the CCR Channel above under point 4.9, the CCR Channel should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone border	TSOs involved	NRAs involved	Member states involved
FR – GB, NL – GB	RTE, NGET, NGIL, BritNed, Tennet NL	CRE, Ofgem, ACM	France, United Kingdom, Netherlands



Figure 10: Bidding zones of the CCR Channel



3.11. Capacity Calculation Region 10: Baltic

The CCR Baltic should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone border	TSOs involved	NRAs involved	Member states involved
EE-LV, LV-LT, EE-FI,	Elering, Augstsprieguma tīkls, Litgrid, Fingrid	ECA, PUC, NCC, Energy Authority	Estonia, Latvia, Lithuania, Finland
New bidding zone borders: LT-SE, LT-PL	Svenska kraftnät, PSE	EI, URE	Sweden, Poland

The CCR Baltic states includes the Baltic interconnections between the Baltic member states and Finland, Sweden and Poland, which are governed by the CACM Regulation provisions. The CCR Baltic states is in line with point 3.2 of Annex I of Regulation 714/2009 since it covers all the countries listed therein, i.e., Estonia, Latvia and Lithuania. In addition, other countries, i.e., Sweden, Finland and Poland, are included because of the current or new bidding zone borders described below that connect the Baltic with these countries. These are the bidding zone border between Estonia and Finland, the bidding zone border between Lithuania and Poland.

It is noted that the power systems of the Baltic States (Estonia, Latvia and Lithuania) operate synchronously with the power systems of Russia and Belarus and are not synchronously connected with any other system



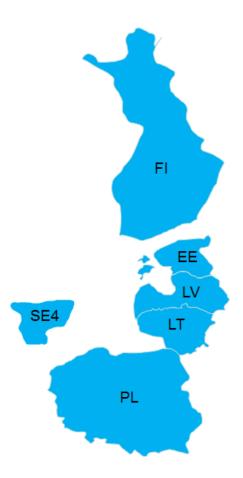
in the EU. Baltic States have borders and calculate and offer cross-border capacities to the market with the third countries, Russia and Belarus. Given that Russia and Belarus are not EU members and thus are not bound by the CACM Regulation and other electricity-related EU regulations and/or legislative acts, these Baltic borders connected with Russia and Belarus operate under a different legislative system than the EU and are not subject to CACM Regulation. Nevertheless, borders and power flows with the third countries influence internal Baltic cross-zonal capacities. Interrelation and governance of Baltic and third countries capacities should be discussed at the later stage inside Baltic CCR based on the CACM Regulation provisions and following NRAs' acceptance of respective governance rules.

New Bidding Zones Borders: In addition, it is foreseen that new bidding zone borders, i.e., the LT-SE, LT and PL indicated in the table above, will be created before the end of 2018. These bidding zone borders should upon their creation be part of the CCR Baltic; therefore, an NRA approval is being sought already.

Current DC interconnections Estlink1 and Estlink2 between Estonia and Finland (referred to as EE-FI bidding zone border) connect Baltic states to the Nordic region. The DC interconnection NordBalt will connect Lithuania and Sweden in the future (referred to as the LT-SE bidding zone border). The upcoming AC interconnection with the back-to-back converter LitPol Link between Lithuania and Poland (referred to as the LT-PL bidding zone border) will connect Baltic States to CEE region.

The EE-FI bidding zone border and LT-SE bidding zone border (after NordBalt commissioning at the end of year 2015) are to be included in the Baltic CCR because of their significant influence on the market of the region, capacity calculation procedures, common Baltic and Nordic balancing market and operational processes. The LT-PL bidding zone border (after LitPol Link commissioning at the end of year 2015) is to be included in the Baltic CCR because of its significant influence to the market of the region, capacity calculation procedures and operational processes.

Figure 11: Bidding zones of the CCR Baltic





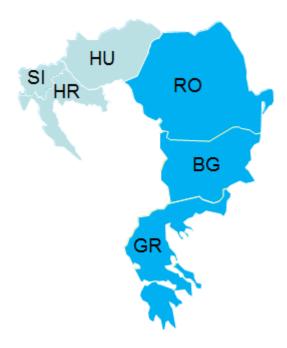
3.12. Capacity Calculation Region 11: South-east Europe (SEE)

The CCR SEE should consist of the bidding zone borders and involve the TSOs/NRAs/member states delineated in the table below.

Bidding zone border	TSOs involved	NRAs involved	Member states involved
First step: GR-BG, BG-RO HR-SI, HR-HU, RO- HU	IPTO, ESO, Transelectrica HOPS, ELES, MAVIR	PAE/RAE, SEWRC, ANRE, HERA, Energy Agency, MEKH	Greece, Bulgaria, Romania, Croatia, Slovenia, Hungary
Second step: Exclusion from the above: HR-SI, HR-HU, RO- HU	Exclusion of TSOs: HOPS, ELES, MAVIR	Exclusion of NRAs: HERA, Energy Agency, MEKH,	Exclusion of Member states: Croatia, Slovenia, Hungary

As a first step, the CCR SEE will include all bidding zone borders/TSOs/member states delineated in the above table. The bidding zone borders HR-SI, HR-HU and RO-HU will be assigned to CCR SEE until the date of flow-based capacity calculation has been implemented in the CCR CEE as presented in the first step. After the implementation of flow-based capacity calculation on the bidding zone borders included in the CCR CEE as a first step, the bidding zone borders HR-SI, HR-HU and RO-HU will be assigned to CCR CEE (see above under item 4.7). The exclusion of the bidding zone borders HR-SI, HR-HU and RO-HU from the CCR SEE should already be approved by NRAs upon submission of the proposal to become effective when the condition above is met.

Figure 12: Bidding zones of the CCR SEE





4. Expected impact of the proposed CCRs on the objectives of the CACM Regulation

According to Article 9 (9) of the CACM Regulation, the impact of the proposed CCRs on the objectives of Article 3 of the CACM Regulation is to be evaluated.

The CACM Regulation places the definition of these CCRs as well as the methodologies to be applied in these regions within a framework of continuous harmonization, applying flow-based methodologies within larger regions in which they are efficient.

The proposed CCRs contribute to and do not in any way hamper the achievement of the objectives of Article 3 of CACM Regulation. In particular, the proposed CCRs serve the objective ensuring optimal use of transmission infrastructure by linking bidding zone borders, where coordination needs are high in capacity calculation. Within the CCR, the interdependencies between the cross-zonal capacities can be modelled most accurately and efficiently, and the optimal level of cross-zonal capacity can be given to the market. The number of CCRs across Europe also affects the optimal use of transmission infrastructure and the calculation of cross-zonal capacity. Large number of CCRs decrease the coordination possibilities across bidding zone borders, implying less optimal use of transmission infrastructure. However, some smaller CCRs may be needed to ensure operational efficiency and increase better consideration of regional features, such as generation mix, consumption behavior and grid topology, in capacity calculation. This possibility implies an optimal level of cross-zonal capacity for the market without endangering the operational security in case the need for coordination across bidding zone borders is low. On the other hand, where coordination needs across bidding zone borders are high, as in highly meshed transmission grids, a geographically larger CCR (and a smaller number of CCRs) is beneficial to ensure the optimal use of transmission infrastructure. Thus, the optimal number of CCRs is a mixture of CCRs, whereas in continental Europe a few, geographically large CCRs exist, and in other parts of Europe, where smaller CCRs may exist. This CCR constellation contributes to the optimal use of transmission infrastructure.

The CCR constellation affects operational security. If interdependency between bidding zone borders is not correctly taken into account in capacity calculation, cross-zonal capacity given to the market might be too high, enabling too high power flows on transmission lines and thus endangering the operational security of the transmission system. Usually in these cases, less cross-zonal capacity would be given to the market to ensure operational security at the expense of optimal use of transmission infrastructure. Proper coordination between bidding zone borders and allowing for modelling of regional features within common grid model give a high level of cross-zonal capacity to the market without endangering operational security

The CCRs serve the objective of optimising the calculation of cross-zonal capacity as CCRs lay down coordination within a CCR and between CCRs. This is the first time that CCRs have been commonly and comprehensively defined in Europe, laying the ground for the development of regional common capacity calculation methodologies and establishment of Coordinated Capacity Calculator for each CCR. Given, for example, the need for manual operations during the calculation process, the proposed number and size of CCRs should be the most feasible approach towards the objective of optimising capacity calculation.

One of the objectives of the CACM Regulation is to contribute to the efficient long-term operation and development of the electricity transmission system. The coordinated capacity calculation within a CCR will reveal constraining elements in the transmission network that contribute to the long-term operation and development of the electricity transmission system and electricity sector in the Union.

Careful consideration was given to understanding the long-term target of the CACM Regulation with regard to capacity calculation and allocation. As a long-term target, the CACM Regulation aims at harmonisation of the capacity calculation methodology within the CCRs and merging of CCRs when efficiency reasons justify doing so. This CCR proposal is an important step on the road map towards this long-term target. It is crucial that this road map is efficient and does not jeopardise progress towards the long-term target. The CCR proposal builds, thus, on current practice and represents a progressively pragmatic harmonisation of capacity calculation.



The CCR proposal contributes somewhat to the objective of promoting effective competition in generation, trading and supply of electricity because it will take into account market specificities on bidding zone borders by allowing optimally configured CCRs to be established.

Regarding the objective of transparency and reliability of information, the proposed CCRs, being proposed by TSOs and approved by NRAs, will be the basis for further work towards market integration in the most transparent way. The CCR constellation shows where coordination needs between bidding zone borders in capacity calculation are necessary, and TSOs of each CCR will develop common methodologies as defined in CACM Regulation. These methodologies will be consulted upon, approved by NRAs when applicable and published by TSOs, thus increasing transparency and reliability of information.

In conclusion, the limited number of CCRs contributes to the general objectives of CACM Regulation to the benefit of all market participants and electricity end consumers.

5. Implementation timeline

The definition of CCRs is the basis for regional work in accordance with the CACM Regulation and, directly or indirectly, a pre-requisite for many of the implementation projects. Thus, as soon as all NRAs have approved the CCRs in accordance with Article 9 of the CACM regulation, TSOs will apply the newly established CCRs immediately and start working to meet the specific deadlines set in the CACM Regulation for other implementation projects using the CCRs as a basis for discussion and decision-making.



ANNEX 1 – Future composition of CCRs including various non-EU bidding zone borders

1. Introduction

Annex 1 (Future composition of CCRs including various non-EU bidding zone borders) is attached to the CCR proposal for informational purposes. The composition of the CCRs presented in this Annex reflects the interdependencies between EU and non-EU bidding zones borders as well as cooperation between some non-EU and EU TSOs. It establishes the basis for the future implementation of the CACM Regulation by non-EU TSOs/non-EU NRAs. To avoid doubt, such CCR composition can only take legal effect when the legal conditions for the integration of the CACM Regulation are fulfilled in the non-EU countries, e.g., when the CACM Regulation becomes an effective law within the legal framework of each of these countries and respective NRA approvals take place as required at that point. TSOs expect that these legal conditions will have been fulfilled in some non-EU countries by the time the capacity calculation methodologies developed by the CCRs are approved by the NRAs (i.e., at the latest, 25 months after the entry into force of the CACM Regulation). Thus, to facilitate the implementation by non-EU TSOs and the cooperation of the EU and non-EU NRAs at an early stage, within the legal boundaries set by EU or national laws, the involved TSOs (EU and non-EU) will start working together based on the CCR composition presented in Annex 1 to achieve the targets set in the CACM Regulation and promote the completion and efficient functioning of internal market and ensure the optimal management, coordinated operation and sound technical development of the electricity transmission system in Europe. For these reasons, Annex 1 is thus published for consultation and will be submitted by TSOs to all affected NRAs for their information or eventual approval in cases in which non-EU NRAs have this competence based on EU and national law ensuring compliance with CACM at the time of the submission of the CCR proposal by EU TSOs to EU NRAs.

The Annex includes all CCRs, including those that will change due to the inclusion of non-EU bidding zone borders. The unaffected CCRs described in Chapter 3 of the CCR proposal are repeated to provide the entire picture of the CCRs. Furthermore, this Annex includes new bidding zone borders expected to be in place in the year 2018 due to new interconnections that will be built between the relevant EU member states and non-EU countries.

2. Capacity Calculation Regions

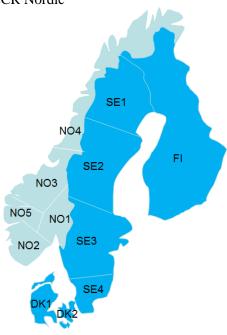
Capacity Calculation Region 1: Nordic including non-EU bidding zone borders

Bidding zone borders	TSOs involved	Countries involved
DK1-SE3, DK2-SE4, DK1-DK2, SE4-SE3, SE3-SE2, SE2-SE1, SE3-FI, SE1-FI, DK1-NO2*, SE3-NO1*, SE2-NO3*, SE2-NO4*, SE1-NO4*, NO3-NO4*, NO1-NO3*, NO1-NO5*, NO1-NO2*, NO2-NO5*	Energinet.dk, Svenska kraftnät, Fingrid, Statnett*	Denmark, Sweden, Finland, Norway*

^{*}These bidding zone borders will be included in the CCR Nordic in the future, subject to the fulfillment of the legal requirements for the application of CACM Regulation in Norway.



Figure A1: Bidding zones of the CCR Nordic



Capacity Calculation Region 2: Hansa including non-EU bidding zone borders

Bidding zone borders	TSOs involved	Countries involved
DK1-DE/AT/LU, DK2- DE/AT/LU, SE4 – PL, NO2-NL*	Energinet.dk, TenneT TSO GmbH, 50Hertz, Svenska kraftnät, PSE, Statnett*, Tennet TSO BV*	Denmark, Germany, Sweden, Poland, Norway*, Netherlands*

^{*}These bidding zone borders will be included in the CCR Hansa in the future, subject to the fulfillment of the legal requirements for the application of CACM Regulation.

Figure A2: Bidding zones of the CCR Hansa





Capacity Calculation Region 3: Central-west Europe (CWE) including non-EU bidding zone borders

Bidding zone borders	TSOs involved	Countries involved
FR-BE, BE-NL, FR-DE/AT/LU, NL-DE/AT/LU, BE-DE/AT/LU, CH-FR*, CH-DE/AT/LU*	Elia, RTE, TenneT BV, Amprion, TransnetBW, TenneT GmbH, 50Hertz, APG, Creos, Swissgrid*	Belgium, France, The Netherlands, Germany, Austria, Luxembourg, Switzerland*

^{*}The bidding zone borders will be included in the CCR CWE in the future, subject to the fulfillment of the legal requirements for the application of CACM Regulation in Switzerland in accordance to Article 1 (4) and (5)of CACM Regulation.

Figure A3: Bidding zones of the CCR CWE:

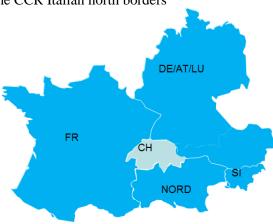


Capacity Calculation Region 4: Italian north borders including non-EU bidding zone borders

Bidding zone borders	TSOs involved	Countries involved
NORD-FR, NORD-DE/AT/LU, NORD-SI NORD-CH*	Terna, RTE, APG, ELES, Swissgrid*	Italy, France, Austria, Slovenia, Switzerland*

^{*}The bidding zone borders will be included in the CCR Italian north borders in the future, subject to the fulfillment of the legal requirements for the application of CACM Regulation in accordance to Article 1 (4) and (5) of CACM Regulation.

Figure A4: Bidding zones of the CCR Italian north borders





Capacity Calculation Region 5: Italian borders 2

Bidding zone borders	TSOs involved	NRAs involved	Member states involved
BRNN-GR, NORD-CNOR, CNOR-CSUD, CNOR-SARD, SARD-CSUD, CSUD-SUD, SUD-BRNN, SUD-FOGN, SUD-ROSN, ROSN-SICI, SICI-PRGP	Terna, IPTO	AEEG, PAE/RAE	Italy, Greece

Figure A5: Bidding zones of the CCR Italian borders 2





Capacity Calculation Region 6: Central Eastern Europe (CEE)

Bidding zone border	TSOs involved	NRAs involved	Member states involved
First step: DE/AT/LU-PL, DE/AT/LU-CZ, DE/AT/LU-HU, DE/AT/LU-SI, CZ-SK, CZ-PL, HU-SK, PL-SK,	50Hertz, TenneT GmbH, PSE, CEPS, APG, MAVIR, ELES, SEPS	BNetzA, URE, ERÚ, E-Control, MEKH, Energy Agency, RONI	Germany, Poland, Czech Republic, Austria Hungary, Slovenia, Slovakia
Second step: in addition to above: HR-SI, HR-HU, RO-HU,	HOPS, Transelectrica	HERA, ANRE	Croatia, Romania
New bidding zone border: HU-SI	No change	No change	No change

Figure A6: Bidding zones of the CCR CEE

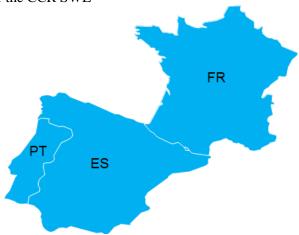


Capacity Calculation Region 7: South-west Europe (SWE)

Bidding zone borders	TSOs involved	NRAs involved	Member states involved
FR-ES, ES-PT	RTE, REE, REN	CRE, CNMC, ERSE	France, Spain, Portugal



Figure A7: Bidding zones of the CCR SWE



Capacity Calculation Region 8: Ireland and United Kingdom (IU)

Bidding zone border	TSOs involved	NRAs involved	Countries involved
SEM* – GB	EirGrid, Moyle, NGET, SONI	Ofgem, UR, CER	Ireland, United Kingdom

^{*}SEM = Single Energy Market in Ireland and Northern Ireland.

Figure A8: Bidding zones of the CCR IU

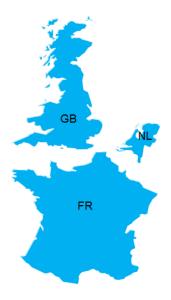


Capacity Calculation Region 9: Channel

Bidding zone border	TSOs involved	NRAs involved	Member states involved
FR-GB, NL-GB	RTE, NGET, NGIL, BritNed, Tennet NL	CRE, Ofgem, ACM	France, United Kingdom, Netherlands



Figure A9: Bidding zones of the CCR Channel



Capacity Calculation Region 10: Baltic

Bidding zone border	TSOs involved	NRAs involved	Member states involved
EE-LV, LV-LT, EE-FI,	Elering, Augstsprieguma tīkls, Litgrid, Fingrid	ECA, PUC, NCC, Energy Authority	Estonia, Latvia, Lithuania, Finland
New bidding zone borders: LT-SE, LT-PL	Svenska kraftnät, PSE	EI, URE	Sweden, Poland

Figure A10: Bidding zones of the CCR Baltic



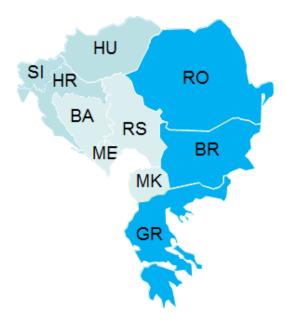


Capacity Calculation Region 11: South-east Europe (SEE) including non-EU bidding zone borders

Bidding zone borders	TSOs involved	Countries involved
GR-BG, BG-RO, HR-SI*, HR-HU*, RO-HU*, RS-HU**, RS-HR**, HR-BA**, BA-RS**, BA-ME**, RS-ME**, RS-RO**, RS-BG**, RS-MK**, GR-MK**, BG-MK**, IT-ME***	IPTO, ESO, Transelectrica, HOPS*, ELES*, MAVIR*, EMS**, NOSBIH**, CGES**, MEPSO**, Terna***	Greece, Bulgaria, Romania, Croatia*,** Slovenia*, Hungary*,**, Serbia**, Bosnia- Herzegovina**, Montenegro**, FYR of Macedonia**, Italy***

^{*}Bidding zone borders/TSOs/member states included in SEE CCR until the date of implementation of flow-based capacity calculation in CEE CCR.

Figure A11: Bidding zones of the CCR SEE



^{**}The bidding zone borders will be included in the CCR SEE in the future, subject to the fulfillment of the legal requirements for the application of CACM Regulation, when CACM Regulation shall become an effective law in the national legal framework of each of these countries after the adoption of the CACM Regulation by the respective national legislation. Other SEE TSOs and the bidding zones borders for which they are responsible may join to SEE CCR when predefined conditions are met

^{***}The bidding zone border IT-ME will be included in the SEE CCR when the interconnection between Italy and Montenegro is commissioned (expected to be in 2017/2018) and subject to the fulfillment of any other legal requirements for the application of the CACM Regulation by Montenegro.



ANNEX 2 – Future bidding zone borders

This Annex is attached for informational purposes only and describes some new bidding zone borders for EU member states to be included in the future due to some future interconnections still under construction and to be commissioned after 2018 or not yet operated by legal entities certified as TSOs. Any changes in the future will have to be reflected in the CCR composition by amending this proposal in accordance with the CACM Regulation.

Capacity Calculation Region 2: Hansa

Bidding zone borders	TSOs involved	NRAs involves	Member states involved
DK1-DE/AT/LU, DK2-DE/AT/LU, SE4-PL, SE4-DE/AT/LU* DK1-NL	Energinet.dk, TenneT TSO GmbH, 50Hertz, Svenska kraftnät, PSE, Baltic Cable AB*, Tennet NL	DERA, BNetzA, EI, URE, ACM	Denmark, Germany, Sweden, Poland, Netherlands

^{*}The geographical border SE4-DE/AT/LU will be included in the CCR Hansa after the legal entity operating the interconnection connecting the respective bidding zones becomes a certified TSO.

3.10 Capacity Calculation Region 9: Channel

Bidding zone border	TSOs involved (including ones under national certification process) ³	NRAs involved	Member states involved
FR-GB, NL-GB, BE-UK*	RTE, NGET, NGIL, BritNed, Tennet NL, NEMO*, ElecLink*	Ofgem, CRE, ACM, CREG*	France, United Kingdom, Netherlands, Belgium*

^{*}The bidding zone border BE-UK will be included in the CCR Channel after the interconnection has been commissioned and the relevant TSO(s) have been certified for the operation of the interconnection connecting the respective bidding zones.

30

³ The process is pending in the United Kingdom.