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Monitoring report on the implementation of the CACM Regulation and the FCA Regulation

31 January 2019

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This Report assesses the implementation of Commission Regulation (EU) 2016/1719 on forward capacity allocation and Commission Regulation (EU) 2015/1222 on capacity allocation and congestion management.

Beyond the assessment of compliance, this Report identifies difficulties faced in implementing these Regulations. It also provides conclusions and recommendations across the EU.

Disclaimer: The conclusions in this report are based on data collected mainly until the end of September 2018. An updated status of the implementation process is available on the ACER website:

- *Forward Capacity Allocation:* *https://www.acer.europa.eu/en/Electricity/MARKET-CODES/FORWARD-CAPACITY-ALLOCATION/IMPLEMENTATION/Pages/default.aspx*

- *Capacity Allocation and Congestion Management:* *https://www.acer.europa.eu/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/IMPLEMENTATION/Pages/default.aspx*

Related documents

- Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R0714&from=EN

- Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R1719&from=EN

- Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R1222&from=EN

Executive summary

The early stage of the implementation of Commission Regulation (EU) 2016/1719 on forward capacity allocation (FCA Regulation)[1] and Commission Regulation (EU) 2015/1222 on capacity allocation and congestion management (CACM Regulation)[2] can overall be considered successful and a decisive milestone in the development of fully integrated electricity markets across the EU.

The single day ahead coupling is almost complete, mainly as a result of early and voluntary initiatives. This still needs to be transformed into the single day-ahead coupling as formally established by the CACM Regulation and the corresponding terms and conditions or methodologies. The single intraday coupling made a significant step forward in June 2018 with the go-live of the Cross-Border Intraday project (XBID). In the long-term timeframe, allocation rules have been improved and harmonised to a great extent, while the EU single allocation platform officially started operation in January 2019.

Many new detailed terms and conditions or methodologies have been adopted either at EU or regional level while most of them still need to be implemented. This process, though legally and organisationally complex, can be considered a successful approach to develop and define all the necessary design elements for an integrated electricity market. It provides sufficient time for the necessary involvement of stakeholders, TSOs and regulatory authorities and thereby ensures that these complex rules are adopted after thorough scrutiny by all involved parties.

Despite this progress, there are still a number of challenges, which will require utmost attention and improvement in the forthcoming years.

For the FCA Regulation, the main points of attention include:

- *The harmonisation of the Long Term Transmission Rights ('LTTR') rules*: Currently some annexes to the harmonised allocation rules ('HAR') include regional specificities, which in a few instances significantly deviate from the HAR or even from the FCA Regulation itself. The Agency recommends that the concerned TSOs update these annexes to remove all deviations and, where possible, all unnecessary regional specificities.
- *The regulatory authorities' decisions on cross-zonal risk hedging opportunities*: In some instances, regulatory authorities identified the need for hedging instruments, to be offered by TSOs. However, they eventually accepted to maintain the *status quo*. The Agency recommends the development of harmonised criteria and metrics based on which the need for hedging instruments issued by TSOs could be objectively identified.

For the CACM Regulation, the main points of attention include:

- *The methodologies related to capacity calculation and to redispatching and countertrading*: The CACM Regulation has initiated a significant work by TSOs and regulatory authorities on capacity calculation, redispatching and countertrading, areas which have been largely overlooked so far. The Agency regretfully notes that the problem of undue discrimination between internal and cross-zonal exchanges is not properly addressed by the TSOs' proposals, which do not match the expectations and ambition laid down in the CACM Regulation. In terms of transparency and efficiency, there is still a significant gap between the regions applying the flow-based approach, where significant effort has been invested by the concerned TSOs, and those applying the coordinated Net Transfer Capacity (NTC) approach, since the application of the NTC approach in AC interconnectors is still largely considered by the Agency as a black box. The Agency is committed to monitoring the transparency and efficiency of these processes, (e.g. by calculating benchmark capacities to indicate the expected level of cross-zonal capacities given the applicable

[1] Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation.

[2] Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management.

legal framework), further to improve and harmonise these methodologies and to contribute to a paradigm shift in the way cross-zonal capacities are considered in Europe[3].

- *The bidding zone configuration*: For various reasons, the first bidding zone review failed to deliver its objectives according to the CACM Regulation. The legal framework governing this process does not ensure finding and implementing an optimal bidding zone configuration. The Agency recommends several improvements, both in terms of governance and methodology, before this exercise is repeated.
- *The Market Coupling Operator ('MCO') Function*: The legal framework for the development, operation, governance and financing of the MCO Function for the single day-ahead and intraday coupling is complex and suboptimal. The main problem is that the responsibility for the development and operation is given to NEMOs, which may not have sufficient incentives to deliver an optimal setup of the algorithms and associated products, because (i) they compete with each other, while at the same time they need to cooperate and make decisions in the wider European interest to ensure a robust and reliable development and operation of the single coupling and (ii) they rely largely on TSOs to recover their costs, whereas TSOs are reluctant to cover those costs without being involved in the development and operation of those algorithms and products. Therefore, the Agency recommends a revision of the governance of the algorithms and of the associated cost recovery.
- *The design of the intraday coupling*: The design of the single intraday coupling, including the underlying capacity calculation, is not well defined in the CACM Regulation. The current development of different terms and conditions or methodologies in this area indicates that there is a significant risk that single intraday markets could be highly fragmented in terms of timeframes, design and geography. More clarity and harmonisation through the CACM Regulation would help mitigate this risk.

Beyond the technical issues, there are also a few other important governance and procedural aspects linked to the Network Code implementation process which would deserve improvement. In particular, the Agency notes some delays in the adoption and implementation of some terms and conditions or methodologies. These delays were either due to a combination of (i) the TSOs or NEMOs failing to develop and submit proposals to regulatory authorities within the set deadline, (ii) a lack of willingness by TSOs or NEMOs properly to address the amendments requested by regulatory authorities, and (iii) difficulties for regulatory authorities to come to an agreement and to a coordinated decision within the set deadline. While the last issue can essentially be addressed by a referral of the case to the Agency, there is no equally effective remedy for the other two issues. The TSOs' or NEMOs' failure to agree on a proposal or to provide the requested amendments triggers an intervention by the European Commission, and is not subject to legally defined specific resolution measures[4]. The Agency recommends that regulatory authorities have the power to fix the methodologies in situations where TSOs fail to agree on a proposal, or in the context of the third issue, where TSOs or NEMOs are reluctant to address the requested amendments. Finally, transparency on the process of adoption of these methodologies should be improved, with regulatory authorities and TSOs providing the Agency with all the necessary information in order to monitor the status and timely identify any delays in the process.

[3] See the Agency's Recommendation No 02/2016.

[4] The Agency suggests amendments of Article 9(4) of the CACM Regulation.

Contents

Executive summary 3
1. Purpose and Structure of the Report 6
2. Implementation of the Forward Capacity Allocation Regulation 6
2.1 Overview of the implementation status 7
2.2 Long-Term Capacity Calculation 8
2.2.1 Development of terms and conditions or methodologies 8
2.2.2 Implementation progress for the long-term capacity calculation 10
2.3 Forward Capacity Allocation 11
2.3.1 Development of terms and conditions or methodologies 11
2.3.2 Implementation progress in the forward capacity allocation 18
2.4 Single Allocation Platform 21
2.4.1 Development of terms and conditions or methodologies 21
2.4.2 Implementation progress in the single allocation platform 22
3. Implementation of CACM Regulation 22
3.1 Overview of the implementation status 23
3.2 Designation of NEMOs 27
3.3 Market coupling development 27
3.3.1 Development of terms and conditions or methodologies 27
3.3.2 Implementation progress in the SDAC 43
3.3.3 Implementation progress in the SIDC 45
3.4 Capacity calculation 46
3.4.1 Development of terms and conditions or methodologies 46
3.4.2 Implementation progress in day-ahead and intraday capacity calculation 53
3.5 Redispatching and countertrading 53
3.5.1 Development of terms and conditions or methodologies 53
3.5.2 Implementation progress in coordinated redispatching and countertrading 58
3.6 Bidding zone review 59
4. Conclusions 62
5. Recommendations 65
5.1 General issues 65
5.2 FCA regulation 65
5.3 CACM Regulation 66
Annex 1: List of acronyms used in the report 69
Annex 2: long-term cross-zonal hedging opportunities for market participants 70
Annex 3: Current deviations to the full harmonization in forward capacity allocation rules 72

1. Purpose and Structure of the Report

(1) The Agency shall monitor the implementation of the network codes and the guidelines adopted by the European Commission ('the Commission')[5]. The primary purpose of this Report is to fulfil this legal obligation. The Report aims to assess the implementation of the Forward Capacity Allocation Regulation ('FCA Regulation') and the Regulation on Capacity Allocation and Congestion Management ('CACM Regulation') and to promote such implementation by:

a. identifying challenges in implementing the network codes and guidelines;

b. assessing if this implementation resulted in delivering the primary objectives of the FCA Regulation and the CACM Regulation; and

c. identifying potential problems and suggesting solutions[6,7].

(2) Ultimately, the aim of this Report is to encourage a continuous process of self-evaluation by Transmission System Operators ('TSOs'), Nominated Electricity Market Operators ('NEMOs'), regulatory authorities and market players, about the effectiveness of the implementation of the FCA Regulation and the CACM Regulation.

(3) The Report first assesses the implementation of the FCA Regulation, then the implementation of the CACM Regulation. Each assessment opens with an overview of the implementation status. The analysis is then detailed according to the features which are defined in each Regulation:

a. For the FCA Regulation: long term capacity calculation, forward capacity allocation, single allocation platform;

b. For the CACM Regulation: designation of NEMOs, market coupling development, capacity calculation, redispatching and countertrading, bidding zone review.

For each feature, the Report first presents the status of the development of the legal basis, i.e. the terms and conditions or methodologies. Then, the Report assesses the effective implementation progress of the feature.

2. Implementation of the Forward Capacity Allocation Regulation

(4) The following sections present the implementation status of the FCA Regulation. They cover the following topics: the long-term capacity calculation, the forward capacity allocation and the single allocation platform.

(5) For each of these topics, we first refer to the legal basis, then the implementation process is summarised and, finally, the current status of this implementation described. We then provide the Agency's observations and recommendations.

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[5] See Article 9(1), third subparagraph, of Regulation (EC) no 714/2009 - the Agency "shall monitor and analyse the implementation of the network codes and the Guidelines adopted by the Commission […] and their effect on the harmonisation of applicable rules aimed at facilitating market integration as well as on non-discrimination, effective competition and the efficient functioning of the market, and report to the Commission".

[6] Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation.

[7] Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management.

2.1 Overview of the implementation status

(6) The following tables provide an overview of the implementation status and the Agency's observations.

Table 1: Long-Term Capacity Calculation - overview of the implementation status

Long-Term Capacity Calculation: the development of the long-term capacity calculation methodologies has not started yet. Currently, long-term capacity calculation is based on the Net Transfer Capacity ('NTC') method coordinated mostly bilaterally at each bidding zone border. Only at a few borders, TSOs coordinate capacity calculation across several bidding zone borders.		
Topic	**Implementation status**	**Observations**
Generation and load data provision	Adopted[8]	Regulatory Authorities / TSOs should provide reasons for delays and suggest solutions
Common grid model	Adopted	
Capacity calculation methodology	Pending	Deadline for proposal linked to CACM CCM approval
Methodology for splitting long-term cross-zonal capacity	Pending	Deadline for proposal linked to CACM CCM approval

Table 2: Forward Capacity Allocation - overview of the implementation status

Forward Capacity Allocation: Currently 61% of the 56 EU bidding zone borders issue long-term transmission rights ('LTTRs'). While a broad level of alignment has been achieved with the HAR (1 January 2018), further harmonisation of the rules is expected with the recent launching of the Single Allocation Platform (1 January 2019).		
Topic	**Implementation status**	**Observations**
Decision on cross-zonal risk hedging opportunities	Adopted	Non-harmonised assessment and criteria whether transmission rights are needed
Regional design of long-term transmission rights	Adopted	Different interpretations of the legal basis triggered delays in the Nordic and Hansa CCRs
HAR	Adopted	Delays in adoption
Regional or border-specific requirements of HAR	Adopted	SEE: Delays in adoption and implementation GR-IT: Firmness regime not in line with the FCA Regulation
Congestion income distribution methodology (TSO)	Pending	NRAs assessment on-going
Sharing of LTTRs' firmness and remuneration costs (TSO)	Pending	Deadline for proposal linked to FCA CIDM

[8] In this report, we differentiate the **adoption** of the legal framework from the practical **implementation** of the measures it defines. When delay is reported, it could mean the delay in the adoption or in the implementation. Finally, the process is **pending** if no formal step has been taken.

Table 3: Single Allocation Platform - overview of the implementation status

Single Allocation Platform: currently, the Joint Allocation Office ('JAO') conducts auctions at 77% of the borders with LTTRs. Since 1 January 2019, the Joint Allocation Office provides the function of single allocation platform.		
Topic	**Implementation status**	**Observations**
Requirements and establishment of the single allocation platform (TSO)	Adopted	Delays in adoption
Sharing of costs of establishing, developing and operating the single allocation platform (TSO)	Adopted	

2.2 Long-Term Capacity Calculation

2.2.1 Development of terms and conditions or methodologies

2.2.1.1 Generation and load data provision

Legal Basis	
FCA Art. 17(1)	Pursuant to Article 17(1) of the FCA Regulation, all TSOs need to develop a proposal for a generation and load data provision methodology for long-term time frames and submit it to all regulatory authorities for approval and to the Agency for information.
CACM Art. 16(6)	Pursuant to Article 16(6) of CACM Regulation, ENTSO-E must publish *"[n]o later than two months after the approval of the generation and load data provision methodology by all regulatory authorities"* the following information: *"(a) a list of the entities required to provide information to the TSOs [under the GLDPM];* *(b) a list of the information referred to in paragraph 3 to be provided [paragraph 3 stipulates that the GLDPM "shall specify the information to be provided by generation units and loads to TSOs" and it sets out minimum requirements in this respect];* *(c) deadlines for providing information."*

Steps taken	
July 2017	All TSOs submitted to all regulatory authorities and the Agency a proposal for the generation and load data provision methodology for long-term time frames.
October 2017	All regulatory authorities agreed to approve the proposal.
March 2018	Each regulatory authority approved the proposal for the generation and load data provision methodology for long-term time frames. ENTSO-E published the information according to Article 16(6) of the CACM Regulation[9].

Current status of the implementation
The methodology is adopted. Pursuant to Article 18(4) of the approved methodology, by 12 months after the approval of the methodology, i.e. by March 2019, *"each TSO shall ensure that the data provision process required in order to implement the methodology is operational; this entails that all necessary steps required by national legislation or regulations such as stakeholder consultation or regulatory authority approval shall have been completed. At a minimum, implementation rules need to have been finalised and the data provision process needs to have been tested."*

[9] https://www.entsoe.eu/2017/03/10/gldpm-data-published/

Observations and recommendations

(7) The adoption of the generation and load data provision methodology experienced some delays. While the Agency identified parties responsible for those delays, reasons for the delays remain unknown to the Agency. The first delay was caused by the last TSO submission to regulatory authorities, which occurred only in September 2017, instead of July 2017. The second delay was the time gap between the agreement by all regulatory authorities (October 2017) and the national decision by the last regulatory authority (March 2018). To avoid inefficiencies, regulatory authorities and TSOs should inform the Agency about delays and their causes. This would enable the Agency to report on these reasons and recommend solutions to avoid similar delays reoccurring in the future.

2.2.1.2 Common grid model

Legal Basis	
FCA Art. 18(1)	Pursuant to Article 18(1) of the FCA Regulation, all TSOs need to develop a proposal for a common grid model methodology for long-term time frames and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
July 2017	All TSOs submitted to all regulatory authorities and the Agency a proposal for the common grid model methodology for long-term time frames.
February 2018	All regulatory authorities agreed to request amendments to the proposal.
March 2018	Each regulatory authority requested its TSOs to amend the proposal for the common grid model methodology for long-term time frames[10].
May 2018	All TSOs submitted to all regulatory authorities and the Agency the amended proposal for the common grid model methodology for long-term time frames.
June 2018	All regulatory authorities agreed to approve the proposal.

Current status of the implementation
The methodology is adopted. TSOs must implement the methodology within thirteen months after its approval[11]. According to information from ENTSO-E, the common grid model (CGM) function is implemented as a common database for individual grid models and common standardised procedure for merging them. This database is implemented and most TSOs are already sending the individual grid models to ENTSO-E. Some Regional Security Coordinators (RSC) are not yet ready to use the database to create common grid models.

Observations and recommendations

(8) No problems related to the process were encountered during the adoption of this methodology.

(9) However, the fact that the FCA Regulation is not explicit regarding the requirement for a common set of scenarios across Europe allowed the TSOs to follow a different interpretation and submit a proposal that provided them with the possibility to develop regional grid models for capacity calculation. More specifically, the FCA Regulation, in its Article 10(4), allows the implementation of two different methods for taking into account uncertainty during the development of the capacity calculation methodology: (i) a security analysis based on multiple scenarios, or (ii) a statistical approach based on historical data. The regions that choose (based on their capacity calculation methodology) to follow the security analysis approach, are the ones that have to establish a common grid model, pursuant to Article 18(2) of FCA Regulation, and apply the common set of

[10] The reason for the Request for Amendment was that the first proposal submitted by the TSOs included the possibility for generating regional scenarios, hence for establishing regional grid models for the capacity calculation. The regulatory authorities agreed that this was not in line with the provisions of the FCA Regulation. They requested an amendment in the proposal that would exclude this possibility, and allow only for a common set of scenarios that would lead to the establishment of a single common grid model for all regions.

[11] See Article 24(5) of the approved common grid model methodology

scenarios, pursuant to Article 19(1) of the FCA Regulation. However, TSOs interpreted the "common" grid model and "common" set of scenarios on a regional level, while the requirement applies on the aggregated level of all regions following the statistical analysis approach, which should clearly follow from Article 19(1) of the FCA Regulation. Therefore, the Agency supports an improvement of the FCA Regulation, where the requirement for a common European grid model by TSOs, based on a common European set of scenarios, would be clearly stated.

2.2.1.3 Capacity calculation methodology

Legal Basis	
FCA Art. 10(1)	Pursuant to Article 10(1) of the FCA Regulation, TSOs of each capacity calculation region (CCR) need to develop a proposal for a common capacity calculation methodology ('CCM') for long-term time frames and submit it to the concerned regulatory authorities for approval and to the Agency for information. TSOs must submit this proposal *"no later than six month after the approval of the common coordinated capacity calculation methodology referred to in Article 9(7) of Regulation (EU) 2015/1222".*

Current status of the implementation
No actions have been completed yet with regard to this topic, since they are conditional on the CCMs pursuant to the CACM Regulation. However, in most CCRs, the common coordinated CCMs referred to in Article 9(7) of the CACM Regulation has not been approved yet or has been approved only recently.

2.2.1.4 Methodology for splitting long-term cross-zonal capacity

Legal Basis	
FCA Art. 16(1)	Pursuant to Article 16(1) of the FCA Regulation, TSOs of each CCR need to develop a proposal for a methodology for splitting long-term cross-zonal capacity and submit it to the concerned regulatory authorities for approval and to the Agency for information. There are exemptions to this requirement[12].

Current status of the implementation
No actions have been completed yet with regard to this topic. The common coordinated CCM referred to in the FCA Regulation and in Article 9(7) of the CACM Regulation has not been proposed yet.

2.2.2 Implementation progress for the long-term capacity calculation

(10) The process for the adoption of the methodologies required to implement long-term capacity calculation has not been completed yet. The Agency regularly reports on the level of coordination in capacity calculation in the Electricity Wholesale Market Volume of the Agency's Market Monitoring Report[13]. The 7th edition, based on information reported by relevant regulatory authorities and TSOs, highlights both significant progress in fulfilling the requirements set by the CACM Regulation compared to the previous years and that much effort is still needed to achieve compliance with the requirements set by the FCA Regulation regarding capacity calculation in the month-ahead and year-ahead timeframes. The translation of these improvements into a higher share of capacity offered to the market is yet to be seen.

(11) In particular, the proposal for the methodology for long-term capacity calculation has not been developed yet and proposed to the relevant regulatory authorities for approval. This is because the FCA Regulation requires that no later than 6 months after the approval of the CACM CCMs, TSOs

[12] Pursuant to Article 30(7) of the FCA Regulation, Articles 16, 29, 31 to 57, 59 and 61 do not apply to those borders for which regulatory authorities decide that TSOs shall not issue LTTRs.

[13] See: https://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Current-edition.aspx

of each CCR develop the FCA CCM. The interdependency between the CACM and FCA CCMs stems from the fact that, in case of applying a security analysis based on multiple scenarios for the long-term capacity calculation, the requirements for the capacity calculation inputs, the capacity calculation approach and the validation of cross-zonal capacity defined in the context of the CACM CCM should be used. As can be concluded from the actions described in the "Steps taken" part of Section 3.4.1.4, the development of the CACM CCMs is still ongoing, since amendments were requested for all the initial proposals. Actually, only in CCRs Nordic, IU and GR-IT the methodologies were approved – in July 2018 – hence, at least the CCMs for the long-term timeframes for CCRs Nordic, IU and GR-IT should be submitted by January 2019.

(12) Before the actual start of the adoption of the long-term capacity calculation methodologies, the long-term capacity calculation is currently coordinated mostly bilaterally on each bidding zone border. Only some TSOs coordinate capacity calculation across different bidding zone borders. Throughout Europe, several approaches regarding NTC calculation coexist on bidding-zone borders[14].

(13) No month-ahead capacity calculation was performed on seven EU borders (plus 2 non-EU, out of 50 considered in the report – i.e. 18% of the borders). No border presents a full level of coordination, 8 (16%) a partial one[15] and 33 (66%) a bilateral one.

(14) Year-ahead capacity calculation is not performed on five EU borders (plus 1 non-EU, i.e. 12% of the borders). 4 (8%) borders present a full level of coordination, 8 (16%) a partial one and 32 (64%) a bilateral one.

(15) Further assessment of the individual and regional results of the current "early" implementation confirms a generally low fulfilment of the capacity calculation coordination requirements introduced by the FCA Regulation, with an above-average performance for the CCRs Italy North and Nordic. For these CCRs, this is mainly due to the relatively high level of coordination reported for the year-ahead timeframe, and also for the month-ahead timeframe in the case of the CCR Nordic.

2.3 Forward Capacity Allocation[16]

2.3.1 Development of terms and conditions or methodologies

2.3.1.1 Decision on cross-zonal risk hedging opportunities

Legal Basis	
FCA Art. 30(2)	Pursuant to Article 30(2) of the FCA Regulation, where LTTRs do not exist on a bidding zone border at the entry into force of the FCA Regulation, the competent regulatory authorities of the bidding zone border need to adopt coordinated decisions on the introduction of LTTRs. In case the regulatory authorities request from the TSOs to develop hedging instruments other than LTTRs (i.e. alternative hedging instruments), the TSOs need to develop a proposal for alternative hedging instruments and submit it to the concerned regulatory authorities for approval and to the Agency for information.

Steps taken	
May 2017 (CZ-SK)	The regulatory authorities of the bidding zone border CZ-SK adopted a decision that the TSOs must issue LTTRs on this border.
May 2017 (DK,LT,LV,SE)	The regulatory authorities of the bidding zone borders DK1-SE3, DK2-SE4, LV-LT and SE4-LT adopted decisions to request the concerned TSOs to develop alternative hedging instruments for these bidding zone borders.

[14] Data in paragraphs (12) to (14) was collected by the Agency in the context of the 7th edition of its Market Monitoring Report (see 13 above for complete references).

[15] Coordination between some borders, but not all borders impacted by exchanges on a given border.

[16] Results presented in the following paragraphs were gathered for this year's report. They should be considered as temporary and may differ from those included in the final version of the report, to be published by the end of the year.

May 2017 (CCR Baltic, GR-IT, HANSA, Nordic)	The relevant regulatory authorities decided that TSOs will not issue LTTRs or alternative hedging instruments on the following bidding zone borders: 1. CCR Nordic: FI-EE, FI-SE1, FI-SE3, SE1-SE2, SE2-SE3, SE3-SE4, 2. CCR Baltic: LV-EE, PL-LT 3. CCR Hansa: PL-SE4 4. CCR GRIT: NORD-CNOR, CNOR-CSUD, CNOR-SARD, SARD-CSUD, CSUD-SUD, SUD-BRNN, SUD-FOGN, SUD-ROSN, ROSN-SICI, SICI-PRGP
November 2017 (DK,LT,LV,SE)	TSOs of Denmark, Sweden, Latvia and Lithuania submitted to the concerned regulatory authorities the proposals for alternative hedging instruments on the bidding zone borders: DK1-SE3, DK2-SE4, LV-LT and SE4-LT.
May 2018 (DK,LT,LV,SE)	The regulatory authorities of Denmark, Sweden, Latvia and Lithuania adopted decisions on alternative hedging instruments for these bidding zone borders.

Current status of the implementation

The decisions have been adopted, however:

- **DK1-SE3 and DK2-SE4: The regulatory authorities decided not to introduce new hedging instruments, but rather to enhance the already existing arrangements, i.e. LTTRs on the bidding zone borders DK1-DE, DK2-DE, and DK1-DK2. LTTRs are already issued for these borders, however, the Danish TSO in cooperation with the concerned NRAs suggested increasing their amount and proposed to change their set-up from physical to financial transmission rights ('PTRs' to 'FTRs'), in order to ensure increased capacity (due to netting). The amount of LTTRs is easy to adjust from one month to the other (to find the required level for supporting the liquidity) and this is expected to enhance the connection between the illiquid DK market and the very liquid DE market.**
- **LV-LT and SE4-LT: The regulatory authorities decided not to introduce new hedging instruments, but rather to focus on making existing hedging instruments more suitable for hedging in the respective bidding zones. For this reason, they proposed an increase of cross-zonal capacities on the EE-LV border and by this they expect that the price differences between Estonia and Latvia will decrease. This will improve the correlation of the Latvian day-ahead price with the Nordic system price and will make the Nordic system price forward products more suitable to hedge the Latvian day-ahead price. According to the TSOs, the investments in the grid are planned to be completed by 2020 and are expected to *"alleviate the currently existing structural congestion on this border and ultimately will also lead to the integration of the Latvian and Lithuanian bidding zones in deeper price convergence between Estonian bidding zone and Latvian and Lithuanian bidding zones combined"*.**

Observations and recommendations

(16) TSOs and regulatory authorities have followed different approaches to assess the cross-zonal risk hedging opportunities. Therefore, it is difficult to assess the relevance of the conclusions at regional or European level. The Agency recommends that TSOs develop and regulatory authorities approve harmonised criteria and metrics based on which the need for LTTRs could be objectively identified. The Agency encourages more coordination of NRAs within each CCR, for example in the CCR Baltic, where long-term transmission rights are only offered in one direction on one bidding zone border (EE->LV).

2.3.1.2 Regional design of long-term transmission rights

Legal Basis	
FCA Art. 31(3)	Pursuant to Article 31(3) of the FCA Regulation, TSOs of each CCR where LTTRs exist need to develop a proposal for a regional design of LTTRs and submit it to the concerned regulatory authorities for approval and to the Agency for information. Moreover, pursuant to Article 31(3) of the FCA Regulation, all TSOs of each CCR, with recently introduced LTTRs, need to develop a proposal for the regional design of LTTRs to be issued on each bidding zone border within the concerned CCR, and submit it to the concerned regulatory authorities for approval and to the Agency for information. There are exemptions to this requirement[17].

Steps taken	
June 2017	TSOs in CCRs Core, Channel, IU, SWE, SEE, Italy North and GRIT submitted to the concerned regulatory authorities and the Agency the proposals for the regional design of LTTRs.
October 2017	The regulatory authorities in CCRs Core, IU, SWE, Italy North and GRIT approved the proposals for the regional design of LTTRs.
October 2017	The regulatory authorities in CCR Channel requested the concerned TSOs to amend the proposal for the regional design of LTTRs[18].
October 2017	TSOs from the CCRs Hansa and Nordic informed the Agency that they were not able to submit a proposal for the regional design within the defined deadline[19]. Pursuant to Article 4(4) of the FCA Regulation, the Agency informed the Commission about this issue.
November 2017	All TSOs from the CCR Hansa, Nordic and Baltic submitted to the concerned regulatory authorities and the Agency the proposals for the regional design of LTTRs.
December 2017	The regulatory authorities in CCR SEE requested the concerned TSOs to amend the proposal for the regional design of LTTRs[20].
December 2017	All TSOs from the CCR Channel submitted to the concerned regulatory authorities and the Agency the amended proposal for the regional design of LTTRs.
January 2018	All TSOs from the CCR Core submitted to the concerned regulatory authorities and the Agency a proposal for amendment of the regional design of LTTRs[21].
February 2018	The regulatory authorities in CCR Channel approved the amended proposal for the regional design of LTTRs.
February 2018	All TSOs from the CCR SEE submitted to the relevant regulatory authorities and the Agency the amended proposal for the regional design of LTTRs.
March 2018	The regulatory authorities in CCR Hansa approved the proposal for the regional design of LTTRs.
April 2018	The regulatory authorities in CCRs Nordic and Baltic approved the proposals for the regional design of LTTRs and the regulatory authorities in CCR SEE approved the amended proposal for the regional design of LTTRs.
July 2018	The regulatory authorities in CCR Core approved the proposal for amendment of the regional design of LTTRs.

[17] Pursuant to Article 30(7) of the FCA Regulation, Articles 16, 29, 31 to 57, 59 and 61 do not apply to those borders for which regulatory authorities decide that TSOs do not need to issue LTTRs.

[18] The regulatory authorities in CCR Channel requested an amendment of the initial proposal as the type of LTTRs was not fully specified.

[19] Due to a misinterpretation and miscommunication at regional level regarding the deadline for their proposal submission, the TSOs from the CCRs Hansa and Nordic 'failed' to submit to their respective regulatory authorities a proposal for the regional design within the defined deadline.

[20] The regulatory authorities in CCR SEE requested an amendment of the initial proposal in order to reflect the actual implementation timeline.

[21] See paragraph (20) below.

Current status of the implementation
The methodologies are adopted. The implementation of regional designs was completed and transposed into HAR which are already implemented[22].

Observations and recommendations

Concerning the approval process

(17) An issue was raised regarding the interpretation of Article 31(3) of the FCA Regulation regarding the deadline for the submission of the regional design of LTTRs, in regions with bidding-zone borders without LTTRs at the time of entry into force of the FCA Regulation. Initially, the common understanding among regulatory authorities was that even if, at the time of entry into force of the FCA Regulation, there was one bidding-zone border without LTTRs in a CCR, the regional proposal for this CCR would be submitted by November 2017. This is 6 months after the regulatory authorities' decision on the introduction of LTTRs on the specific bidding-zone border, which was expected by May 2017. However, in the meantime, some regulatory authorities of the CCRs Nordic and Hansa updated their interpretation of the provisions of Article 31(3) of FCA Regulation, such that the TSOs of each CCR had to submit the proposal for the regional design of LTTRs by 6 months after the entry into force of the FCA Regulation, taking into account the Agency Decision No 06/2016 on the Electricity Transmission System Operators' Proposal for the Determination of Capacity Calculation Regions, which is by May 2017[23]. This proposal should include only the arrangements on the bidding-zone borders with LTTRs at the time of entry into force of the FCA Regulation, suggesting that an amendment of the regional design should be proposed, if required, following the concerned regulatory authorities' decision on the introduction of LTTRs. This resulted in the activation of the provisions of Article 4(4) of the FCA Regulation for the TSOs of the CCRs Nordic and Hansa. More specifically, since the proposal had not been submitted by the TSOs by the legal deadline, i.e. May 2017, the TSOs had to provide the competent regulatory authorities and the Agency with the drafts of their proposal and explain the reasons why they could not fulfil their obligation. Following their notification, the Agency informed the Commission, as required by Article 4(4) of FCA Regulation, and the TSOs submitted the proposal in November 2017.

(18) Regulatory authorities of the CCR Baltic followed the initial interpretation and accepted the TSOs proposal of November 2017.

(19) The Agency generally agrees with the interpretation of the regulatory authorities of the CCRs Nordic and Hansa, which means that the decision to introduce LTTRs on one border without LTTRs in a CCR does not imply a delay in the proposal of regional design for such a CCR. Incorporating this interpretation explicitly in the text of the FCA Regulation would increase clarity. However, since this issue was relevant only for a period which has already expired, the Agency does not consider necessary to still amend the FCA Regulation in this respect.

Concerning FTRs/PTRs in the CCR Core

(20) In the CCR Core, TSOs initially proposed a regional design for LTTRs for all bidding zone borders except CZ-SK and DE/LU-AT. This is because no LTTRs were issued on the CZ-SK border at the time of entry into force of the FCA Regulation and there was no bidding zone border between DE/LU and AT. Subsequently, the CCR Core TSOs submitted a proposal for an amended regional design of the CCR Core to the concerned regulatory authorities, including the arrangements for both of the above-mentioned borders.

[22] In CCR SWE the implementation of monthly products for the Portuguese – Spanish border will occur after the migration of the Portuguese – Spanish auctions to the Single Allocation Platform. In CCR IU, the implementation will occur at "the earliest date when market coupling on the bidding zone border between Great Britain and Single Electricity Market in Ireland and Northern Ireland will be in place".

[23] This applies to non-exempted borders (see 17)

(21) The TSOs proposal introduces PTRs on the bidding-zone border CZ-SK and FTR Options on the bidding-zone border DE/LU-AT. The introduction of FTR Options on the DE/LU-AT border is at least partly the result of an exceptionally high volume of offered long-term cross-zonal capacity on this border (i.e. 4.9 GW) and of the fact that the calculation of this capacity is not coordinated with other TSOs in a CCR. If PTRs were introduced and all the PTRs were physically nominated in the day-ahead timeframe, this would create high physical flows in the wider region which would imply very low capacity left to be offered in the day ahead timeframe in the wider region[24]. In case of FTR Options, the volume of offered long-term cross-zonal capacity has no impact on physical flows on other borders in the region and thereby does not reduce the day-ahead cross-zonal capacity on those borders.

(22) *Concerning products specification*

(23) All regional designs for LTTRs define LTTRs as base-load products with the possibility of specific reduction periods. The regional designs for the CCRs IU and Channel only generally refer to reduction periods as defined in the HAR[25,26].

(24) In the CCR Core, the form of the product is base-load and may include reduction periods. Where the product to be auctioned includes reduction periods, the auction specification must include, for each reduction period, information on the duration of the reduction period and the amount of offered capacities during the reduction period.

(25) In the CCRS GRIT and Italy North, the form of the product is base-load and may include reduction periods.

(26) In the CCRs Channel and IU, the form of the product may be base-load, peak-load, off-peak-load and reduction periods may apply as specified in the HAR.

(27) In the CCR SWE, the form of the product is base-load and may include reduction periods. In such case, the auction specification must include, for each reduction period, information on the duration of the reduction period and the amount of offered capacities during the reduction period.

(28) In the CCR Baltic, the form of product is base-load and may include reduction periods.

(29) In the CCR Hansa, the form of product is base-load and may include reduction periods.

(30) In the CCR Nordic, the form of the product is base-load[27] and may include reduction periods.

(31) In the CCR SEE, the form of the product is base-load products and may include reduction periods.

2.3.1.3 Harmonised allocation rules

Legal Basis

[24] On this, see the comments to the public consultation conducted by the CCR Core TSOs on their proposal: https://docstore.entsoe.eu/Documents/Network%20codes%20documents/Implementation/ccr/Consultation_Report_on_Core_CCR_TSOs_proposal_for_the_amendment.pdf.

[25] Harmonised allocation rules for long-term transmission rights in accordance with Article 51 of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a Guideline on Forward Capacity Allocation https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/ANNEXES_HAR_DECISION/Annex%20I_171002.pdf.

[26] In accordance with Article 2(2) of the Harmonised allocation rules for long-term transmission rights, reduction period *"means a period of time, i.e. specific calendar days and/or hours, within the Product Period in which Cross Zonal Capacities with a reduced amount of MW are offered taking into account a foreseen specific network situation (e.g. planned maintenance, long-term outages)"*.

[27] Base load: A fixed amount of MW is allocated throughout the hours 00:00 – 23:59 CET of all relevant days of the period subject to announced reduction periods.

FCA Art. 51(1)	Pursuant to Article 51(1) of the FCA Regulation, all TSOs need to develop a proposal for HAR and submit it to the relevant regulatory authorities for approval and to the Agency for information. There are exemptions to this requirement[28].

Steps taken	
April 2017	All TSOs submitted to all regulatory authorities and the Agency the proposal for the HAR.
August 2017	The relevant regulatory authorities referred the proposal for the HAR to the Agency for a decision in accordance with the procedure set out in Article 4(11) of the FCA Regulation. The reason for the referral was that they were not able to come to an agreement on the proposal[29].
October 2017	The Agency adopted a decision on the proposal for the HAR.

Current status of the implementation
The methodology is adopted. The HAR have been implemented for the forward capacity allocation from the start of 2018 onwards.

Observations and recommendations

(32) One regulatory authority could not accept one aspect of the TSOs' proposal for HAR, namely the possibility for the allocation platform to decrease the credit rating requirements for the institutions providing guarantees and collaterals to the market participants, for a limited period of time, in case of an industry-wide downgrading of the credit rating of financial institutions, without the prior approval of the TSOs, but by only informing them.

(33) The decision was then referred to the Agency. The Decision of the Agency approved the solution described in the proposal for HAR since it provides the required flexibility for a rapid reaction to adapt credit rating requirements in case of an industry-wide downgrading and this is required to ensure access to cross-zonal capacity for all smaller participants, which face greater difficulties to provide high credit rated collaterals.

2.3.1.4 Regional or border specific requirements of the HAR

Legal Basis	
FCA Art. 51(1) and 52(3)	Pursuant to Article 52(3) of the FCA Regulation, the proposal for HAR developed pursuant to Article 51(1) of the FCA Regulation may also contain regional or bidding zone border-specific requirements. These requirements may be developed by TSOs of each CCR and submitted to the relevant regulatory authorities for approval and the Agency for information. There are exemptions to this requirement[30].

Steps taken	
April 2017	All TSOs of each CCR submitted to the relevant regulatory authorities and the Agency the proposals for the regional and bidding zone border-specific requirements as annexes to the HAR.
October 2017	The regulatory authorities of all CCRs, except the CCR SEE, approved the proposals for the regional or bidding zone border-specific requirements of HAR.
October 2017	The regulatory authorities of the CCR SEE referred the proposal for the regional or bidding zone border-specific requirements of HAR to the Agency for a decision, in

[28] Pursuant to Article 30(7) of the FCA Regulation, Articles 16, 29, 31 to 57, 59 and 61 do not apply to those borders for which regulatory authorities decide that TSOs shall not issue LTTRs.

[29] The reason for the referral to the Agency was that all regulatory authorities have not been able to come to an agreement on the provisions on the provisions of Article 21(1)(h) of the proposed HAR, concerning the required credit rating for banks issuing collaterals for market participants.

[30] Pursuant to Article 30(7) of the FCA Regulation, Articles 16, 29, 31 to 57, 59 and 61 do not apply to those borders for which regulatory authorities decide that TSOs shall not issue LTTRs.

	accordance with the procedure set out in Article 4(11) of the FCA Regulation. The reason for the referral was that they were not able to reach an agreement on the proposal[31].
December 2017	The Agency adopted a decision on the proposal for the regional or bidding zone border-specific requirements of HAR for the CCR SEE.
April 2018	The TSOs of the EE-LV bidding zone border in the CCR Baltic submitted to the relevant regulatory authorities the proposal for amended regional and bidding zone border-specific requirements of HAR.
May 2018	The TSOs of the CCR Core submitted to the relevant regulatory authorities and the Agency the proposal for amended regional and bidding zone border specific requirements of HAR related to the CZ-SK border.
July 2018	The TSOs of the FR-UK and the BE-UK bidding zone borders of the CCR Channel submitted to the relevant regulatory authorities two proposals for amended regional and bidding zone border specific requirements of HAR.
September 2018	The regulatory authorities of the EE-LV bidding zone border in the CCR Baltic approved the amended proposal for the regional requirements of HAR.
September 2018	The regulatory authorities of CCR Core decided to request an amendment of the regional and bidding zone border specific requirements regarding HAR submitted in May 2018.

Current status of the implementation
The methodologies are adopted. The subsequent amendments regarding regional or bidding zone border-specific requirements regarding HAR should be implemented for the forward capacity allocation of 2018 onwards.

Observations and recommendations

(34) In the CCR SEE, the reason for the referral of the CCR SEE HAR annex to the Agency was that the Bulgarian TSO was not able to implement the EU HAR, because it had not adapted its IT systems, nor it had joined a platform that could offer such a service (e.g. Joint Allocation Office). Although this fact was known well in advance, the referral was only done at the expiration of the 6-month period, in October 2017. This was rather late, especially considering that the final decision had to be taken by the end of the year. Hence, the Agency had effectively only three months to adopt a decision in order not to jeopardize the LTTR auctions for 2018.

(35) Additionally, the Agency observes that the fact that national procurement provisions prevented the Bulgarian TSO from joining the Joint Allocation Office ('JAO') on time does not qualify as sufficient reason for the TSO not to apply the HAR[32]. This is because the TSO could have developed its own platform to be as much compliant as possible with the requirements of the HAR well in advance, as the FCA Regulation provided sufficient time to TSOs to make the adaptations needed to implement the HAR.

(36) In the CCR GRIT, during the approval process of the HAR annexes, the regulatory authorities notified the Agency of the approval of the CCR GRIT regional-specific annex to HAR, which deviated from the HAR requirements regarding compensation in case of curtailment of LTTRs. According to the HAR, which are in line with the FCA Regulation provisions, the compensation in case of curtailment of LTTRs should be at the market spread and not at the initial auction price as defined in the CCR GRIT regional specific annex. In accordance with Article 51(2) of the FCA Regulation, the requirements of regional bidding-zone border-specific annexes prevail over the

[31] The reason for the referral to ACER of the proposal for the regional specific annex to harmonised allocation rules of the CCR SEE was that all regulatory authorities of the CCR SEE were not able to reach an agreement, as the proposal could not ensure the application of EU HAR, since not all TSOs of the CCR SEE were able to join an Auction Office or make their system compliant with the FCA Regulation on time, for the conduct of the respective auctions. In particular the Bulgarian TSO was not able to join the Joint Allocation Platform.

[32] See http://www.jao.eu/main.

general requirements foreseen in the HAR; they must however be compliant with the provisions of the FCA Regulation, which is not the case for the CCR GRIT regional-specific annex.

(37) Based on the request from the Agency, the relevant regulatory authorities explained the reasons for their choice. Although the Agency does not fully agree that such a choice was needed and justified, it welcomes the CCR GRIT regulatory authorities' commitment to keep the compensation at initial auction price as a temporary measure for 2018 only. In particular, the market spread based compensation has been introduced for the delivery period starting from 1 January 2019, even if the coupling on the GRIT border is delayed.

2.3.1.5 Congestion income distribution methodology (TSO)

Legal Basis	
FCA Art. 57(1)	Pursuant to Article 57(1) of the FCA Regulation, all TSOs need to develop a proposal for a methodology for sharing congestion income from forward capacity allocation and submit it to the relevant regulatory authorities for approval and to the Agency for information. There are exemptions to this requirement[33].

Steps taken	
July 2018	All TSOs submitted to all regulatory authorities and the Agency the proposal for the congestion income distribution methodology.
January 2019	All regulatory authorities requested from all TSOs to amend the proposal for the congestion income distribution methodology.

Current status of the implementation
In July 2018 all TSOs submitted to all regulatory authorities and the Agency the proposal for a methodology for sharing congestion income from forward capacity allocation. The regulatory authorities reviewed this proposal and requested amendments to the methodology in January 2019.

2.3.1.6 Sharing of LTTRs' firmness and remuneration costs (TSO)

Legal Basis	
FCA Art. 61(3)	Pursuant to Article 61(3) of the FCA Regulation, all TSOs need to develop a methodology for sharing of LTTRs' firmness and remuneration costs and submit it to the relevant regulatory authorities for approval and to the Agency for information. There are exemptions to this requirement[34].

Current status of the implementation
No actions have been completed yet with regard to this topic. The methodology for sharing congestion income referred to in Article 57 of the FCA Regulation, which is a prerequisite for the submission of the proposal of the methodology for sharing of LTTRs' firmness and remuneration costs, has not been submitted yet.

2.3.2 Implementation progress in the forward capacity allocation

(38) One of the primary objectives of the FCA Regulation is to facilitate long-term cross-zonal hedging opportunities for market participants by means of forward capacity allocation. The cross-zonal hedging opportunities offered at the different bidding zone border differ, and various tools are used, as presented in Figure 1[35]. The Agency understands the need for providing different tools to market

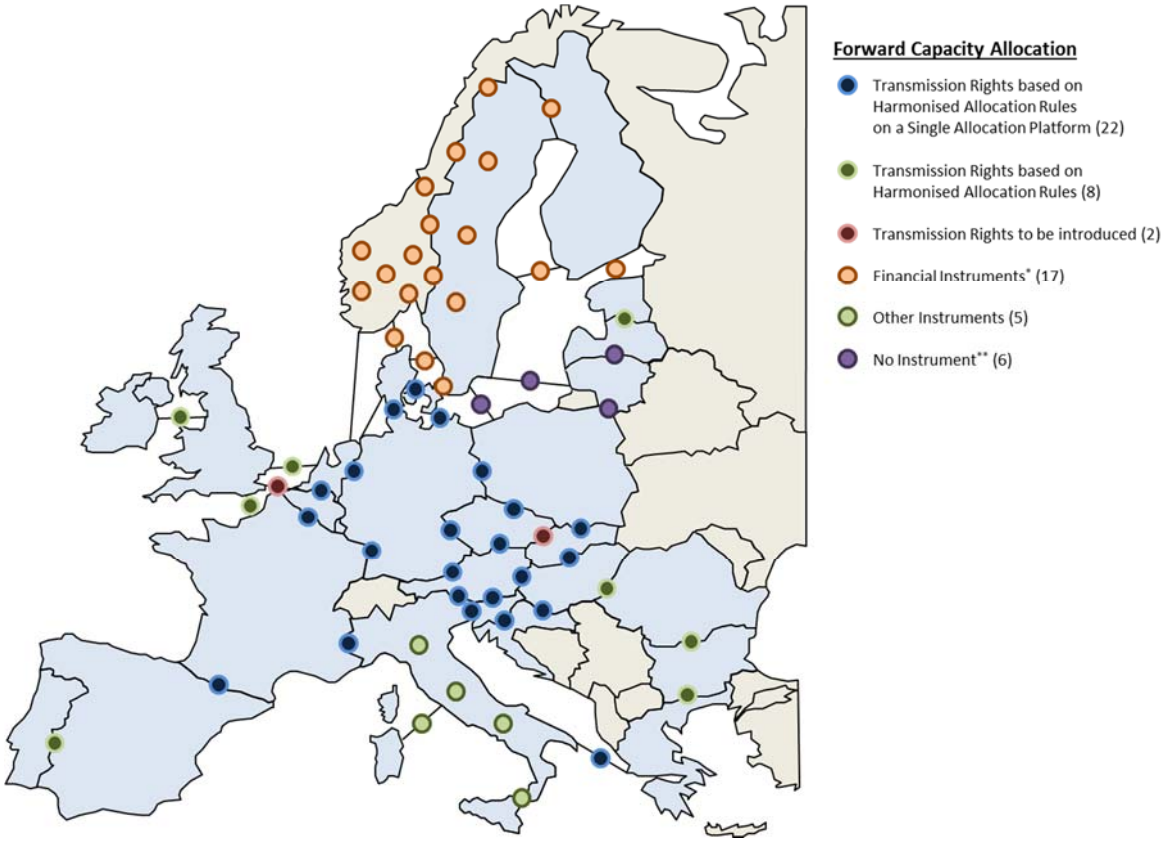
[33] Pursuant to Article 30(7) of the FCA Regulation, Articles 16, 29, 31 to 57, 59 and 61 do not apply to those borders for which regulatory authorities decide that TSOs shall not issue LTTRs.

[34] See 33 above.

[35] See also Annex 2.

participants, but recommends that TSOs develop and regulatory authorities approve harmonised and objective criteria, in order to define when existing hedging tools are sufficient and when forward capacity allocation is needed.

Figure 1: Forward Capacity Allocation - Status of the Implementation as of 1 November 2018



Source: ACER.

Notes:

**Financial instruments which effectively provide cross-zonal hedging opportunities, but are not necessarily related specifically to that border. For DK1-SE3, DK2-SE4 borders the financial instruments may not provide efficient cross-zonal hedging opportunities.*

*** Relevant regulatory authorities deemed no instrument necessary at those borders pursuant to Article 30(2) of the FCA Regulation.*

(39) Currently, 61% of the 56 EU borders issue LTTRs. The FCA Regulation provisions for the capacity allocation in forward timeframes have not been fully implemented yet on these borders. However, as the harmonisation of the allocation rules for the forward capacity allocation started as an early implementation project, a broad level of alignment in the allocation rules has been achieved, with the HAR being effective as of 1 January 2018[36].

(40) Nevertheless, on some borders, the full harmonisation in forward capacity allocation rules has been achieved as of 1 January 2019 when the single allocation platform became operational. Although the decision for assigning to JAO the task of operating the Single Allocation Platform (SAP) was only taken in December 2017, the majority of TSOs joined JAO well in advance on a voluntary basis, allowing it to evolve as a pilot project for the single allocation platform pursuant to the FCA Regulation. On the contrary, some TSOs chose not to follow this approach and subsequently failed to implement fully the HAR as of 2018, including through deviations in the regional-specific annexes. The deviations and failures could have been avoided with an early TSO involvement in JAO.

[36] See https://www.entsoe.eu/network_codes/fca/har/.

(41) Current deviations from the HAR, described in the regional and border-specific annexes, include platform-related or procedural specificities, but also provisions regarding curtailments and compensation[37].

2.4 Single Allocation Platform

2.4.1 Development of terms and conditions or methodologies

2.4.1.1 Requirements and establishment of the single allocation platform (TSO)

Legal Basis	
FCA Art. 49(1)	Pursuant to Article 49(1) of the FCA Regulation, all TSOs need to develop a proposal for the requirements and establishment of the single allocation platform and submit it to the relevant regulatory authorities for approval and to the Agency for information. There are exemptions to this requirement[38].

Steps taken	
April 2017	All TSOs submitted to all regulatory authorities and the Agency the proposal for the requirements and establishment of the single allocation platform.
June 2017	The last regulatory authority received the TSO proposal.
September 2017	All regulatory authorities agreed to approve the proposal.
December 2017	All regulatory authorities approved the proposal for the requirements and establishment of the single allocation platform.

Current status of the implementation
The methodology is adopted. The single allocation platform must be operational and comply with the functional requirements within twelve months of the approval of the proposal for the requirements and establishment of the single allocation platform by the last regulatory authority, i.e. by December 2018. The inclusion of the bidding zone borders with direct current interconnectors must be completed within the subsequent 12 months, i.e. by December 2019.

Observations and recommendations

(42) The Agency notes the long delay between the first and the last submission to the regulatory authorities[39]. The last regulatory authority received the proposal almost two months after the legal deadline for its submission. Further, the Agency notes that all regulatory authorities agreed to approve the proposal rather quickly but some regulatory authority issued the national decision rather late, although still within the six-month legal deadline.

(43) Most TSOs have decided to join JAO (which was eventually designated as the single allocation platform) well before the legal deadline. The Agency observes that this move ahead of the legal deadline contributed to implementing the HAR without significant problems and within the given deadline. Some TSOs, however, chose not to do so and among those some were not able to implement the HAR within the legal deadline because their local allocation platform was not able to accommodate all HAR requirements. This example shows how a proactive attitude of TSOs helps reduce implementation problems.

[37] For an overview of the deviations, see section 2.3.1.4, as well as Annex 3.

[38] Pursuant to Article 30(7) of the FCA Regulation, Articles 16, 29, 31 to 57, 59 and 61 do not apply to those borders for which regulatory authorities decide that TSOs shall not issue LTTRs.

[39] Respectively 11 April 2017 and 15 June 2017.

2.4.1.2 Sharing of costs of establishing, developing and operating the single allocation platform (TSO)

Legal Basis	
FCA Art. 59	Pursuant to Article 59 of the FCA Regulation, all TSOs need to develop a proposal for a methodology for sharing the costs of establishing, developing and operating the single allocation platform and submit it to the relevant regulatory authorities for approval and to the Agency for information.

Steps taken	
April 2017	All TSOs submitted to all regulatory authorities and the Agency a proposal for the methodology for sharing the costs of establishing, developing and operating the single allocation platform (together with their proposal for the requirements and establishment of the single allocation platform).
September 2017	All regulatory authorities agreed to approve the proposal.
December 2017	All regulatory authorities approved the proposal for the methodology for sharing the costs of establishing, developing and operating the single allocation platform.

Current status of the implementation
The methodology is adopted. The methodology for sharing the costs of establishing, developing and operating the single allocation platform should be implemented within twelve months after its approval by the last NRA, i.e. by December 2018.

Observations and recommendations

(44) In accordance with Article 49(1) of the FCA Regulation, "[…] [t]he proposal by TSOs shall cover the general tasks of the single allocation platform provided for in Article 50 and the requirements for cost recovery in accordance with Article 59." The proposal for this methodology was submitted together with the proposal for the "Requirements and establishment of the single allocation platform" and they both followed the same approval process. The Agency sees no benefit of two separate procedures and recommends that the two proposals be unified into one, as the cost sharing is linked with the operation of the platform, and the same approach is also followed for the platforms foreseen for example in the Regulation on Electricity Balancing ('EB Regulation')[40].

2.4.2 Implementation progress in the single allocation platform

(45) Currently on 77% of the borders with LTTRs, auctions related to forward capacity allocation are conducted by JAO[41]. All regulatory authorities agreed that JAO will perform the function of the single allocation platform. Some TSOs have not joined JAO yet. The single allocation platform is operational since 1 January 2019. The forward capacity allocation for 2019 on all EU borders where LTTRs are issued now takes place on the single allocation platform.

3. Implementation of CACM Regulation

(46) The following sections present the implementation status of the CACM Regulation. They cover the following topics: the designation of NEMOs, the market coupling development, capacity calculation, redispatching and countertrading, and bidding zone review.

(47) For each of these topics, we first refer to the legal basis, then the implementation process is summarised and finally the status of implementation described. We then provide our observations and recommendations.

[40] Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

[41] See http://www.jao.eu/main.

3.1 Overview of the implementation status

(48) The following tables provides an overview of the implementation status and the Agency's observations.

Table 4: Designation of NEMOs - overview of the implementation status

Designation of NEMOs	Implemented	1. Delayed NEMO designation in BE, BG, SLO. 2. The CACM Regulation should provide a clear obligation for regulatory authorities or NEMOs to report to the Agency on the status of NEMO designation/operation and clarify whether operation means actual operation or notification of expected operation.

Table 5: Market coupling development - overview of the implementation status

Market coupling development: Currently 84% of the European electricity market is covered either by the Multi-Regional-Coupling (47 bidding zone borders) or the 4M Market Coupling (3 bidding zone borders). Out of all the existing bidding zone borders, which currently fall within the scope of the obligations pursuant to the CACM Regulation, the day-ahead market coupling still needs to be implemented on 10 bidding zone borders.		
Topic	**Implementation status**	**Observations**
Market Coupling Operation (MCO) Plan	Adopted – Delayed implementation	The regulatory authorities twice requested amendments to NEMOs. The second request for amendment was a repetition of the first one, because the regulatory authorities considered that all NEMOs did not take the requirements of the first request for amendment fully into account. Implementation of MCO Plan is delayed, due to delays in the implementation of multi-NEMO arrangements.
Day-ahead and intraday algorithms	Adopted	The concepts of repeatability and scalability were unclear in the initial proposal by NEMOs. The Agency's Decision ensured that the algorithms should be scalable to expand the single coupling to all eligible bidding zones in Europe. The algorithms should also be fully repeatable by 2020. Request-for-change procedures were specified in the Agency's Decision, as well as the deadline for all NEMOs to develop and implement the change control methodology, which will be annexed to the algorithm methodology.
Day-ahead and intraday products	Implemented	Simplification and harmonisation of some complex products could be a solution to consider in order to ameliorate the performance of the algorithm.
Minimum and Maximum prices	Delayed implementation	The implementation is conditional on the implementation of the MCO Plan; as the latter is delayed, the implementation of the minimum and Maximum prices is also delayed
Back-up methodology	Delayed implementation	The implementation process is delayed, as it is conditional upon the implementation of arrangements to accommodate more than one NEMO according to Articles 45 and 57 of the CACM Regulation.
Fallback procedures	Delayed implementation	The process is delayed due to the pre-requisite of established capacity calculation regions to which the fallback procedures apply. Furthermore, it proved to be difficult to have one single solution as a fallback procedure

		per CCR (e.g. due to different market coupling projects such as MRC and 4M MC in the CCR Core)
Day-ahead firmness deadline	Adopted	
Intraday cross-zonal gate opening and closure time	Adopted	The Agency invites regulatory authorities and TSOs to address divergences of views regarding the design of the intraday market, and the calculation of intraday cross-zonal capacities, in order to avoid fragmentation of the intraday market. A change to the CACM Regulation with higher level of harmonisation of intraday cross-zonal capacity calculation would be needed to set up harmonised gate opening and closure times.
Complementary regional auctions	Delayed adoption (GR-IT)	Delays on the ES-PT border due to an incorrect public consultation process (the methodology is now implemented), and within the CCR GRIT due to a second request for amendment.
Calculation of scheduled exchanges	Delayed implementation	Delays due to different interpretations of Articles 43 and 56 of the CACM Regulation. The Agency recommends an amendment of the CACM Regulation to clarify the legal basis and to extend the scope of both methodologies to all types of scheduled exchanges.
Congestion income distribution	Adopted	The Agency identified problems with the methodology, which would require a change in the legal framework to address: 1. Discrepancy between EU-level definition and CCR-level application of the principles for congestion income distribution 2. Missing link between the methodology and CCMs 3. In CCRs following a flow-based approach, the methodology uses exchanges calculated based on physical reality, but these are not the same exchanges TSOs and NEMOs use for scheduling processes.
Intraday cross-zonal capacity pricing	Pending	The current proposal (intraday implicit auctions) only defines a general framework, whereas detailed timings, procedures, algorithms, products etc. are still not clear.

Table 6: Capacity calculation - overview of the implementation status

Currently, intraday capacity is not calculated on 62% of the EU borders, day-ahead capacity on 20% of the EU borders. When capacity calculation is performed, it presents mostly partial or bilateral TSO coordination, as no border presents a full level of coordination for intraday capacity calculation, and 4 borders (8%) present a full level of cooperation for day-ahead capacity calculation. Much more effort is needed to achieve the requirements set in the CACM Regulation.		
Topic	**Implementation status**	**Observations**
Capacity calculation regions	Implemented	To avoid frequent amendments of the Decision, the Agency suggests that all foreseen investments affecting borders of the regions in the next couple of years are included in the decision.
Common grid model methodology	Adopted Delayed implementation	After delays in adopting the methodology, the implementation phase is now facing additional delays. The Agency regrets a lack of transparency from TSOs regarding the implementation of the Common Grid Model methodology.
Generation and load data provision	Implemented	The Agency regrets a lack of communication regarding individual regulatory authorities' decisions (e.g. UREGNI)
Capacity calculation methodology	Pending	The Agency notes delays in the CCRs Italy North and SEE. The Agency recalls the obligation of TSOs and regulatory authorities to inform the Agency of delays in complying with legal deadlines. The Core national regulators transferred the methodology to the Agency for a decision as they could not come to an agreement.

Table 7: Redispatching and countertrading - overview of the implementation status

Some level of coordination of redispatching and countertrading currently only happens in the CCRs Core and Italy North, for congestions in the day-ahead and intraday timeframe. The sharing of associated costs follows different principles in the two regions. The methodologies under development should result in much better coordination and efficiency.		
Topic	**Implementation status**	**Observations**
Coordination of redispatching and countertrading	Pending	1. Core and SEE TSOs notified national regulators and the Agency that they could submit this methodology within the deadline. Italy North TSOs also failed to submit the methodology within the deadline, but without notification to national regulators and the Agency. 2. This methodology is interdependent with a similar methodology to be developed pursuant to Article 74(1) of the Guideline on electricity transmission system operations ('SO Regulation')[42]. Core and SEE TSOs therefore intended to develop both methodologies according to the deadline established therein. However, in order to avoid breaching legal deadlines, they should develop both methodologies at the deadline established by the CACM Regulation.
Cost sharing for coordinated redispatching and countertrading	Pending	1. Core and SEE TSOs notified national regulators and the Agency that they cannot submit this methodology within the deadline. Italy North TSOs also failed to submit the methodology within the deadline, but without notification to national regulators and the Agency. 2. This methodology is interdependent with a similar methodology to be developed pursuant to Article 74(1) of the SO Regulation. Core and SEE TSOs therefore intended to develop both methodologies according to the deadline established therein. However, in order to avoid breaching legal deadlines, they should develop both methodologies at the deadline established by the CACM Regulation. 3. TSOs from the CCR Baltic failed to reach an agreement on a proposal. The Commission tasked the national regulators of the CCR Baltic to develop and agree on cost sharing for coordinated redispatching and countertrading methodology. The Agency notes the delay in submission in the CCR Italy North.

Table 8: Bidding zone review - overview of the implementation status

The first bidding zone review performed by ENTSO-E was inconclusive because TSOs failed to established a firm methodology that would enable reaching a conclusion. It also revealed the vested interest of TSOs opposed to change (e.g. they refused analysing bidding zone configurations which they considered politically difficult to accept by some MSs). The Agency recommends an amendment of the CACM Regulation to avoid such outcome in the future.

[42] Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation.

3.2 Designation of NEMOs

Legal Basis	
CACM Art. 4-6	Articles 4, 5 and 6 of the CACM Regulation determine the designation of Nominated Electricity Market Operators (NEMOs). Each Member State needs to ensure that at least one NEMOs is designated in each Member State to perform the single day-ahead and single intraday coupling. Each NEMO designated in a territory of one Member State has the right to provide its services in other Member States (i.e. by way of the so-called "passporting"). Member States may refuse the trading services by a NEMO designated in another Member State only in specific, well-defined cases, as stated in Article 4(6) of the CACM Regulation. Moreover, the Member States have the right to revoke the designation of a NEMO, in case the NEMO fails to maintain compliance with the criteria set in Article 6 of the CACM Regulation.

Current status of the implementation
All Member States have designated at least one NEMO for their territory. The list of designated NEMOs, including the bidding zones in which they are operating, is published on the Agency's website[43].

Observations and recommendations

(49) The process of the NEMO designation was delayed beyond the legal deadline in three Member States[44]. This delay likely contributed to complications in the development of the proposal for the MCO plan, which had to be submitted to all regulatory authorities four months after the deadline for the NEMO designation.

(50) There is insufficient transparency on NEMOs operating in bidding zones pursuant to Article 4(5) of the CACM Regulation (so called 'passporting'). Some NEMOs are designated, but are not operating yet, pending the implementation of multi-NEMO arrangements (i.e. the arrangements allowing several NEMOs to operate in one bidding zone)[45]. The delay in the multi-NEMO arrangements functionality hampers the competition among NEMOs, as currently only the incumbent NEMOs can participate in the single coupling. The Agency recommends that Article 4(1) of the CACM Regulation be further clarified to define whether operating status means actual operation or notification of future operation and to impose obligations on regulatory authorities or NEMOs to report their status to the Agency.

3.3 Market coupling development

3.3.1 Development of terms and conditions or methodologies

3.3.1.1 Market Coupling Operation Plan

Legal Basis	
CACM Art. 7(3)	Pursuant to Article 7(3) of the CACM Regulation, all NEMOs need to develop a plan that sets out how to jointly set up and perform the market coupling operator functions (the MCO plan) and submit it to all regulatory authorities for approval and the Agency for information.

[43] See https://www.acer.europa.eu/en/Electricity/FG_and_network_codes/CACM/Pages/NEMO%20list.pdf .

[44] Belgium, Bulgaria and Slovenia did not meet the legal deadline of 15 December 2015.

[45] To be more precise, these NEMOs are either designated, or have announced that they will provide services in a Member States in which they have not been designated.

Steps taken	
April 2016	All NEMOs submitted to all regulatory authorities and the Agency the proposal for the MCO plan.
October 2016	All regulatory authorities requested all NEMOs to amend the proposal for the MCO plan.
December 2016	All NEMOs submitted to all regulatory authorities and the Agency the amended proposal for the MCO plan.
February 2017	All regulatory authorities requested all NEMOs to amend again the proposal for the MCO plan.
April 2017	All NEMOs submitted to all regulatory authorities and the Agency the amended proposal for the MCO plan.
July 2017	All regulatory authorities approved the amended proposal for the MCO plan.

Current status of the implementation
The methodology is adopted, but the implementation is delayed. In accordance with Article 7(3) of the CACM Regulation, the MCO Plan should have been implemented no later than 12 months from the date of approval of the MCO Plan, i.e. by 7 July 2018. Nevertheless, the delivery of some functions (e.g. the multi-NEMO arrangement requirement) is delayed beyond the original implementation timeline and only expected at the beginning of 2019.

Observations and recommendations

(51) The MCO plan was subject to two requests for amendment. This delayed the whole process of implementation of single day-ahead and intraday coupling with respect to the initial deadlines stemming from the CACM Regulation. The second request for amendment was a repetition of the first one without further specifications of the expectation from the regulatory authorities. It stated that the NEMOs did not fully take into account the first request for amendment, while giving no more detail. Moreover, the process was delayed by additional ten days due to the late request for amendment by the Portuguese regulatory authority.

(52) Article 9 of the CACM Regulation does not explicitly mention the possibility for regulatory authorities to request an amendment for a second time. The Agency supports the understanding that without a clear legal background in the CACM Regulation, the regulatory authorities should not issue multiple requests for amendments. If regulatory authorities decide for a second amendment request anyway, they should clearly explain the reasons for such a request and clearly identify the areas and issues where the amended proposal did not meet the expectations of regulatory authorities.

3.3.1.2 Day-ahead and intraday algorithms

Legal Basis	
CACM Art. 37	Pursuant to Article 37 of the CACM Regulation, all TSOs need to submit to all NEMOs a proposal for a common set of requirements for efficient capacity allocation, to enable the development of the single day ahead coupling ('SDAC') and single intraday coupling ('SIDC') algorithms. In parallel, all NEMOs need to propose a common set of requirements for efficient matching, to enable the development of the SDAC and SIDC algorithms. No later than three months after both sets of requirements are defined by NEMOs and TSOs, all NEMOs need to develop a proposal for the algorithms and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
February 2017	All NEMOs submitted to all regulatory authorities and the Agency a proposal for SDAC and SIDC algorithms.
August 2017	All regulatory authorities requested all NEMOs to amend the proposal for SDAC and SIDC algorithms.
November 2017	All NEMOs submitted to all regulatory authorities and the Agency an amended proposal for SDAC and SIDC algorithms.
January 2018	All regulatory authorities referred the proposal for SDAC and SIDC algorithms to the Agency for a decision in accordance with the procedure set out in Article 9(12) of the CACM Regulation.
July 2018	The Agency adopted a decision on the proposal for the SDAC and SIDC algorithms.

Current status of the implementation
The methodology is adopted. The implementation of SDAC and SIDC algorithms will follow an implementation timeline starting in August 2018 and finishing in August 2023.

Observations and recommendations

(53) The process for the adoption of the algorithm methodology was delayed by one and a half months; two weeks because of a late decision to request an amendment by the Hungarian regulatory authority and one month because of late NEMOs' submission (the Dutch regulatory authority received it one month after the legal deadline and all other regulatory authorities two weeks after the legal deadline).

(54) All regulatory authorities requested an amendment of the algorithm methodology, as they were not satisfied with the drafting quality of the proposal, nor with the proposed arrangements and rules for the development, maintenance and operation of the algorithms. All NEMOs resubmitted the algorithm methodology, but they did not address all the concerns and therefore all regulatory authorities could not approve it. For this reason, they referred it to Agency for a decision. The Agency adopted the methodology subject to significant changes and improvements. However, in two areas (i.e. monitoring of the algorithm performance and the methodology for managing change requests), the methodology will have to be amended and NEMOs will need to submit the amended methodology, addressing these two areas, 12 months after the adoption of the methodology. The process for the adoption of this methodology confirmed the experience from the adoption of the MCO plan in the sense that NEMOs failed to provide adequate and good quality proposals and they failed to address the concerns of NRAs in their request for amendment.

(55) The concepts of repeatability and scalability of the algorithms, as required by the CACM Regulation, has proven to be challenging for NEMOs. The adopted algorithm methodology currently defines scalability as an ability of the algorithm to always accommodate all bidding zones and NEMOs eligible to participate in the single day-ahead and intraday coupling. With regard to the repeatability of the price coupling algorithm, the NEMOs should be able, by February 2020, to replicate fully the results based on a request from regulatory authorities or the Agency.

(56) However, this aspect could be improved by simplifying the day-ahead products and changes in the CACM Regulation to relax the requirement that all accepted bids in a bidding zone receive the same price. In specific cases, allowing some sell orders to receive a price higher than the clearing price (e.g. by using the congestion income or, as a last resort solution, network tariffs) would simplify the algorithm's search for the optimal solution. This would also improve the problem of finding the exact optimal solution, i.e. by maximising the economic surplus. Currently, the situation is solved through the paradoxically rejected bids, which significantly increases the computational burden, decreases the overall welfare and is not 'fair' in the sense that some orders in-the-price are rejected.

(57) The governance of the algorithm development and operation incorporates NEMOs' activities (e.g. matching of orders) as well as TSOs' activities (e.g. allocation of cross-zonal capacities). Therefore, both the NEMOs and TSOs have an interest in the governance and decision-making as regards the development, maintenance and operation of the algorithms. However, the CACM Regulation

puts this responsibility solely on NEMOs. Similarly, the associated costs should be borne by NEMOs and TSOs may contribute, subject to approval by regulatory authorities, to these costs. Nevertheless, in practice most of the development and operation costs are borne by TSOs. This provides a strong interest for TSOs to participate in decision making for the development, maintenance and operation of the algorithms, whereas the NEMOs may be reluctant to make appropriate and efficient decisions without certainty that the associated costs will be borne by TSOs.

(58) Another aspect related to the algorithm development and operation is that NEMOs may not have sufficient incentives to deliver an optimal setup of the algorithm and associated products, because they compete among themselves and at the same time they need to cooperate and make decisions in the wider European interest to ensure robust and reliable development and operation of the single market coupling. In this respect, the governance of the algorithms and the associated cost recovery should be improved in the CACM Regulation. The Agency and the regulatory authorities are currently discussing possible improvements of this governance. One solution would be to establish an EU entity performing the MCO function. Such entity could be established/owned by all TSOs, or by all TSOs and all NEMOs jointly if the latter would be willing to contribute to the associated costs.

3.3.1.3 Day-ahead and intraday products

Legal Basis	
CACM Art. 40, 53	Pursuant to Article 40 (day-ahead) and Article 53 (intraday) of the CACM Regulation, all NEMOs need to develop a joint proposal concerning products that can be taken into account in the single day-ahead coupling and single intraday coupling and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
February 2017	All NEMOs submitted to all regulatory authorities and the Agency a proposal for the SDAC and SIDC products.
August 2017	All regulatory authorities requested all NEMOs to amend the proposal for SDAC and SIDC products.
November 2017	All NEMOs submitted to all regulatory authorities and the Agency an amended proposal for SDAC and SIDC products.
February 2018	All regulatory authorities approved the amended proposal for the SDAC and SIDC products.

Current status of the implementation
The methodology is adopted. The products are in use since the implementation of the MCO functions, i.e. 7 July 2018.

Observations and recommendations

(59) The process for the adoption of the SDAC and SIDC products was delayed by two and a half months; one and a half months because of the late Hungarian regulatory authority's request for amendment and subsequent approval procedure and one month because of the late NEMOs' submission (the Dutch regulatory authority received it one month after the legal deadline and all other regulatory authorities two weeks after the legal deadline).

(60) The list of products that can be taken into account in the single day-ahead coupling accommodates the full range of products, which are currently available and desired by market participants. However complex products (i.e. those which span across several market time units and have additional matching conditions) cause a significant computational burden for the algorithm. The CACM Regulation requires that all NEMOs ensure that the algorithms are able to accommodate all orders resulting from all products and, when market participants use many complex products, the algorithm's performance gets constrained and the algorithm might not be able to accommodate new bidding zones or new requirements such as cross-zonal capacity constraints. The Agency is of the opinion that the algorithm's scalability to new bidding zone borders or new algorithm requirements should be considered as essential features, which should not be compromised. This means that the products definition and usage is the only flexibility that the algorithm has in order to

maintain and balance its performance and robustness. The algorithm should therefore, as a rule, be able to accommodate new bidding zones and new requirements and be complemented with the right combination of products that still maximise trade opportunities, but do not endanger the algorithm performance and robustness of operation.

(61) The right combination of products can be defined either within the definition of products or within the algorithm methodology by the application of corrective measures. These measures could allow NEMOs temporally to restrict the usage of some products if the algorithm performance were to deteriorate. However, structural problems with products and algorithm performance need more robust solutions. One solution would be an amendment of the list of day-ahead and intraday products. Another solution, which could also address this problem to a certain degree, would be to relax the requirement of the uniform price, as discussed in Section 3.3.1.2 above.

(62) Finally, it is important to note that the current version of XBID (software solution to run the single intraday coupling) does not support the full range of products as approved by all regulatory authorities. In particular, the user-defined blocks as combinations of half-hourly or quarter-hourly contracts defined by the market participant are not supported. NEMOs shall update XBID to integrate those functionalities.

3.3.1.4 Minimum and maximum prices

Legal Basis	
CACM Art. 41, 54	Pursuant to Article 41 (day-ahead) and Article 54 (intraday) of the CACM Regulation, all NEMOs need to develop a proposal on harmonised maximum and minimum clearing prices to be applied in all bidding zones, which participate in single day-ahead and single intraday coupling and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
February 2017	All NEMOs submitted to all regulatory authorities and the Agency the proposals for the harmonised maximum and minimum clearing prices for the SDAC and SIDC.
July 2017	All regulatory authorities referred the proposal for the harmonised maximum and minimum clearing prices for the SDAC to the Agency for a decision in accordance with the procedure set out in Article 9(11) of the CACM Regulation. The reason for the referral was that all regulatory authorities were not able to come to an agreement on the proposal.
August 2017	All regulatory authorities referred the proposal for the harmonised maximum and minimum clearing prices for the SIDC to the Agency for a decision in accordance with the procedure set out in Article 9(11) of the CACM Regulation. The reason for the referral was that all regulatory authorities found it important to ensure the consistency between the proposals for SDAC and SIDC.
November 2017	The Agency adopted decisions on the proposals for the harmonised maximum and minimum clearing prices for the SDAC and SIDC.

Current status of the implementation
The methodology is implemented. The maximum and minimum clearing prices for the SDAC and SIDC, including the automatic adjustment mechanism, applied immediately after the MCO function (i.e. MCO Plan) was implemented as set out in Article 7(3) of the CACM Regulation, i.e. as of 7 July 2018.

Observations and recommendations

(63) During the adoption of these terms and conditions, TSOs, regulatory authorities and market participants showed very different expectations and interests with regard to the harmonised maximum price.

(64) For a majority of stakeholders, the maximum clearing prices should be considered as technical limits that are needed for the operation of SDAC and SIDC. They should not limit the free price

formation. The actual clearing prices should never reach the maximum clearing price, as this would mean that the price was restricted by the maximum clearing price.

(65) At the same time, most stakeholders were concerned that a significant increase of the maximum clearing price would increase the size and the costs of collaterals required for market participants to participate in the SDAC and SIDC. These conflicting concerns showed that free markets and free price formation were often only supported in theory. Many stakeholders opposed them in practice.

(66) The Agency eventually decided to adopt the maximum clearing prices initially proposed by NEMOs but with a much more dynamic adjustment mechanism such that the probability that clearing prices be limited by the maximum clearing price is minimised. This dynamic adjustment mechanism implies that the maximum clearing price is automatically increased every time the clearing prices approach the maximum prices. In this way, the concerns of market participants regarding collaterals can be addressed by them gradually reducing their exposure to maximum clearing prices, by reducing the volume of their market offers, i.e. offers that accept any price. The dynamic adjustment mechanism also represents a much better mechanism to reflect the Value of Lost Load, since the maximum clearing price is determined by the market rather than administratively. The Agency thus recommends amending the CACM Regulation in this respect, i.e. removing the direct reference to the Value of Lost Load.

(67) The adoption of minimum and maximum clearing prices revealed the weakness of this methodology to ensure free price formation. Namely, these terms and conditions do not prevent Member States or regulatory authorities from imposing limits on bidding prices in their jurisdiction and thereby implicitly restrict clearing prices. Such a possibility contradicts the objectives of the CACM Regulation. The Agency therefore recommends an amendment of the Articles 41 and 54 to extend the scope of these terms and conditions to bidding prices.

3.3.1.5 Back-up methodology

Legal Basis	
CACM Art. 36	Pursuant to Article 36 of the CACM Regulation, all NEMOs in cooperation with all TSOs need to develop a proposal for a back-up methodology to comply with the obligations set out in Articles 39 and 52 of the CACM Regulation and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
February 2017	All NEMOs submitted to all regulatory authorities and the Agency a proposal for the back-up methodology.
August 2017	All regulatory authorities requested all NEMOs to amend the proposal for the back-up methodology.
November 2017	All NEMOs submitted to all regulatory authorities and the Agency an amended proposal for the back-up methodology.
February 2018	All regulatory authorities approved the amended proposal for the back-up methodology.

Current status of the implementation
The methodology is adopted. The implementation is delayed, as it is dependent on the implementation of arrangements to accommodate more than one NEMO according to Articles 45 and 57 of the CACM Regulation[46].

[46] See 3.3.1.1 above, as well as Article 20 of the back-up methodology:

https://www.acer.europa.eu/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/Pub_Docs/5%20Back-up/Action%203%20-%20Back-up%20amended%20proposal.pdf .

Observations and recommendations

(68) The process for the adoption of the back-up methodology was delayed by two and a half months; one and a half months because two decisions of the Hungarian national regulator (i.e. request for amendment and subsequent approval procedure) were adopted after the legal deadline and one month because of the late submission of the proposal by NEMOs (the Dutch regulatory authority received the proposal one month after the legal deadline and all other regulatory authorities two weeks after the legal deadline)[47].

3.3.1.6 Fallback procedures

Legal Basis	
CACM Art. 44	Pursuant to Article 44 of the CACM Regulation, each TSO in coordination with all the other TSOs in the capacity calculation region, needs to develop a proposal for fallback procedures and submit it to the concerned regulatory authorities for approval and to the Agency for information.

Steps taken	
June 2017	All TSOs from each CCR submitted to the concerned regulatory authorities and the Agency proposals for fallback procedures.
December 2017	The regulatory authorities of the CCRs Channel, Hansa, GRIT and IU approved the respective proposals for fallback procedures.
December 2017,	The regulatory authorities of the CCRs Baltic, Core, Italy North, Nordic, SEE and SWE requested their TSOs to amend the respective proposals for fallback procedures.
February 2018	The TSOs of the CCRs Baltic, Italy North, Nordic, SEE and SWE submitted to the concerned regulatory authorities and the Agency the amended proposals for fallback procedures.
April 2018	The regulatory authorities of the CCRs Baltic, Italy North, Nordic, SEE and SWE approved the respective amended proposals for fallback procedures.
March 2018	The regulatory authorities of the CCR Core referred the amended proposal for fallback procedures to the Agency for a decision in accordance with the procedure set out in Article 9(12) of the CACM Regulation. The reason for the referral was that they were not able to come to an agreement on the amended proposal.
May 2018	The TSOs of the CCR Channel submitted to the concerned regulatory authorities and the Agency a proposal for amendment of the fallback procedures. The proposal was approved by the concerned regulatory authorities by the end of November 2018.
September 2018	The Agency adopted a decision on the amended proposal for fallback procedures for CCR Core.

Current status of the implementation
By September 2018, 9 out of 10 methodologies were adopted. The implementation is delayed. One CCR (Core) has referred the decision to ACER and one CCR (Channel) has submitted a proposal for amendment.

Observations and recommendations

(69) The process for the adoption of the fallback procedures was delayed by five months because the adoption of CCRs was delayed. The TSOs of the CCRs informed the relevant regulatory authorities that the new timeline would be shifted to six months after the adoption of the CCRs. The TSOs did

[47] In this context, see also paragraph (59) above on delays regarding the process for the adoption of the SDAC and SIDC products.

not correctly follow the requirements of Article 9(4) of the CACM Regulation formally to inform the Agency about the delay.

(70) All CCRs, with the exception of the CCRS Nordic, Baltic and IU, are using shadow auctions as a fallback procedure[48]. The CCRs Nordic and Baltic are using a regional coupling solution in case of decoupling of the single day-ahead coupling, while the fallback solution on the PL-SE4 border is to allocate the day-ahead capacities to the intraday market and in the CCR IU to allocate the available day-ahead capacities on the first intraday auction, once these are established. The public consultation organised in the course of preparation of the Agency's Decision on the CCR Core fallback procedures showed a strong interest for clear, simple and harmonised fallback procedures for the single day-ahead coupling to ensure efficient, transparent and non-discriminatory capacity allocation, as stated in Article 44 of the CACM Regulation. It is not efficient that market participants need to prepare their processes and train their resources to accommodate different requirements in different CCRs, given that the likelihood of such an event is extremely low. For this reason, the Agency recommends amending the CACM Regulation to provide for an EU-wide harmonisation of the fallback procedures.

(71) Some NEMOs approached the regulatory authorities and the Agency requesting that the fallback procedures require that NEMOs continue to share their order books inside a bidding zone (i.e. intra-zonal coupling) in order to pool all liquidity inside a bidding zone and establish a single bidding zone price which is needed as a reference for forward contracts. While Article 44 of the CACM Regulation defines the scope of the fallback procedures to ensure efficient, transparent and non-discriminatory capacity allocation, the CACM Regulation does not, in principle, exclude the sharing of order books in a fallback situation (for example within multi-NEMO arrangements).

3.3.1.7 Day ahead firmness deadline

Legal Basis	
CACM Art. 69	Pursuant to Article 69 of the CACM Regulation, all TSOs need to develop a proposal for the single day-ahead firmness deadline and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
December 2016	All TSOs submitted to all regulatory authorities and the Agency a proposal for the single day-ahead firmness deadline.
June 2017	All regulatory authorities approved the proposal for the single day-ahead firmness deadline.

Current status of the implementation
The day-ahead firmness deadline should be implemented on a bidding zone border immediately after both the CCM developed in accordance with Article 20 of the CACM Regulation and the day-ahead MCO Function developed in accordance with Article 7(3) of the CACM Regulation are implemented on that bidding zone border.

Observations and recommendations

(72) The process for the adoption of the single day-ahead firmness deadline was delayed by one month because of the late approval by the Dutch NRA.

3.3.1.8 Intraday cross-zonal gate opening and closure time

Legal Basis

[48] Hansa is using shadow auctions with the exception of Swe-Pol Link (PL-SE4) where the capacities are given to the intraday market. Channel is using shadow auctions with the exception of the NL-GB link (BritNed), which is allowed to continue using intraday explicit auctions until necessary contracts are signed between BritNed and JAO.

CACM Art. 59	Pursuant to Article 59 of the CACM Regulation, all TSOs need to develop a proposal for the intraday cross-zonal gate opening and intraday cross-zonal gate closure times and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
December 2016	All TSOs submitted to all regulatory authorities and the Agency a proposal for the intraday cross-zonal gate opening and closure time.
August 2017	All regulatory authorities requested all TSOs to amend the proposal for the intraday cross-zonal gate opening and closure time.
September 2017	All TSOs submitted to all regulatory authorities and the Agency an amended proposal for the intraday cross-zonal gate opening and closure time.
October 2017	All regulatory authorities referred the proposal for the intraday cross-zonal gate opening and intraday cross-zonal gate closure times to the Agency for a decision in accordance with the procedure set out in Article 9(12) of the CACM Regulation. The reason for the referral was that they were not able to come to an agreement on the proposal.
April 2018	The Agency adopted a decision.

Current status of the implementation
The methodology is adopted. Provisional intraday cross-zonal gate opening and gate closure times will be applied for the implementation of the single intraday coupling (i.e. implementation of XBID project). The final intraday cross-zonal gate opening time is implemented as of 1 January 2019 in regions where the intraday cross-zonal CCM has been approved before 30 November 2018. In other regions, the final intraday cross-zonal gate opening time will be implemented 30 days after the approval of intraday cross-zonal CCM[49]. The final intraday cross-zonal gate closure time will be applied as of 1 January 2021.

Observations and recommendations

(73) The Agency decided that the intraday cross-zonal market must open at 15:00 market time day-ahead and must close 60 minutes (30 minutes for the Estonia-Finland border) before the start of the relevant market time unit.

(74) The process for the adoption of the intraday cross-zonal gate opening and closure time was delayed by one and a half months because the Spanish national regulator's decision to request an amendment was delayed.

(75) Throughout its decision-making process, the Agency noted a large divergence of opinions on the design of the intraday market and the calculation of intraday cross-zonal capacities.

(76) With regards to the design of the intraday market, TSOs and regulatory authorities attach different priorities to the continuous market and auctions.

(77) With regards to the calculation of intraday cross-zonal capacities, the TSOs favour different policies on when the cross-zonal capacities remaining after the day-ahead market can be offered to the single intraday market without providing clear fundamental reasons.

(78) These differences may result in a fragmentation of the design, timing and geographic scope of the European intraday market[50]. In the Agency's view, such risks should be addressed by clarifying and

[49] See section 3.4.2.

[50] There are two competing designs: continuous market vs. auctions. There may be differences in the timing when cross-zonal capacity is offered on specific borders. Geographically, there may be differences regarding which borders will be complemented by auctions and how often.

harmonising the design and functioning of the single intraday market in the CACM Regulation, on the following issues:

a. the status of complementary intraday auctions and their relation with the pan-European auctions to price intraday cross-zonal capacities;

b. the definition of the intraday market time unit in relation to the intraday cross-zonal gate closure time;

c. a clear timeline for the separation between the end of the single day-ahead market timeframe and the start of the single intraday market timeframe, in particular with regard to the scheduling activities following the single day-ahead coupling;

d. the status of capacity remaining after the end of single day-ahead coupling and the timings for recalculation of the intraday cross-zonal capacity.

3.3.1.9 Complementary regional auctions

Legal Basis	
CACM Art. 63	Pursuant to Article 63 of the CACM Regulation, the relevant NEMOs and TSOs on bidding zone borders may jointly develop a proposal for the design and implementation of complementary regional intraday auctions and submit it to regulatory authorities for approval and to the Agency for information.

Steps taken at the ES-PT border	
February 2017	TSOs and NEMOs of Spain and Portugal submitted to the relevant regulatory authorities and the Agency a proposal for complementary regional intraday auctions on ES-PT bidding zone border.
November 2017	The relevant regulatory authorities requested the relevant NEMOs and TSOs to amend the proposal for complementary regional intraday auctions on the ES-PT bidding zone border.
March 2018	The relevant TSOs and NEMOs from Spain and Portugal submitted an amended proposal for complementary regional intraday auctions to the relevant regulatory authorities and the Agency.
April 2018	The relevant regulatory authorities approved the amended proposal for complementary regional intraday auctions.

Steps taken by CCRs ITALY NORTH and GR-IT	
March 2017	TSOs and NEMOs from the CCRs Italy North and GRIT submitted to the relevant regulatory authorities and the Agency a proposal for complementary regional intraday auctions in the CCRs Italy North and GRIT.
August 2017	The relevant regulatory authorities requested the relevant NEMOs and TSOs to amend the proposals for complementary regional intraday auctions.
October 2017	The relevant TSOs and NEMOs from the CCRs Italy North and GRIT submitted an amended proposal for complementary regional intraday auctions to the relevant regulatory authorities and the Agency.
December 2017	The regulatory authorities of the CCRs Italy North and GRIT requested the Agency to grant additional 6 months for the decision based on Article 8(1) of Regulation (EC) 713/2009 ('Agency Regulation')[51].
January 2017	The Agency adopted decisions to extend the period for reaching an agreement on the amended proposal for complementary regional intraday auctions in the CCR Italy North and GRIT respectively.
June 2018	The regulatory authorities from CCR Italy North and GRIT requested from the relevant TSOs an amendment of the proposal for complementary regional intraday auctions.

[51] Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators.

Current status of the implementation

The proposal for the complementary regional intraday auctions on the ES-PT border was approved.
The implementation of the complementary regional intraday auctions proposals on the GRIT and Italy North borders are delayed due to the decision of the relevant regulatory authorities to request a second amendment.

Observations and recommendations

(79) The adoption of the proposals for complementary regional intraday auctions encountered several difficulties, which are illustrated below.

(80) The proposal for the ES-PT border was submitted at the same time for public consultation and to the regulatory authorities for approval. This contradicts Article 12 of CACM Regulation requiring a public consultation before the submission of the proposal to the regulatory authorities.

(81) The process for the adoption of the complementary regional intraday auctions on the ES-PT bidding zone border was delayed by three and a half months, because of the Spanish and Portuguese regulatory authorities' request for amendment after the legal deadline.

(82) The process for the adoption of the complementary regional intraday auctions in the CCR Italy North has demonstrated that the underlying legal framework for these auctions and the associated decision-making process are inefficient. The adoption started with a late submission (one month) of the proposal by the relevant TSOs. The relevant regulatory authorities requested amendments and the TSOs resubmitted the proposal. The regulatory authorities then requested an additional 6 months for decision making and the Agency granted such an extension. Subsequently, the regulatory authorities requested amendments for the second time in June 2018, without a clear legal provision in the CACM Regulation. On the one hand, the adoption process is inexplicably long and therefore potentially inefficient, whereas on the other hand the design of these auctions is conditional on many other elements and it thus seems that the involved TSOs and national regulators are waiting for more clarity on these conditional elements.

(83) The 18-month deadline for submission of the proposal to regulatory authorities is defined without any clear purpose[52]. It prevents TSOs and NEMOs to take proper account of other developments pursuant to the CACM Regulation. The design of the complementary regional intraday auctions depends on other methodologies[53]. Therefore, NEMOs and TSOs should have more flexibility as to the time for developing the proposal or, alternatively, the Regulation should harmonise the approach for the whole EU.

(84) According to Article 63(4)(a) of the CACM Regulation, the complementary regional auctions should not have an adverse impact on the liquidity of the single intraday coupling. However, as far as the implementation on the ES-PT border is concerned, several concerns were raised in this respect. First, the design allows the stopping of continuous trading on XBID during the auction for more than 10 minutes, which is not allowed by the CACM Regulation. The involved national regulators and NEMOs have explained that this option is a last resort measure and is not expected to materialise if everything goes according to plan. Second, during the auction on the ES-PT border, the continuous trade inside Spain and Portugal is stopped thus effectively halting the continuous trade also on the FR-ES border. The Agency notes that this is not needed to perform the auction. For example, the proposal for complementary regional auctions on Italy North borders does not propose the stopping of continuous trade in France, Austria and Slovenia during the auction. Third, during the transition phase, the continuous trade on the ES-PT and FR-ES borders is allowed only until the next auction (i.e. as there are six auctions per day, the continuous trade is allowed only for the next 4 hours). Despite these concerns, the Agency recognises the challenge of implementing such

[52] The requirement is initially set in Article 63 of the CACM Regulation.

[53] E.g. the methodology for pricing intraday cross-zonal capacity and the terms and conditions on the intraday cross-zonal gate opening and gate closure times.

auctions in parallel to continuous trading and commends the efforts of the involved regulatory authorities to minimise the impact and to implement the XBID project in the first wave despite these difficulties.

(85) The concept of complementary regional intraday auctions should be reviewed once more after regulatory certainty is provided on the methodology for pricing intraday cross-zonal capacity. If this methodology introduces one or several auctions during the intraday market timeframe, which could be applied at EU or regional level, the need for additional complementary regional intraday auctions might not be substantiated anymore. From this perspective, the Agency considers it beneficial that both concepts are merged into a single methodology for pricing of intraday cross-zonal capacity, which should ideally be harmonised across the EU. This would avoid the risk of too fragmented intraday markets in terms of timeframes, design and geography[54].

3.3.1.10 Calculation of scheduled exchanges

Legal Basis	
CACM Art. 43 and 56	Pursuant to Article 43 and 56 of the CACM Regulation, the TSOs which intend to calculate scheduled exchanges resulting from the single day-ahead coupling and single intraday coupling need to develop a proposal for a methodology for calculation of scheduled exchanges and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
December 2016	The TSOs, which intended to calculate scheduled exchanges, submitted to the relevant regulatory authorities and the Agency a proposal for the methodology for calculation of scheduled exchanges.
September 2017	All regulatory authorities sent a letter to all TSOs requesting that all TSOs submit to all regulatory authorities the proposal for the methodology for calculation of scheduled exchanges by December 2017.
March 2018	All TSOs submitted to all regulatory authorities and the Agency the proposal for the methodology for calculating scheduled exchanges.
September 2018	All regulatory authorities requested all TSOs an amendment of the methodology for calculating scheduled exchanges.

Current status of the implementation
All regulatory authorities requested all TSOs to amend the methodology and are waiting for the submission of the amended methodology.

Observations and recommendations

(86) The process for the adoption of the calculation of scheduled exchanges was delayed by 13 months, because of legal misinterpretation of the provisions of the CACM Regulation as explained below and by additional two months because of the all TSOs submission after the agreed deadline.

(87) The adoption of this methodology revealed significant legal uncertainty with regard to the obligations pursuant to Articles 43 and 56 of the CACM Regulation. According to these articles, the TSOs, which intend to calculate scheduled exchanges resulting from the SDAC and SIDC, should develop the proposal for methodologies for calculating scheduled exchanges. According to TSOs' interpretation, only TSOs which will calculate scheduled exchanges by themselves need to submit this methodology for regulatory approval, while the TSOs using the direct results of the SDAC and SIDC algorithm for scheduled exchanges are not required to do so.

(88) In the Agency's interpretation, the methodologies need to be developed by all TSOs using or needing scheduled exchanges for their operational processes, regardless of whether they calculate them or they delegate this task to a third party (e.g. NEMOs).

[54] See also the observation and recommendations on the intraday cross-zonal gate opening and closure times.

(89) The Agency notes that:

a. Scheduled exchanges, whether resulting from the SDAC or SIDC or from additional calculation by TSOs, need to be calculated using a specific formula or method which needs to be specified in at least one methodology. The original intention of Articles 43 and 56 was that this obligation would not apply only to those TSOs which do not need scheduled exchanges for their operational processes[55]. As currently all TSOs need schedules, the obligation applies to all TSOs.

b. Based on the TSOs' interpretation, the first proposals for these two methodologies were submitted only by TSOs currently applying the flow-based approach (i.e. the former CWE region). However, because of the legal ambiguity referred to in paragraph (87) above, many other TSOs also submitted the same methodologies to their regulatory authorities for approval even if originally not intended. This created confusion among regulatory authorities on whether they are competent to decide on these proposals or whether the submission was a mistake due to legal ambiguity.

c. Finally, the regulatory authorities approached the Commission for a legal interpretation. The Commission responded that all regulatory authorities are entitled to decide to request this methodology from all TSOs. Subsequently, a request from all regulatory authorities was addressed to all TSOs to submit both methodologies by December 2017. All TSOs then submitted both methodologies with a three-month delay in March 2018. In total, the implementation delay after clarifying all the legal issues is one year and three month beyond the originally expected legal deadlines.

(90) The submission of the second proposal showed that the methodology for calculation of scheduled exchanges only includes the scheduled exchanges between bidding zones and scheduling areas, which concerns all TSOs. The scheduled exchanges between NEMO trading hubs were not included in the methodologies as all TSOs and all NEMOs considered that this was the responsibility of all NEMOs and therefore scheduled exchanges between NEMO trading hubs should not be included in a methodology proposed by all TSOs.

(91) Based on the above difficulties, the Agency recommends that the CACM Regulation be improved in two ways:

a. to provide legal certainty that the methodologies for calculating scheduled exchanges are developed by all TSOs;

b. to extend the scope of both methodologies to all types of scheduled exchanges, including those between NEMO trading hubs. For this purpose, all TSOs should coordinate with all NEMOs in the development of these two methodologies.

3.3.1.11 Congestion income distribution

Legal Basis	
CACM Art. 73	Pursuant to Article 73 of the CACM Regulation, all TSOs need to develop a proposal for a congestion income distribution methodology and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
August 2016	All TSOs submitted to all regulatory authorities and the Agency a proposal for congestion income distribution methodology.
February 2017	All regulatory authorities requested all TSOs to amend the proposal for congestion income distribution methodology.
April 2017	All TSOs submitted to all regulatory authorities and the Agency an amended proposal for congestion income distribution methodology.

[55] Schedules are essentially needed to calculate the targeted net position of a scheduling area. For the purpose of balancing TSOs could directly use the net position.

June 2017	All regulatory authorities referred the amended proposal for congestion income distribution methodology to the Agency for a decision following the procedure set out in Article 9(12) of the CACM Regulation. The reason for the referral was that they were not able to come to an agreement on the proposal.
December 2017	The Agency adopted a decision on the proposal for the congestion income distribution[56].

Current status of the implementation
The methodology is adopted. The congestion income distribution methodology should be implemented in each CCR at the date of implementation of the CCM in accordance with Articles 20 and 21 of the CACM Regulation.

Observations and recommendations

(92) The legal deadline for the development of this methodology was 12 months after the entry into force of the CACM Regulation. The Agency observes that this deadline was set too early. At that time, TSOs had not started the development of their CCM. For this reason, all TSOs chose to describe the congestion income methodologies, which are currently applied based on the existing capacity calculation approaches.

(93) However, this methodology should be applicable also for future CCMs. For this reason, the TSOs' proposal was rather vague and undefined, leaving the possibility to TSOs to develop further the details of the congestion income distribution outside the proposed methodology.

(94) In its decision, the Agency defined that the methodology should apply only once the CCMs pursuant to the CACM Regulation are applied and implemented in each CCR. The methodology was improved to specify exactly how European congestion income is attributed to each CCR, then to each bidding zone border of a CCR and finally to each TSO at a bidding zone border.

(95) Nevertheless, some problems with regard to this methodology still exist and would need a change of the legal framework.

a. While the principles for congestion income distribution are harmonised EU-wide, the application is still conducted per CCR. The Agency could not harmonise further this application since the methodology is highly dependent on the remuneration and firmness of LTTRs, for which TSOs of a CCR have joint responsibility. Namely, as all TSOs of a CCR need to jointly guarantee the firmness and remuneration of LTTRs in a CCR, the congestion income generated by resold LTTRs should be received by these TSOs only and should not be distributed at EU level as this would create a problem of congestion income inadequacy for TSOs.

b. The development of this methodology should be clearly dependent on the timelines for the development of CCMs.

c. In CCRs applying the flow-based approach, the exchanges used for the calculation of congestion income on a bidding zone border follow the physical reality, whereas the scheduled exchanges used for scheduling processes do not. This implies that TSOs use two types of exchanges on bidding zone borders, both resulting from the SDAC and SIDC, but they are different in value and purpose. In the Agency's view, these two types of exchanges should be harmonised in order to align physical and commercial representation of the SDAC and SIDC and avoid confusion in the publication and interpretation of these exchanges.

[56] See

http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Annexes%20to%20the%20CIDM%20Decision/Annex%20I_CIDM.pdf .

3.3.1.12 Intraday cross-zonal capacity pricing

Legal Basis	
CACM Art. 55	Pursuant to Article 55 of the CACM Regulation, all TSOs must develop a proposal for a single methodology for pricing intraday cross-zonal capacity and submit to all regulatory authorities for approval and to the Agency for information.

Steps taken	
August 2017	All TSOs submitted to all regulatory authorities and the Agency a proposal for a single methodology for pricing intraday cross-zonal capacity
February 2018	All regulatory authorities requested from the Agency an extension of 6 months for reaching their agreement (based on Article 8 of the Agency Regulation), which the Agency granted in its decision.
July 2018	All regulatory authorities referred the proposal for a single methodology for pricing intraday cross-zonal capacity to the Agency for a decision, following the procedure set out in Article 9(11) of the CACM Regulation. The reason for the referral was that they were not able to reach come to an agreement on the proposal.

Current status of the implementation
The regulatory authorities referred the proposal for the single methodology for pricing intraday cross-zonal capacity to the Agency for a decision.

Observations and recommendations

(96) The process of adoption of this methodology is not yet finished and therefore no firm observations or recommendations can be made yet. Nevertheless, there are several legal issues, which complicate the work of the regulatory authorities, TSOs and the Agency.

(97) The CACM Regulation envisages the intraday single market as continuous trading; the TSOs were not able to find a solution for how to price continuously the cross-border capacities and instead proposed the usage of implicit auctions to price cross-zonal capacity.

(98) The adoption of this methodology will need to take into account the existing legal framework. However, since the implementation of the possible intraday implicit auctions is expected to take several years, a clarification of the CACM Regulation could be envisaged before implementation in order to remove any possible inconsistencies.

3.3.1.13 Cost sharing and cost recovery

Legal Basis	
CACM Art. 76	Pursuant to Article 76 of the CACM Regulation, all NEMOs shall bear the costs of establishing, updating and further developing the price coupling algorithm and the continuous trading matching algorithm and of operating the single day-ahead and intraday coupling. The NEMOs are entitled to recover all costs through fees or other mechanisms. TSOs may, subject to regulatory approval, contribute to these costs.

Observations and recommendations

(99) Implementation of the SDAC and SIDC revealed several problems related to (i) the clarity of the CACM Regulation on cost sharing, (ii) the incoherent line of responsibilities for establishing, updating and further developing the SDAC and SIDC, the governance, the cost sharing and the current practice, and (iii) the non-harmonised approach to cost recovery and possible TSOs contributions.

(100) As regards the cost sharing, Article 80(3) of the CACM Regulation fails to provide clarity on (i) how two eighths of the common costs are shared between NEMOs (i.e. how to consider NEMOs which are designated in several Member States or operate in several Member States without being designated), (ii) how the Member State's share is divided among NEMOs designated or operating

within that Member State. For this reason, regulatory authorities had to find a unanimous agreement on the interpretation of these provisions in order to enable the sharing of these costs. Article 80 of the CACM Regulation requiring NEMOs and TSOs cooperating in a region jointly to agree on a proposal for regional cost sharing is to some degree inconsistent with Article 76(1) of the CACM Regulation stating that all (also regional) costs shall be borne by NEMOs (although TSOs may contribute to these costs). The Agency recommends improving Article 80(3) of the CACM Regulation to provide clarity on this aspect.

(101) Regarding the alignment of responsibilities and cost sharing, the CACM Regulation gives NEMOs the sole responsibility for establishing, updating and further developing the SDAC and SIDC and for bearing the associated costs. The contributions from TSOs are considered as voluntary from the TSOs' perspective and thereby uncertain for NEMOs when they invest in these processes. Nevertheless, TSOs are significantly influencing these developments because they define requirements for capacity allocation. The implementation has, however, shown that NEMOs are reluctant to invest their resources in establishing, updating and developing the SDAC and SIDC without some certainty that most of these costs will be recovered by TSOs. TSOs on the other hand are reluctant to provide this certainty without having influence on the decisions affecting the establishing, updating and developing of the SDAC and SIDC. This circular co-dependence has been solved by allowing TSOs and NEMOs closely to coordinate these activities and processes. The Agency thus recommends changing the CACM Regulation to improve the governance of these processes by providing a formal role for TSOs.

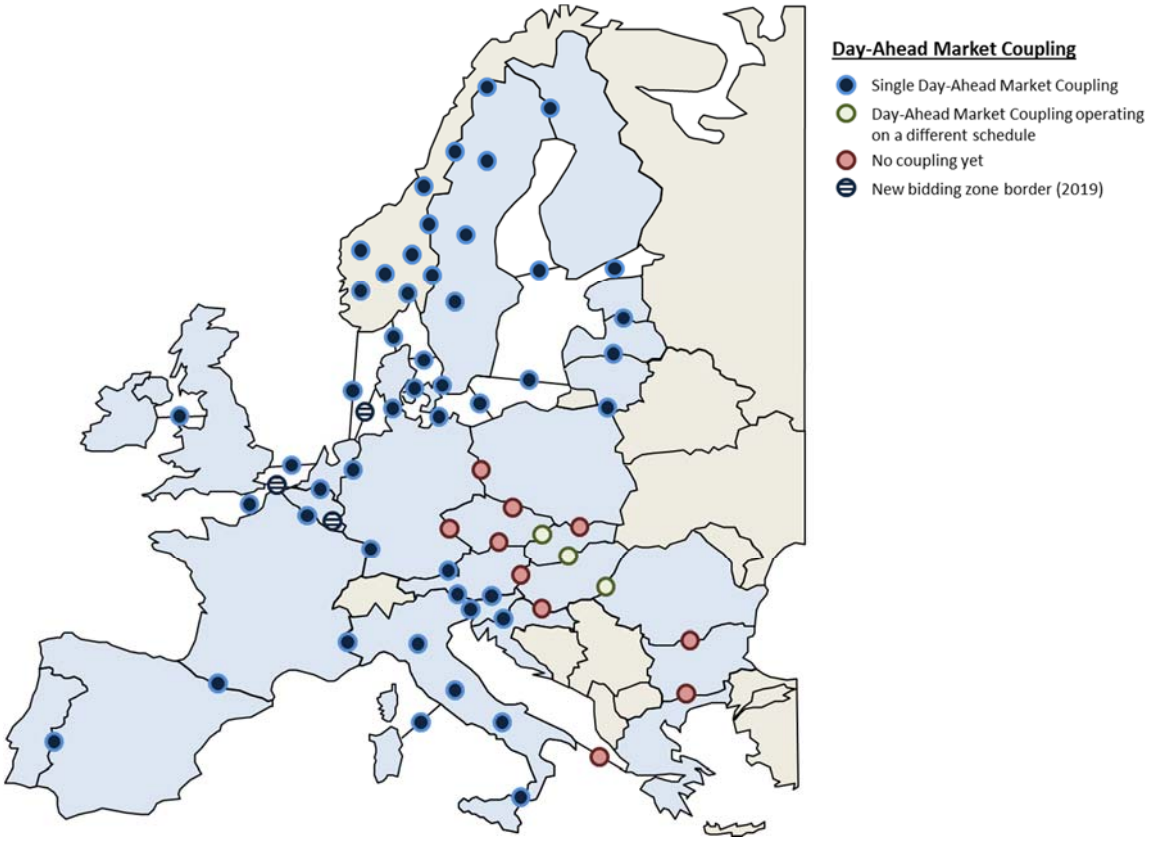
(102) As regards the non-harmonisation of cost recovery, the CACM Regulation provides each TSO (and implicitly also the competent regulatory authority) full discretion on the NEMOs costs that will be recovered by network tariffs via TSOs' contribution. The CACM Regulation does not specify a deadline by which a TSO needs to make a proposal for cost contribution, nor does it clarify whether the TSO's contribution can be decided upon by the regulatory authorities in the absence of the TSO's proposal. This may lead to a situation where NEMOs in some Member States would get all their costs recovered via network tariffs, whereas NEMOs in other Member States would recover only part or none of these costs via network tariffs and would thereby need to increase their fees to market participants. This could allow those NEMOs which participate in different Member States to cross-subsidise their operations and could thus create a non-level playing field for NEMO competition, which is one of the cornerstones of the CACM Regulation. Even though the regulatory authorities are generally autonomous when deciding on cost recovery via network tariffs, some level of harmonisation is needed in this respect. One possible solution would be to develop a methodology for harmonised assessment of all NEMOs costs (i.e. whether they are reasonable, efficient and proportionate).

3.3.2 Implementation progress in the SDAC

(103) The European electricity market is covered by the Multi-Regional-Coupling / Price Coupling of Regions (hereinafter the "MRC" and "PCR" respectively) and the 4 Markets Market Coupling ('4M MC')[57]. The MRC currently couples 48 bidding zone borders and the 4M MC couples 3 bidding zone borders. Three new bidding zones will be introduced in the MRC: (i) in Q3 2019, the Cobra cable is expected to connect Denmark and the Netherlands; (ii) in early 2019, the NEMO Link cable is expected to connect Belgium with the United Kingdom, and (iii) in 2019, the BeDeLux interconnector between Belgium and Luxembourg, currently under phase trial for evaluation, is expected to be part of the SDAC. The current status of implementation of day-ahead market coupling is presented in Figure 2.

[57] The 4M Market Coupling is a day-ahead price coupling based on NTCs (ATCs) covering Czech, Slovak, Hungarian and Romanian bidding zones

Figure 2: Day-Ahead Market Coupling - Status of the Implementation as of 1 November 2018



Source: ACER

(104) As regards the new bidding zone borders, the SI-HR border is participating since 19 June 2018 and UK-IE border is participating since 1 October 2018. The bidding zone border BE-UK is expected to join in 2019.

(105) The 4M MC still waits to be fully integrated with the MRC. However, currently there is no agreement among all the concerned parties on how to merge the two existing market coupling (MRC and 4M MC). TSOs from DE, PL and AT argued that NTC-based coupling could create problems with operational security and these problems could only be prevented with the flow-based market coupling. On the other hand, TSOs from CZ, SK, HU and RO considered that these problems are not expected to occur with NTC-based market coupling and therefore market coupling could be implemented before flow-based capacity calculation is implemented in the 4M MC region. A joint ENTSO-E assessment on that issue did not bring clear results. In 2018 the relevant NRAs initiated the investigation of the feasibility of an interim project aiming to couple 4MMC with MRC based on the currently used capacity calculation method.

(106) The Italian-Greek border is not yet technically ready for market coupling. Taking into consideration the current progress status of the envisaged reforms of the Greek electricity market, including the target model harmonisation, the go-live window is expected in the coming year.

(107) An extension of market coupling to third countries is conditional on their adoption of the applicable legislation (third energy legislative package and CACM Regulation) and in case of Switzerland an explicit approval is required by the Commission.

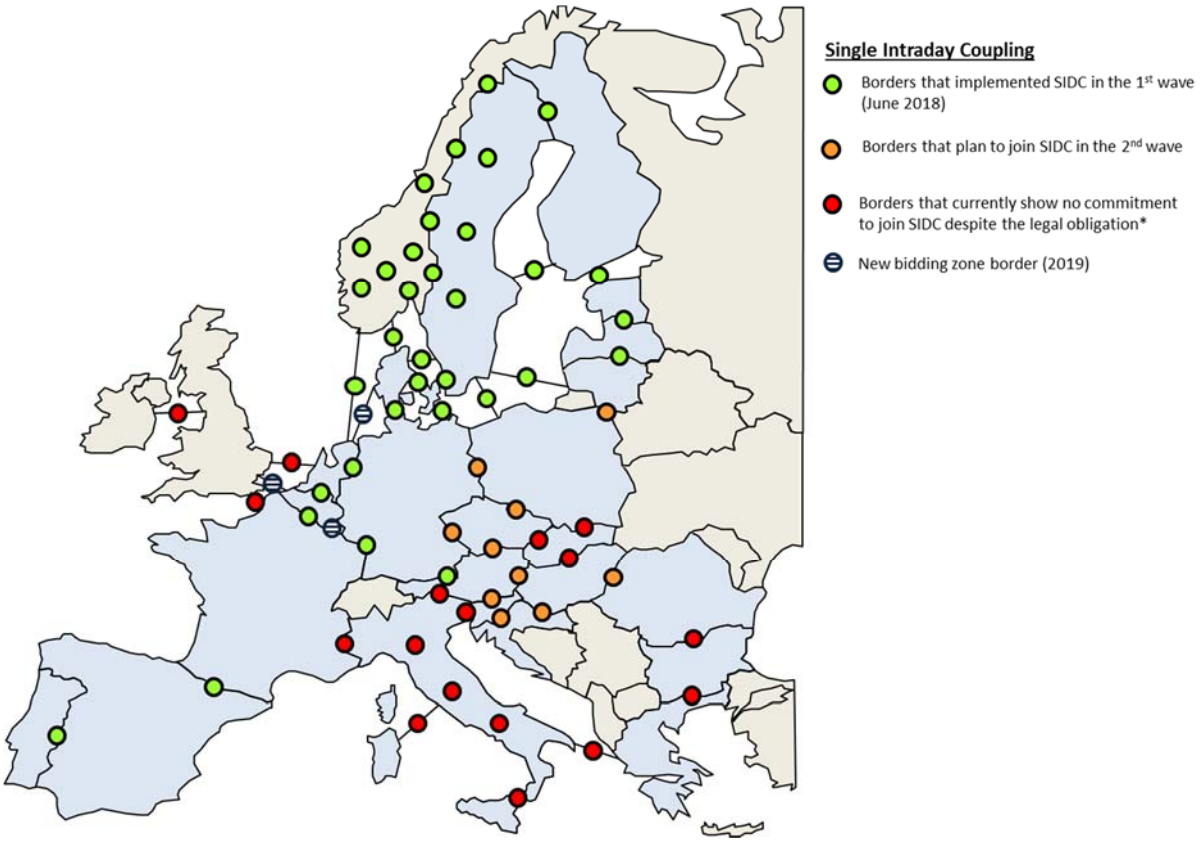
(108) Out of all the existing bidding zone borders, which currently fall within the scope of the obligations pursuant to the CACM Regulation, the day-ahead market coupling still needs to be implemented on the following ten bidding zone borders: PL-DE, PL-CZ, PL-SK, CZ-DE, CZ-AT, HU-AT, HU-HR, RO-BG, BG-GR and GR-IT and three borders which are expected to start operation in 2019: BE-

UK, BE-LU, NL-DK. The Commission has underlined that the extension of market coupling to all Member States should have a higher priority than updating the current SDAC solution.

3.3.3 Implementation progress in the SIDC

(109) In June 2018, the XBID project was finally implemented, with 10 local implementation projects joining the first round of go-live, thereby paving the way for the implementation of a single EU intraday coupling solution. The XBID project currently covers 14 countries in Europe (Austria, Belgium, Denmark, Estonia, Finland, France, Germany/Luxembourg, Latvia, Lithuania, Norway, the Netherlands, Portugal, Spain and Sweden) and supports the following products: 15-minutes, 30-minutes, 60-minutes and hourly user-defined blocks per market area. The current status of implementation of intraday market coupling is presented in Figure 3.

Figure 3: Single Intraday Coupling - Status of the implementation as of 1 November 2018



Source: ACER.

** Some borders are waiting for an upgrade of XBID to accommodate losses and capacity pricing, which may take some time. In the Agency's view this argument is currently valid only for those DC interconnectors which apply loss factor in SDAC.*

(110) The cross-border capacities are allocated only implicitly on all borders, except for the FR-DE border, where both explicit and implicit options are possible.

(111) The future development of XBID involves the implementation of new features such as the introduction of the enhanced version of the IT module for shipping and the functionality dealing with network losses in direct current interconnectors. It is envisaged that the XBID parties will release a maximum of two improvements each year and the changes will be subject to extensive testing before implementation. Moreover, 10 to 13 new bidding zone borders are expected to join in the second wave of local implementation projects, which is foreseen for June 2019.

3.4 Capacity calculation

3.4.1 Development of terms and conditions or methodologies

3.4.1.1 Capacity Calculation Regions (TSO)

Legal Basis	
CACM Art. 15(3)	Pursuant to Article 15 of the CACM Regulation, all TSOs need to develop a proposal for capacity calculation regions and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
November 2015	All TSOs submitted to all regulatory authorities and the Agency the proposal for capacity calculation regions.
May 2016	All regulatory authorities informed the Agency that they were not able to come to an agreement on the proposal for capacity calculation regions. In accordance with Article 9(11) of the CACM Regulation, the Agency thereby became competent to adopt a decision on the proposal for capacity calculation regions.
November 2016	The Agency adopted a decision on the proposal for capacity calculation regions[58].
August 2017	All TSOs submitted to all regulatory authorities and the Agency a proposal for an amendment of capacity calculation regions[59].
February 2018	All regulatory authorities approved the amended Annex I of the Agency's decision for capacity calculation regions.
April 2018	All TSOs submitted to all regulatory authorities and the Agency a proposal for a second amendment of capacity calculation regions.[60]
September 2018	All regulatory authorities referred the proposal for a second amendment of capacity calculation regions to the Agency for a decision in accordance with the procedure set out in Article 9(11) of the CACM Regulation. The reason for the referral was that they were not able to reach an agreement on the proposal.

Current status of the implementation
The capacity calculation regions are effective from the entry into force of the Agency's Decision, i.e. 17 November 2016. The first amendment proposal was approved and is already effective, so the current CCR are defined by both the ACER Decision and the regulatory authorities' decision. The second amendment is currently being decided by the Agency.

Observations and recommendations

(112) In September 2015, following a request from the Polish NRA, the Agency issued an opinion indicating that the Austrian-German interconnector is "usually and structurally" congested as defined in the Electricity Regulation[61]. The Opinion further included an invitation to introduce a coordinated capacity allocation procedure on the Austrian-German border.

[58] Agency's decision No 06/2016 of 17 November 2016 - https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/ANNEXES_CCR_DECISION/Annex%20I.pdf .

[59] to include the bidding zone border between Belgium and Great Britain (BE-GB) and to assign this new bidding zone border to the CCR Channel.

[60] to include the cobra cable (bidding zone border between Denmark and the Netherland) to CCR Hansa, to include Amprion as a TSO to the bidding zone border between Germany/Luxembourg and Belgium (DE/LU-BE), and to include National Grid, IF2 limited and Eleclink as TSOs to the bidding zone border between France and Great Britain.

[61] Agency's opinion No 09/2015 of 23 September 2015 - https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2009-2015.pdf .

(113) This Opinion served as a basis for the all TSOs' decision to include the Austrian-German border in their initial proposal[62]. The proposal was later confirmed by the decision of the Agency. In addition, this decision requested the merger of the CWE and CEE regions to form the CCR Core.

New mergers

(114) The CACM Regulation establishes a framework by which the electricity exchanges on bidding zone borders within a CCR are coordinated only with electricity exchanges on borders within the same CCR, but not with electricity exchanges on borders outside the CCR. The main criteria in designing the CCRs is therefore to ensure that all bidding zone borders which are interdependent are included in the same CCR. However, the existing CCRs are designed such that some level of non-coordination between interdependent borders is tolerated in order to avoid creating very large CCRs which would constitute a significant governance and implementation burden for the coordinated capacity calculation, as well as for redispatching and countertrading methodologies.

(115) Nevertheless, once the main methodologies are adopted in existing CCRs, the remaining inefficiencies due to non-coordination between significantly interdependent borders should be addressed. This should generally be done through the merger of some of the existing CCRs into larger CCRs, subject to the efficiency of such a merger. Nevertheless, in case of DC interconnectors, such coordination could be achieved also with the advanced hybrid coupling solution by which these interconnectors can remain within a separate CCR and apply the coordinated net transmission capacity ('CNTC') approach, but the electricity exchanges on them can additionally be limited by the flow-based capacity calculation on one or both ends of the DC interconnector.

(116) The most urgent non-coordination problem that needs to be addressed is the merger of CCRs Italy North and Core. Currently, decisions affecting flows in one of these CCRs affect the other. This is notably the case regarding the use of PSTs and other remedial actions which have an impact on cross-zonal capacity calculation and coordination of remedial actions in both CCRs. The Agency considers that those CCRs should merge as soon as practicably feasible. Similarly the CCR SEE should also gradually merge with the CCR Core, although with less urgency.

(117) The electricity exchanges on DC interconnectors in the CCRs Hansa and Channel are also interdependent with borders within the CCRs Core and Nordic. The flow-based capacity calculation methodologies will be suboptimal until the exchanges on these DC interconnectors are properly taken into account in these methodologies. This can either be achieved by merging these bidding zone borders with the CCR Core or CCR Nordic, or by applying the advanced hybrid coupling solution.

New borders

(118) The Agency notes that the initial definition of CCRs was already subject to two amendments, with the inclusion of the NEMO and COBRA links. In order to make the decisions on CCRs more robust in the future and avoid too frequent amendments, the Agency suggests that the regulatory authorities/TSOs include all foreseen investments for the next 5 years (unless those involve additional TSOs/NRAs) in the CCR and make the activation of these borders in the CCR conditional on the operation of these infrastructures.

3.4.1.2 Common Grid Model Methodology (TSO)

Legal Basis	
CACM Art. 17	Pursuant to Article 17 of the CACM Regulation, all TSOs need to develop a proposal for a common grid model methodology and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken

[62] https://docstore.entsoe.eu/Documents/Network%20codes%20documents/Implementation/cacm/151103_CCRs%20Proposal_approved_updated_clean%20and%20final%20for%20submision.pdf .

July 2016	All TSOs submitted to all regulatory authorities and the Agency the proposal for a common grid model methodology.
January 2017	All regulatory authorities requested all TSOs to amend the proposal for a common grid model methodology.
April 2017	All TSOs submitted to all regulatory authorities and the Agency the amended proposal for a common grid model methodology.
July 2017	All regulatory authorities approved nationally the proposal for the common grid model methodology.

Current status of the implementation
After a significant delay in its adoption, the common grid model methodology is expected to be implemented in several steps within 13 months after the regulatory approval.

Observations and recommendations

(119) Common grid models are essential for the starting of the simulation and testing on the CCMs. Any further delay in their implementation may impact the implementation of the CCM.

(120) Once the CGM pursuant to the FCA Regulation and the SO Regulation are approved, TSOs intend to align all three methodologies into a single document.

3.4.1.3 Generation and load data provision

Legal Basis	
CACM Art. 16	Pursuant to Article 16 of the CACM Regulation, all TSOs need to develop a proposal for generation and load data provision methodology and submit it to all regulatory authorities for approval and to the Agency for information.

Steps taken	
August 2016	All TSOs submitted to all regulatory authorities and the Agency a proposal for a generation and load data provision methodology.
January 2017	All regulatory authorities agreed on the proposal for the generation and load data provision methodology.
July 2017	All regulatory authorities approved nationally the proposal for the generation and load data provision methodology.

Current status of the implementation
The methodology is adopted. The generation and load data provision methodology is expected to be implemented in several steps within 12 months after the joint regulatory approval (i.e. by January 2018)[63]. **Following Art. 3(1) of the generation and load data provision methodology, TSOs have a right but not an obligation to obtain data. Therefore, the implementation resulted in only a subset of TSOs requesting data[64].**

Observations and recommendations

(121) Following the requirements set in Article 16 of the CACM Regulation, ENTSO-E published a list of data to be published, as well as a list of entities responsible for the provision of this data[65].

(122) The Agency notes a 7-month gap between the regulatory authorities' agreement (January 2007) and the decision by the last regulatory authority. The Agency was not always notified about the outcome of the individual approval process.

3.4.1.4 Capacity calculation methodology

Legal Basis	
CACM Art. 20	Pursuant to Article 20 of the CACM Regulation, all TSOs in each CCR shall develop a proposal for a common coordinated CCM within the respective CCR and submit it to all regulatory authorities of the respective CCR for approval and to the Agency for information.

[63] Steps are detailed in the methodology.

[64] For more details, see https://www.entsoe.eu/2017/03/10/gldpm-data-published/

[65] See https://www.entsoe.eu/2017/03/10/gldpm-data-published/.

Steps taken	
September 2017	The TSOs from the CCRs Core and Nordic submitted to the relevant regulatory authorities and the Agency a proposal for the common coordinated CCM **using the flow-based approach.** The TSOs from the CCRs Baltic, Channel, GRIT, Hansa, IU, and SWE submitted to the relevant regulatory authorities and the Agency a proposal for the common coordinated CCM **CNTC approach.** The TSOs from the CCR SEE submitted a CNTC methodology after the legal deadline on 25 January 2018. The TSOs from the CCR Italy North submitted a CNTC methodology after the legal deadline on 5 May 2018[66].
March 2018	The relevant regulatory authorities requested their respective TSOs to amend the proposal for common coordinated CCM for the CCRs Baltic, Channel, Core, GRIT, IU, Nordic and SWE. The SEE regulatory authorities issued their request for amendment in June 2018. Regulatory authorities from CCR Italy North issued such a request in December 2018. Upon request, the Agency granted the Hansa regulatory authorities a four-month extension to decide on a request for amendment[67]. The concerned TSOs resubmitted an amended proposal in September 2018.
May 2018	The relevant TSOs submitted amended proposals for a common coordinated CCM for the CCRs Baltic, Channel, Core, GRIT, IU, Nordic and SWE.
July 2018 **October 2018**	The relevant regulatory authorities from the CCRs GRIT, IU and Nordic approved the amended proposals. Upon request, the Agency granted the Baltic regulatory authorities a three-month extension to approve the methodology or to refer it to the Agency[68]. Subsequently, the Baltic regulatory authorities approved this methodology in October 2018. The regulatory authorities from the CCRs Channel and SWE requested their respective TSOs to amend for a second time the proposal for common coordinated capacity calculation methodology.
August 2018	The Core regulatory authorities did not come to an agreement over the amended proposal for a common coordinated CCM in the CCR Core. The case has been referred to the Agency.
October 2018	Regulatory authorities from CCR SEE requested for the second time their TSOs to amend the proposal for common coordinated CCM.
November 2018	Relevant regulatory authorities approved the amended proposal for common coordinated capacity calculation methodology for the CCRs Baltic and SWE.
December 2018	Relevant regulatory authorities approved the amended proposal for common coordinated capacity calculation methodology for the CCRs Channel and HANSA. Regulatory authorities from CCR Italy North requested their TSOs to amend the proposal for common coordinated CCM.

Current status of the implementation
By December 2018, 7 out of 10 regions have approved a capacity calculation methodology (Baltic, Channel, GRIT, HANSA, IU, Nordic and SWE). One CCR (Core) referred the final decision to the Agency. The approval of the capacity calculation methodologies for the other regions (Italy North and SEE) is facing delay.

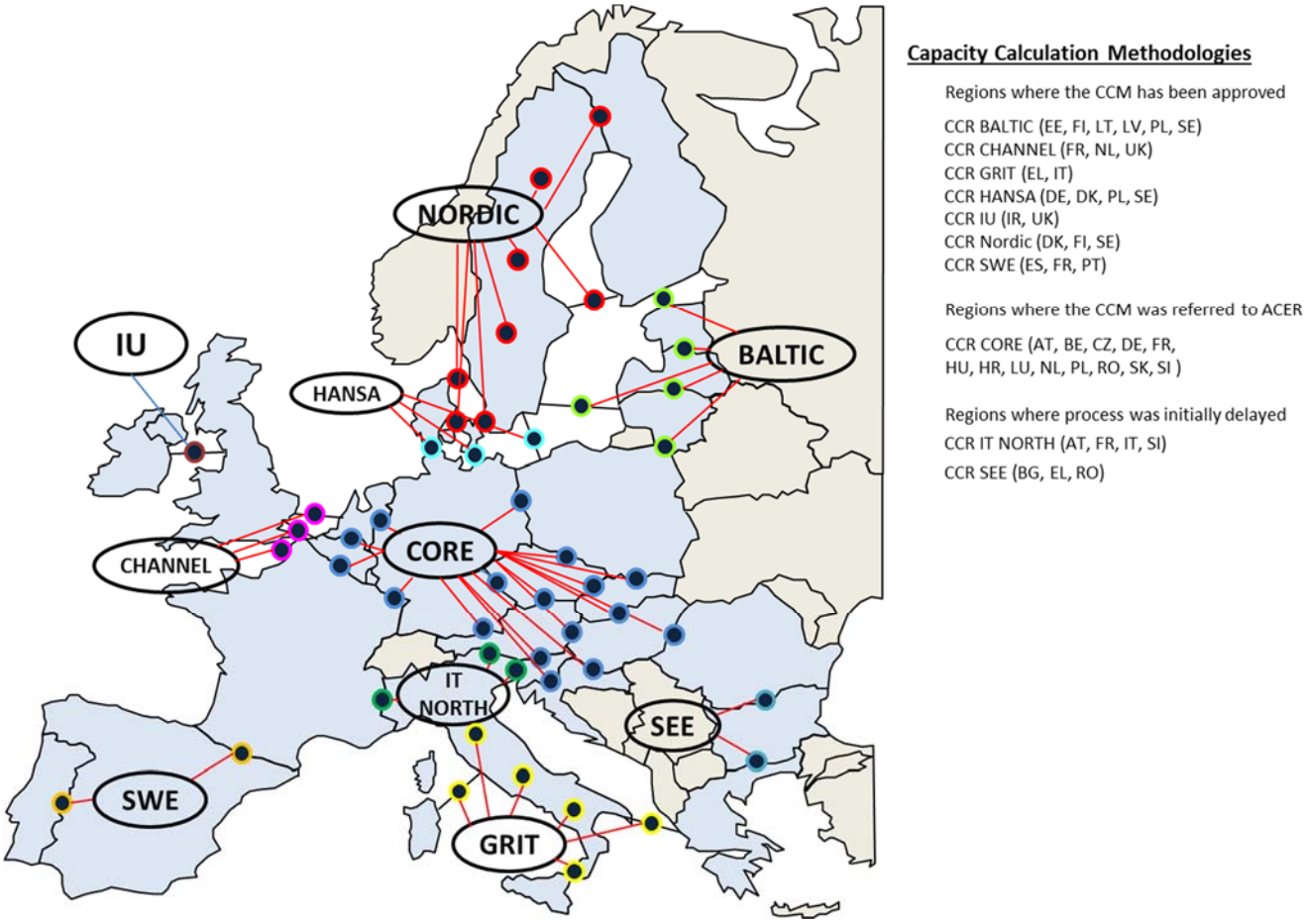
[66] The TSOs of the CCRs SEE and Italy North initiated the work on their capacity calculation methodology with a delay, which was caused by unclear legal provisions. The respective TSOs asked the Commission to clarify whether Article 20(3) of the CACM Regulation (i.e. for CCR Italy North) and Article 20(4) of the CACM Regulation (i.e. for CCR SEE) provide a derogation from Article 20(2) of the CACM Regulation by which the respective TSOs do not need to develop the capacity calculation methodologies using the Coordinated NTC approach until the conditions for applying the flow-based approach of Article 20(3) and (4) are fulfilled. Eventually, the Commission clarified that Article 20(3) and (4) do not provide a derogation for the respective TSOs to develop the capacity calculation methodologies using the Coordinated NTC approach as required by Article 20(2) of the CACM Regulation.

[67] At their request, the Agency granted the Hansa regulatory authorities a four-month extension of the deadline, in order better to assess interactions with the Core region. See the Agency's Decision No 03/2018 of 16 April 2018

[68] At their request, the Agency granted the Baltic regulatory authorities a three-month extension of the deadline, in order to better assess interactions with third countries. See the Agency's Decision No 09/2018 of 28 August 2018

The current status of implementation of the capacity calculation methodologies is presented in Figure 4.

Figure 4: Capacity Calculation Methodologies - status of the implementation as of 1 January 2019



Source: ACER.

Observations and recommendations

(123) The Agency encourages TSOs to provide full transparency on the difficulties in developing capacity calculation methodologies, which relate to the content, so that the regulatory authorities and the Agency can have a complete understanding of the issues when issuing a decision. Also, due to a lack of resources, the Agency can only actively follow the process and discussions in a few CCRs, while experience shows that the Agency's involvement would help facilitate the relevant discussions in all CCRs.

(124) Regarding the process, the Agency wishes to remind TSOs that they shall, in accordance with Article 9(4) of the CACM Regulation, formally inform the Agency and the regulatory authorities of any failure to submit the relevant methodologies within the legal deadline. In turn, the Agency shall notify the failure to the Commission.

(125) Regarding the content of the methodologies submitted so far, the Agency observes that the level of detail of all methodologies is generally sufficient in the methodologies using the flow based approach and the coordinated NTC approach used on DC interconnectors. The methodologies using the coordinated NTC approach on AC interconnectors are generally lacking many details on the various calculation steps, from the input parameters to the final output.

(126) In addition, none of the proposed methodologies adequately tackled the problem of undue discrimination between internal and cross-zonal exchanges. In particular, most methodologies do not aim at removing internal network elements from the capacity calculation process, nor at limiting the amount of loop flows that can reduce cross-zonal capacity. Most commonly TSOs argue that only those internal network elements, which are significantly impacted by cross-zonal exchanges, can limit cross-zonal capacity. This is however not consistent with the zonal market design, where

structural congestions should not appear inside bidding zones (and if they do, they should be addressed by a change in the bidding zones configuration or at least with other measures such as redispatching)

(127) The Agency recommends that all steps in Article 29(7) of the CACM Regulation for Flow-Based calculation and Article 29(8) of the CACM Regulation for CNTC be detailed in the methodologies. Further, in case the methodology allows for internal critical network elements and loop flows to reduce the available cross-border capacity, the methodology should also describe long-term solutions to ensure that such discrimination is only temporary[69].

3.4.2 Implementation progress in day-ahead and intraday capacity calculation

(128) The 7th edition of the ACER Market Monitoring Report highlights that significant progress has been achieved in capacity calculation compared to the previous years, but that much more effort is needed to achieve compliance with the requirements set by the CACM Regulation regarding capacity calculation in the day-ahead and intraday timeframes[70].

(129) Currently, intraday capacity calculation is not performed on 27 EU borders (plus 4 non-EU, out of 50 considered in the Report – meaning 62% of the borders). No border presents a full level of coordination regarding intraday capacity calculation, 10 (20%) a partial one, and 9 (18%) rely on a bilateral coordination only.

(130) Day-ahead capacity calculation is not performed on 10 (20%) EU borders. 4 (8%) borders present a full level of capacity coordination, 8 (16%) a partial one, and most borders (24 - 48%) rely on bilateral coordination only.

(131) A further assessment of the individual and regional results of the current implementation confirms a generally low fulfilment of the capacity calculation coordination requirements set in the CACM Regulation, with an above-average performance for the CCR Italy North, Along with the CCR Core (CWE). For the CCR Core (CWE), this performance mainly comes from the application of the flow-based method and from the common grid model for the day-ahead timeframe, while for the CCR Italy North, this is mainly due to the relatively high level of coordination reported for the day-ahead timeframe.

3.5 Redispatching and countertrading

3.5.1 Development of terms and conditions or methodologies

3.5.1.1 Coordination of redispatching and countertrading

Legal Basis	
CACM Art. 35	Pursuant to Article 35 of the CACM Regulation, all the TSOs of each CCR need to develop a proposal for a common methodology for coordinated redispatching and countertrading and submit it to all regulatory authorities of the respective CCR for approval and to the Agency for information.

Steps taken	hannel
May 2018	By May 2018, the TSOs from CCRs Baltic, Channel, GRIT, Hansa, Italy North, IU, Nordic, SEE and SWE submitted to the concerned regulatory authorities and the Agency the proposals for a methodology for the coordination of redispatching and countertrading.

[69] See Annex I, Article1(7) of the Electricity Regulation

[70] See 13 above.

September 2018	The relevant regulatory authorities requested from their respective TSOs to amend the proposal for the coordination of redispatching and countertrading for the CCRs CHANNEL and IU.
October 2018	The relevant regulatory authorities requested from their respective TSOs to amend the proposal for the coordination of redispatching and countertrading for the CCRs Baltic, Hansa and Nordic.
November 2018.	Regulatory authorities from CCR SEE requested from their TSO to amend the proposal for the coordination of redispatching and countertrading. TSOs from CCRs Baltic, Channel, GRIT, IU, and Nordic submitted to the concerned regulatory authorities the amended proposals for the coordination of redispatching and countertrading.
December 2018	Regulatory authorities from CCR Italy North requested from their TSO to amend the proposal for the coordination of redispatching and countertrading. TSOs from CCR Hansa and SEE submitted to the concerned regulatory authorities the amended proposals for the redispatching and countertrading cost sharing.

Current status of the implementation
All regions submitted the initial methodology on time, with the following exceptions: • **The Core TSOs informed the Agency, according to Article 9(4) of the CACM Regulation that they failed to develop the methodology. They are expected to do so by February 2019;** • **The Italy North TSOs submitted the methodology with a delay on 5 May 2018; they did not inform the Commission nor the Agency about the delay[71].**

Observations and recommendations

(132) The Agency reminds TSOs and regulatory authorities that they shall deliver methodologies according to the legal deadlines defined in the CACM Regulation. The methodologies shall meet a sufficient standard of quality. Further, the Agency encourages TSOs to keep the regulatory authorities and the Agency informed about the difficulties that they are facing when developing these methodologies. The regulatory authorities and the Agency will thereby have a better understanding of the issue when drafting a decision. Also, due to a lack of resources, the Agency can only actively follow the process and discussions in a few CCRs, while experience shows that the Agency's involvement would help facilitate the relevant discussions in all CCRs.

(133) The reason for the delay in the CCR Core was due to the Core TSOs' plan to develop this methodology together with the methodology for operational security analysis according to Article 74(1) of the SO Regulation. The Agency agrees that there is a link between the capacity calculation methodologies and the operational security analyses. However, the Agency considers that the TSOs could address this interdependency by developing a methodology that respects the requirements of both Regulations and submit it by the first legal deadline (i.e. the one defined by the CACM Regulation). Following the Commission's intervention, the Core TSOs committed to submit a methodology to the regulatory authorities for approval in February 2019.

(134) The Agency was not informed about the failure of the TSOs from the CCR Italy North to deliver on time and detected it only after a specific inquiry into the matter. The Agency wishes to remind TSOs that they shall, in accordance with Article 9(4) of the CACM Regulation, formally inform the Agency and the regulatory authorities of any failure to submit the relevant methodologies within the legal deadline. In turn, the Agency shall notify this failure to the Commission.

3.5.1.2 Cost-sharing for coordinated redispatching and countertrading

Legal Basis	
CACM Art. 74	Pursuant to Article 74 of the CACM Regulation, all TSOs of each CCR shall develop a proposal for a common methodology for redispatching and countertrading cost-sharing.

Steps taken	
May 2018	TSOs from Channel, GRIT, Hansa, Italy North, IU, Nordic and SWE submitted to the concerned regulatory authorities and the Agency the proposals for a methodology for sharing the cost for coordinated redispatching and countertrading.
October 2018	Relevant regulatory authorities requested from their respective TSOs to amend the proposal for the redispatching and countertrading cost sharing for the CCRs Channel, Hansa, IU and Nordic.
November 2018	TSOs from CCRs Channel, IU, and Nordic submitted to the concerned regulatory authorities the amended proposals for the redispatching and countertrading cost sharing.
December 2018	Regulatory authorities from CCR Italy North requested from their TSO to amend the proposal for the redispatching and countertrading cost sharing. TSOs from CCR Hansa submitted to the concerned regulatory authorities the amended proposals for the redispatching and countertrading cost sharing.

[71] See 66 above.

Current status of the implementation

All regions submitted the initial methodology, with the following exceptions:

- **The Baltic TSOs failed to reach an agreement on the cost sharing methodology and informed the Agency according to Article 9(4) of the CACM Regulation. The Commission delegated the Baltic CCR NRAs to adopt a methodology by February 2019;**
- **The Core and SEE TSOs did not initially develop a proposal and informed the Agency according to Article 9(4) of the CACM Regulation;**
- **The SEE TSOs submitted a proposal with a delay on 4 September 2018 after informing the Agency;**
- **The Italy North TSOs submitted the methodologies with a delay on 5 May 2018 without informing the Agency about the delay[72].**

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Observations and recommendations

(135) Regarding the content of the methodologies submitted so far, the Agency observes that the level of detail of all methodologies is generally insufficient. The Agency considers that the methodologies should adopt a polluter-pays principle where relevant. This implies that the methodologies should identify 'legitimate' and 'illegitimate' flows, by splitting physical flows on congested (overloaded) network elements into flows arising from cross-zonal exchanges (i.e. allocated flows) and flows arising from internal exchanges, whereas the latter should then be further split into internal flows, and loop flows[73,74]. The polluter-pays principle, in the Agency's view, means that allocated flows are considered as legitimate flows, whereas only a certain amount of loop flows and internal flows can be considered as legitimate, i.e. those that would be expected to occur in an optimal bidding zone configuration. Nevertheless, the Agency finds it reasonable that different CCRs apply a pragmatic approach to cost sharing:

a. CCRs where there are no illegitimate flows (e.g. CCRs with DC links) do not actually need to share the costs between TSOs as there is no mutual impacts between them;

b. CCRs where illegitimate flows are loop and internal flows (e.g. Core) would need to allocate the costs to TSOs that are at the origin of these flows;

c. CCRs where illegitimate flows are loop, internal and unscheduled allocated flows (transits) (e.g. Italy North) would need to allocate the costs to TSOs that are at the origin of these flows.

(136) The Agency repeats the observations and recommendations made in this Report in the context of the coordinated redispatching and countertrading for the CCRs Core and Italy North[75]. In the specific context of the cost-sharing methodologies, the Agency is of the opinion that the methodology needs to be clear and enforceable. However, as it will not be possible to test every possible situation before the submission, the Agency suggests that the regulatory authorities and TSOs run a detailed testing in parallel with the development of the methodology, or after its approval. It will remain possible to amend the methodology at a later stage in case the testing reveals unexpected outcomes[76].

[72] See 66 above.

[73] Legitimate flows are defined here as those flows, which have authorised access to the capacity of a network element, where such authorisation is commonly agreed by all the involved TSOs and regulatory authorities, e.g. using an optimal bidding zone configuration as a reference.

[74] Internal flows are physical flows arising from internal exchanges inside a bidding zone observed on a network element inside that same bidding zone. Loop flows are physical flows arising from internal exchanges inside a bidding zone observed on a network element, which has at least one node outside of that bidding zone.

[75] See paragraphs (133) to (134) above.

[76] Pursuant to Article 9(12) of the CACM Regulation.

(137) The TSOs of the CCR Baltic informed the Agency that the reason for the failure to submit a methodology was that the TSOs could not agree on the approach to treat third countries (the Russia Federation and Belarus) within the capacity calculation methodology. Consequently, the Baltic TSOs were divided on the sharing of potential costs that may be attributed, directly or indirectly, to electricity exchanges with third countries.

(138) On the process, in general, the Agency observes that the regulatory authorities and TSOs have faced several problems in the development of coordinated redispatching and countertrading methodologies.

(139) First, the methodologies for coordinated redispatching and countertrading and the CCMs are strongly interdependent. However, the legal basis requires them to be developed at different times.

(140) Second, Article 74 of the CACM Regulation, beyond requiring TSOs to establish a region-wide cost sharing methodology, which must *"ensure a fair distribution of costs and benefits between the TSOs involved"*, does not further define what a fair distribution of these costs and benefits would be. The CACM Regulation does not mention nor define the so-called "polluter pays" principle as defined by the Agency, whereby *"the unscheduled flows over the overloaded network elements should be identified as 'polluters' and they should contribute to the costs in proportion to their contribution to the overload"*[77]. Due to the lack of detail of the CACM Regulation on what would constitute a fair distribution of costs and benefits resulting from the application of the coordinated redispatching and countertrading methodologies, the TSOs and regulatory authorities remain unsure of what a proper solution would be.

(141) Third, the CACM Regulation requires that the cost-sharing methodology is approved unanimously by all TSOs in each CCR, regardless of how many TSOs and regulatory authorities are concerned. In addition, the legal basis does not define a clear process, should TSOs fail to reach an agreement, because Article 9(4) of the CACM Regulation only says that the Commission shall take appropriate steps to make the adoption of the methodology possible, but it does not specify what these steps are and what are the legal possibilities in this respect.

(142) In order to address those problems, the Agency recommends that the CACM Regulation be amended in order to align the timelines for the adoption of the CCM and of the coordinated redispatching and countertrading methodologies. Further, regarding the adoption process, the Agency recommends that the CACM Regulation be amended in order to abandon the requirement of a unanimous TSOs' decision, and clarify that when TSOs fail to reach an agreement, then the decision should be taken by the relevant regulatory authorities in cooperation with the different t parties involved in drafting the methodologies (i.e. the regulatory authorities should have the competence to fix the methodology directly without a formal proposal from their TSO).

3.5.2 Implementation progress in coordinated redispatching and countertrading

(143) Some level of coordination of redispatching and countertrading is currently performed only in the CCRs Core and Italy North, based on the requirements of Chapter 3 of Annex I to Regulation (EC) No 714/2009. In the CCRs Core and Italy North, two Regional Coordination Centres (RSC), i.e. Coreso and TSC, support the TSOs in performing coordinated assessment and forecasting of congestions in the day-ahead and intraday timeframes using a common grid model. The identified congestions are then addressed in a coordinated way where needed through a common coordination procedure involving all the TSOs and the respective RSC. For the moment, only those congestions, which could not be previously addressed by unilateral measures of each TSO or TSOs of a bidding zone, are addressed in a coordinated way. In case of application of coordinated remedial actions, the costs of these remedial actions are shared among the TSOs using mostly the requester-pays principle, whereas in the CCR Core part of the costs are shared using also the polluter-pays principle.

(144) The adoption of the methodologies for coordinated redispatching and countertrading, as well as the methodologies for redispatching and countertrading cost-sharing will represent a natural evolution

[77] See Article 4(3) of the Agency's Recommendation No 02/2016.

towards more coherent and holistic approach to redispatching and countertrading. Firstly, the methodologies will need to be geographically aligned with the CCRs and not the areas covered by RSCs as is currently the case. Secondly, the methodologies will need to establish clearly:

a. which congestions are cross-border relevant and thereby need to be solved in a coordinated manner;

b. the process to define all the available countertrading and redispatching actions;

c. the process to coordinate countertrading and redispatching focusing on economic optimisation to solve congestions;

d. the process of activation of countertrading and redispatching;

e. the methodology to identify the causes of congestions (i.e. polluters) and the allocation of the costs of countertrading and redispatching accordingly.

(145) It is important to note that the above detailed process contained in both methodologies is expected to be detailed in those CCRs, which are characterised by highly meshed AC networks and where electricity flows between bidding zone borders are interdependent. In other CCRs, namely those with DC interconnectors, these two corresponding methodologies could be simpler.

3.6 Bidding zone review

Legal Basis	
CACM Art. 34	Pursuant to Article 34 of the CACM Regulation, the Agency needs to assess the efficiency of the current bidding zone configuration every three years by requesting ENTSO-E to draft a technical report on the current bidding zone configuration and by drafting a market report evaluating the impact of the current bidding zone configuration on market efficiency. If the technical or the market report reveals inefficiencies in the current bidding zone configuration, the Agency may request the TSOs to launch a review of the bidding zone configuration in accordance with Article 32 of the CACM Regulation.

Steps taken	
December 2016	The Agency requested, pursuant to Articles 32(1)(a) and 34(7) of the CACM Regulation, the TSOs of Austria, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Italy, Luxembourg, the Netherlands, Poland, Slovakia and Slovenia to review the bidding zone configuration in that area in accordance with the process in Article 32(4) of the CACM Regulation. The request was based on the Agency's assessment, which revealed inefficiencies in the current bidding zone configuration. This assessment was based on the technical report of ENTSO-E and the market report of the Agency performed in the context of the early implementation of the CACM Regulation[78].
October 2017	All TSOs included in the bidding zone review developed a methodology and assumptions, as well as alternative bidding zone configurations that were to be used in the review process and submitted them to the concerned regulatory authorities, which could request amendments to the proposal within three months.
October 2017	The Agency requested, pursuant to Article 34 of the CACM Regulation, ENTSO-E to draft a technical report on bidding zones covering the area of the whole EU, including the significantly impacted third countries, and covering at least the last three calendar years, i.e. from 2015 to 2017. In January 2018, the Agency

[78] https://www.acer.europa.eu/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/17%20BZR/Action%201a%20-%20ACER%20Request%20to%20for%20review%20of%20bidding%20zones.pdf#search=bidding%20zone%20review .

	reiterated this request in order to enable ENTSO-E to include the calendar year 2017 into the report.
April 2018	ENTSO-E, on behalf of all TSOs involved in the first bidding zone review process, submitted to all relevant regulatory authorities and to the Agency the report on the first review of the bidding zones[79].

Current status of the implementation
ENTSO-E published the first edition of the bidding zone review on 5 April 2018.

Observations and recommendations

(146) The first bidding zone review was a failure. While the Agency concluded that the existing bidding zone configuration is not efficient, the participating TSOs could not provide any meaningful conclusions on the efficiency of the analysed alternative bidding zone configurations and recommended to maintain the *status quo*. The TSOs' failure to come up with meaningful conclusions is the natural outcome of obvious methodological and governance-related flaws.

On the TSOs' discretion to select scenarios, methodologies and assumptions

(147) The first bidding zone review clearly revealed that participating TSOs did not act merely as a neutral facilitator of the market and that most participating TSOs involved in this review process had a strong interest to drive the bidding zone review into a deadlock. This was particularly visible in the choice of the generation/load/network scenarios, methodology, assumptions and alternative bidding zone configurations, which have a decisive impact on the outcome of the review and for which the TSOs had a lot of discretion. Most notably, TSOs refused to evaluate additional alternative bidding zone configurations proposed by the Agency, the regulatory authorities and stakeholders, with the explanation that they represented an additional computational burden. At the same time, the participating TSOs were not willing to ease the computational burden in other areas of the review, such as defining fewer generation/load/network scenarios as suggested by the Agency and the regulatory authorities. The refusal to analyse more alternative bidding zone configurations revealed that TSOs had an interest to limit the analysis to only those configurations, which could potentially be acceptable to them or to the concerned Member States or regulatory authorities, which would need to approve such configurations.

(148) For the above reason, the Agency recommends that the governance for deciding on the methodology and assumptions be further clarified using for example the solution applied for all the terms and conditions or methodologies specified in the CACM Regulation. Indeed, contrary to all other terms and conditions or methodologies referred to, the CACM Regulation does not expressly assign to the Agency a dispute resolution role in the approval of the scenarios, methodology and assumptions used for the bidding-zone review. Such role would frame the currently significant discretion that the TSOs are eventually enjoying in the selection of these features as long as NRAs are not able to agree unanimously. The recommended governance would imply a six-month deadline for regulatory authorities to agree on amendments and in case of disagreement to refer the case to the Agency.

Criteria

(149) Article 33 of the CACM Regulation defines the criteria for reviewing the bidding zone configuration. These criteria represent all the theoretically relevant impacts of a bidding zone configuration on network security, market efficiency and stability and robustness of the bidding zones. However, many of those criteria (e.g. market liquidity or market power) cannot be efficiently quantified in monetary value in order to be compared with other criteria that are normally expressed in monetary value (e.g. consumer and producer surplus). Furthermore, some other criteria are not inherently related to a bidding zone configuration. For example, the Agency suggested not to consider the liquidity of forward markets as a relevant criterion since it is more dependent on the ability to pool liquidity to large enough trading hubs, which can be done within large or small bidding zones. The

[79] https://www.entsoe.eu/news/2018/04/05/first-edition-of-the-bidding-zone-review-published/.

Agency recommends to improve the CACM Regulation so that the focus in the assessment is put on the criteria, which can be quantified in Euros, while the non- or less quantifiable criteria would only be classified as satisfactory or not satisfactory.

Time-horizon and future infrastructure development

(150) The CACM Regulation does not clearly identify the time horizon for the bidding zone review. While Article 33(2) of the CACM Regulation specifies that it should include scenarios, which take into account a range of likely infrastructure developments throughout the period of 10 years, this does not mean that these are the only scenarios to be considered. The first edition of the bidding zone review considered scenarios for 2020 and 2025 (approximately 5 and 10 years) with two assumptions on the infrastructure development: (i) all the investments planned considered in the TYNDP in this horizon will be realised and (ii) only those investments, which are currently under construction or where construction cannot be delayed or cancelled, will be realised.

(151) The Agency considers that the choice of the time horizon and of the scenarios for the infrastructure development are a significant way for conditioning the results. If a TSO does not want to change the bidding zone configuration, it will declare more infrastructure investments, without consideration of the likelihood of their implementation and the statistics on the increasing gap between the infrastructure development plans and their realisation. In order to limit the risk of manipulation, the Agency recommends to amend the CACM Regulation so that it would clearly define and limit the time horizon for the review, as well as the future infrastructure investments to be considered in the study. Here, the Agency recommends a conservative approach, i.e. a short horizon and taking into account infrastructure investments, which are already under construction. This is because the risk of splitting bidding zones less than necessary induces higher costs than the risk of splitting bidding zones more than necessary. In the former case, some structural congestions would still be resolved with priority access rather than competition (i.e. internal trade gets priority on structurally congested elements), whereas in the latter case no efficiency is lost in case the congestion between two bidding zones does not occur as expected in the review.

Institutional inertia

(152) During the first edition of the bidding zone review, the Agency observed a marked bias from most of the parties involved in this process for maintaining the *status quo*, even though the same parties do acknowledge the inefficiency of the current bidding zone configuration. This apparent contradiction may partly be understood from a political perspective where, in some cases, different prices within the same Member State may be politically hard to accept. However, another phenomenon may be at play here, namely the fact that a change of the bidding zone configuration has never been attempted in Continental Europe and therefore the fear of the unknown could be an important factor in this process. Interestingly, the Member States (i.e. Scandinavia and Italy), which have multiple bidding zones within one country, have had a much more positive attitude towards the bidding zone review process.

(153) The Agency also notes an apparent imbalance of interests in the bidding zone review. Most of the parties involved in this process have partial interests, which sometimes correspond to national interests and sometimes to specific industry's interest. The Agency considers that, in order to be successful, the bidding zone review would need to be accompanied by a significant change of the governance framework such that the EU interest becomes the main driving force.

4. Conclusions

4.1 General conclusions

(154) The implementation of the FCA Regulation and the CACM Regulation is fairly successful. Their main objectives, which is to deliver a fully integrated electricity market across the EU in the long-term, day-ahead and intraday timeframes are being or have been achieved. The single day-ahead coupling is almost complete due to early implementation initiatives, whereas the single intraday coupling made a significant step forward in June 2018 with the go-live of XBID. In the long-term timeframe, allocation rules have been improved and harmonised to a great extent, while the EU single allocation platform officially started operation in January 2019.

(155) Initially, the FCA Regulation and the CACM Regulation were envisaged to be adopted as network codes pursuant to Article 6 of Regulation (EC) No 714/2009, offering a sufficient level of technical and legal detail. However, such level could not be achieved: fully harmonised procedures, timings, methodologies and terms and conditions which are required for the implementation of a fully integrated electricity market, in particular the single market coupling, could not be developed within the relatively short time available for the development of the network codes. For this reason, ENTSO-E and the Agency proposed that many details be developed after the adoption of both Regulations, through the terms and conditions or methodologies jointly developed by the TSOs and/or NEMOs and jointly approved by the regulatory authorities. This process, though legally and organisationally complex, can be considered as a relatively robust approach to develop and define all the necessary design elements for an integrated electricity market. It provides for sufficient time and the necessary involvement of stakeholders, TSOs, regulatory authorities and, where necessary, the Agency, and thereby ensures that these complex rules are adopted after thorough scrutiny of all involved parties. Yet, room for improvement exists, namely with regard to the time and effort needed to adopt these methodologies.

(156) The two main areas where problems were encountered during the implementation of the FCA Regulation and the CACM Regulation are the delays in the adoption and implementation of different terms and conditions or methodologies and the legal ambiguity in specific provisions of both Regulations.

(157) The process for the development and adoption of different terms and conditions or methodologies is very complex and burdensome for TSOs, NEMOs, regulatory authorities, the Agency and stakeholders. While these detailed rules are essential for an efficient functioning of the SDAC and SIDC, their adoption proved to be very difficult in some cases. The first problem is the number of different parties involved in the development and approval, with different standards, evaluations, regulatory regimes and procedures and sometimes interests. This often results in proposed rules which are too general or vague and require a significant amount of time and effort to get further developed and eventually adopted by either the regulatory authorities or the Agency.

(158) Secondly, the transparency of the process is insufficient as TSOs and regulatory authorities are not consistently reporting the ongoing actions and statuses with regard to the specific methodologies to the Agency. Also, the Agency is not able, due to its resource limitations, to participate in all the regional fora where these methodologies are discussed. Thus, it is difficult to monitor progress with regard to their development and to identify possible deadlocks or inconsistencies sufficiently in advance. One critical step of the process is when TSOs or NEMOs fail to submit a proposal for terms and conditions or methodologies as the CACM Regulation (namely its Article 9(4)) fails to offer an efficient solution to resolve this problem. The Agency thus recommends to amend the CACM Regulation and the FCA Regulation so that the regulatory authorities have the power to adopt the methodologies themselves in such cases.

(159) Most of the implementation problems could be attributed to the uncertainties faced by ENTSO-E, the Agency and the Commission when drafting these two Regulations. At that time, some elements of the market design were well advanced and already partly implemented (e.g. single day-ahead coupling, HAR), whereas some others (e.g. capacity calculation, single intraday coupling) were only in their design phase and one could not foresee all the practical implementation issues. The Agency

appreciates that this is a normal situation when drafting any new legislation and that it is not always easy to find the right balance in the level of details for the requirements and obligations.

4.2 FCA Regulation

(160) The implementation of the FCA Regulation is experiencing relatively few problems mainly because the market design in the forward timeframe is much simpler and less ambitious than in the day-ahead and intraday timeframes, but also due to the fact that most of the provisions in the FCA Regulation are not applicable yet (e.g. capacity calculation). One problem observed in the implementation of the FCA Regulation relates to the decisions on cross-zonal risk hedging opportunities, which are made bilaterally by the regulatory authorities competent for the specific bidding zone borders. Hence, the decisions to introduce LTTRs or not are not based on the same criteria. In two specific cases, the regulatory authorities asked their TSOs to introduce hedging instruments other than LTTRs, indicating that there are indeed insufficient hedging opportunities. However, the concerned TSOs responded that they could neither introduce other hedging instruments nor LTTRs and subsequently the concerned regulatory authorities approved such proposals. This casts some doubt on whether the problem was actually addressed in the most efficient way.

(161) Another problem relates to regional specificities contained in the annexes to the HAR. Some TSOs interpreted that these annexes could include any kinds of regional specificity, even if the latter significantly deviate from the HAR or even from the FCA Regulation itself.

4.3 CACM Regulation

(162) The Agency sees the need to improve the CACM Regulation in many aspects. One of the main problems is the process for the development, operation, governance and financing of the MCO function for the single day-ahead and intraday coupling. Similarly, the design of the single intraday coupling, including the underlying capacity calculation, is not sufficiently clear and detailed in the CACM Regulation and this bears the risk of fragmented and non-harmonised intraday markets across Europe. In several cases, the CACM Regulation needs improvements with regard to the scope of the methodologies (e.g. scheduled exchanges, maximum and minimum prices, cross-zonal intraday gate opening and gate closure time and intraday capacity pricing methodology).

(163) While the methodologies on capacity calculation and coordinated redispatching and countertrading are still in the process of being approved by the regulatory authorities (and improved by TSOs where requested), the process so far has shown in many regions a large discrepancy between what TSOs are proposing and what stakeholders, the Agency and many regulatory authorities, were expecting. For example, the issue of undue discrimination between internal and cross-zonal exchanges addressed in the Agency's Recommendation[80] has so far been largely ignored in the TSOs' proposals. While there has been some effort to improve the capacity calculation currently applied by the TSOs, the level of improvement does not match the expectations and ambition laid down in the CACM Regulation.

(164) In the Agency's view, the bidding zone review is the biggest failure in the implementation of the CACM Regulation. It has revealed that the transposition of the electricity market design (i.e. zonal congestion management with an optimal bidding zone configuration and a flow based capacity calculation) into EU legislation has a fundamental flaw and could not deliver any meaningful and conclusive results. The first bidding zone review showed that the legal framework governing this process does not ensure an efficient outcome (i.e. finding and implementing an optimal biding zone configuration). It also showed that TSOs have vested interests in this process and that a large majority of stakeholders are not supporting the bidding zone review, even though they do agree that the current bidding zone configuration is not efficient. The Agency recommends this process not to be repeated until the legal framework governing it is improved and clarified.

[80] Recommendation of the Agency for the Cooperation of Energy Regulators No 02/2016 Of 11 November 2016 on the Common Capacity Calculation and Redispatching and Countertrading Cost Sharing Methodologies

5. Recommendations

5.1 General issues

(165) *Delays in the development of proposals by the TSOs or NEMOs:* TSOs frequently overlook that they must, in accordance with Article 9(4) of the CACM Regulation formally inform the Agency and the regulatory authorities when they fail to submit the relevant methodologies within the set deadlines. This information is needed for the Agency to assess the situation and inform the Commission. In case such delays are expected to occur, the TSOs are encouraged to inform the Agency and the relevant regulatory authorities as soon as the likelihood of a delay appears, instead of waiting for the passing of the deadline.

(166) *Delays in the adoption of the methodologies by the regulatory authorities:* The regulatory authorities do not consistently inform the Agency about the timing of the receipt of proposals and the timing of their decisions. Despite clear requests from the Agency, some regulatory authorities failed to provide this information on time. As a result, in specific cases the Agency and other regulatory authorities remained unaware of significant delays. The regulatory authorities and TSOs should inform the Agency about the reasons for delays and suggest solutions. This would enable the Agency to report on these reasons and recommend solutions to avoid them in the future.

(167) Delays in the adoption due to unclear legal basis: The CACM Regulation and the FCA Regulation are unclear in many aspects. Examples in the CACM Regulation include the distribution and recovery of costs for developing, maintaining and operating the SDAC and SIDC, the methodology for the calculation of scheduled exchanges and the SDAC and SIDC algorithms[81]. A fast process to clarify these issues could help avoid long adoption times.

(168) In several cases, the regulatory authorities requested a second amendment to the TSOs' or NEMOs' proposal. The Agency observes that this option is not explicitly defined in the CACM Regulation. Regulatory authorities consider that under certain conditions it is legally possible even if not preferable from a practical point of view. Beyond the issue of the legality of a second amendment request, the Agency is of the view that such a procedure does not provide the right incentives i) to the TSOs or NEMOs diligently to address all the change requests from the regulatory authorities in the first request for amendment (knowing that, if they fail to address them properly, they will be able to address them in the second request for amendment) and ii) to the regulatory authorities to provide clear and understandable requests for amendment to TSOs or NEMOs in the first place. The CACM Regulation and the FCA Regulation should be clarified in this respect. In particular, the Agency supports the option that regulatory authorities be given the right to amend the methodology directly before adopting it.

5.2 FCA Regulation

(169) *Common grid model:* TSOs interpreted the "common" grid model and "common" set of scenarios at a regional level. The Agency supports an improvement of the FCA Regulation, where the requirement for a common European grid model, based on a common European set of scenarios, would be clearly stated.

(170) *Decision on cross-zonal risk hedging opportunities:* More harmonisation and cooperation is needed. The Agency recommends the development of harmonised criteria and metrics based on which the need for LTTRs could be objectively identified in order to reach harmonisation at regional and European level.

(171) *Regional design of long-term transmission rights:* The Agency agrees with the interpretation of the regulatory authorities of the CCRs Nordic and Hansa that the decision to introduce LTTRs on one border in a CCR does not imply a delay in the proposal of regional design for such a CCR. In principle, incorporating this interpretation explicitly in the text of the FCA Regulation would increase

[81] For the FCA Regulation, a relevant example is the choice of scenarios in the common grid model methodology.

clarity. However, since this issue was relevant only for a period which has already expired, the Agency does not consider necessary to amend the FCA Regulation in this respect.

(172) *Sharing of costs of establishing, developing and operating the single allocation platform:* The proposal for this cost-sharing methodology was submitted together with the proposal for the "Requirements and establishment of the single allocation platform" and they both followed the same approval process. The Agency recommends that the two proposals be unified into one.

5.3 CACM Regulation

(173) *Designated NEMOs:* The Agency recommends that the requirements of Article 4(10) of the CACM Regulation for the Agency to publish the list of designated and operating NEMOs be further clarified and specified through an amendment of the CACM Regulation in order to provide sufficient transparency with regard to the designated NEMOs and the bidding zones they are operating in.

(174) *Day-ahead and intraday algorithms:* The repeatability of the solutions and the scalability of the algorithms are challenging mainly due to many complex products. The governance of the algorithm development and operation incorporates NEMOs' activities (e.g. matching of orders), as well as TSOs' activities (e.g. allocation of cross-zonal capacities) and implies a joint responsibility for the MCO function. A European entity owned by all TSOs, or jointly by all TSOs and all NEMOs, could be a solution.

(175) *Day-ahead and intraday products:* The current list of products represents all the products used in national markets before they joined the SDAC. Complex products put a significant computational burden on the algorithm and may endanger the algorithm performance, scalability and repeatability of the results. NEMOs should propose a list of products striking the right balance between meeting the main needs of market participants and ensuring that the algorithm performance (optimality, scalability and repeatability) is not compromised.

(176) *Minimum and maximum prices:* The CACM Regulation should be amended to extend the scope of minimum and maximum prices also to bidding prices and not just to clearing prices. The CACM Regulation requires that the maximum clearing prices reflect the Value of Lost Load; however this value can only be defined administratively and is almost impossible to calculate, in generic terms, at EU level. An automatic adjustment mechanism (as defined in the harmonised maximum and minimum clearing prices adopted by the Agency)[82], whereby the maximum clearing price is automatically increased every time the clearing prices approach the maximum prices, is a better mechanism to achieve the same objective, since the maximum clearing price is determined by the market rather than administratively. Thus, the explicit requirement for the Value of Lost Load could be omitted from the CACM Regulation.

(177) *Intraday cross-zonal gate opening and closure time:* The CACM Regulation provides loose requirements on the gate opening and closure times and the calculation of intraday cross-zonal capacities. This may result in a fragmentation of the design, timing and geography of intraday markets. In the Agency's view, such risks should be addressed by clarifying and harmonising the design and functioning of the single intraday market in the CACM Regulation.

(178) *Complementary regional intraday auctions:* The 18-month deadline for the submission of the proposal to regulatory authorities prevents TSOs and NEMOs from taking proper account of other developments pursuant to the CACM Regulation and should be reconsidered. The complementary regional intraday auctions should gradually be replaced by the methodology for pricing intraday cross-zonal capacity, which should ideally be harmonised across the EU. This would avoid the risk of too fragmented intraday markets in terms of timings, design and geography.

(179) *Calculation of scheduled exchanges:* The CACM Regulation should (i) provide legal certainty that the methodologies for calculating scheduled exchanges are developed by all TSOs and (ii) extend the scope to all types of scheduled exchanges, including those between NEMO trading hubs. For

[82] See Agency Decisions 04-2017 and 05-2017 on the nominated electricity market operators' proposal for harmonised maximum and minimum clearing prices respectively for single day-ahead and single intraday coupling.

this purpose, all TSOs should coordinate with all NEMOs in the development of these two methodologies.

(180) *Congestion income distribution:* In the CCRs applying the flow-based approach, the cross-zonal exchanges used for the calculation of congestion income on a bidding zone border follow the physical reality, whereas the scheduled exchanges used for scheduling processes do not. These two types of exchanges should be harmonised by TSOs and NEMOs in order to align physical and commercial representation of the SDAC and SIDC and to avoid confusion in the publication and interpretation of these exchanges.

(181) *Intraday cross-zonal capacity pricing:* The CACM Regulation defines the SIDC as continuous trading, but the TSOs were not able to find a solution continuously to price the cross-zonal capacities and proposed to use implicit auctions instead. Since the implementation of intraday implicit auctions is expected to take several years, an adaptation of the CACM Regulation could be made before their implementation in order to remove any possible inconsistencies between the continuous trading and implicit auction systems.

(182) *Capacity calculation regions:* The CCRs Italy North and Core are highly interdependent. However, legally, decisions on capacity calculation and redispatching and countertrading are independent. Ideally, those regions should merge. Until this is feasible, the Agency recommends that TSOs improve cooperation between the two regions. Regarding new borders or interconnectors, the TSOs should include all foreseen investments for the next 5 years in the CCR and make the application of the borders conditional to the effective operation of these infrastructures.

(183) *Capacity calculation methodology:* The Agency recommends that all steps in Article 29(7) of the CACM Regulation on Flow-Based calculation and Article 29(8) of the CACM Regulation for CNTC are detailed in the methodologies. Further, in case the methodology allows for internal critical network elements and loop flows to reduce the available cross-border capacity, the methodology should also describe long-term solutions that will ensure that such discrimination is temporary.

(184) *Coordination of redispatching and countertrading:* This coordination depends on both the capacity calculation methodology and the methodology for operational security analysis pursuant to Articles 75 and 76 of the SO GL. The Agency recommends to align the timings for developing these methodologies to the maximum extent possible.

(185) *Cost sharing for coordinated redispatching and countertrading:* The CACM Regulation should specify that the methodologies adopt the “polluter-pays” principle where relevant (i.e. where a significant amount of flows does not result from capacity allocation). Specific provisions defining the “polluters” are also needed.

(186) *Bidding zone review:* The first bidding zone review was a failure. While the Agency concluded that the existing bidding zone configuration is not efficient, a view that is shared by many stakeholders, the participating TSOs could not develop a robust methodology that would be able to conclude whether any of the analysed alternative bidding zone configurations is more efficient. The legal framework for the bidding zone review should be reconsidered along the lines proposed in the following paragraphs.

(187) *Conflict of interest:* As TSOs were unable to perform the role of a neutral facilitator of the bidding zone review, this role should be reviewed in terms of making decisions having a significant impact on the bidding zone review more neutral and subject to stronger and more robust regulatory scrutiny.

(188) *Criteria*: The criteria for reviewing the bidding zone configuration should focus on the metrics which can be quantified in Euros, whereas non-quantified metrics should be considered as side conditions evaluated as satisfactory or non-satisfactory.

(189) *Methodology and assumptions:* The CACM Regulation does not provide a clear solution when regulatory authorities disagree on the methodology and assumptions. To solve this issue, the governance for deciding on the methodology and assumptions should be further clarified using for example the solution applied for all terms and conditions or methodologies specified in the CACM

Regulation. This implies a six-month deadline for regulatory authorities to agree on amendments and in case of disagreement to refer the case to the Agency.

(190) *Time-horizon and future infrastructure development:* The CACM Regulation does not clearly identify the time horizon for the bidding zone review. The choice of the time horizon and of the scenario for the infrastructure development bears a significant risk of manipulation of the results. The CACM Regulation should define and limit the time horizon for the review, as well as the future infrastructure investments to those investments which are already under construction, considering that the risk of splitting bidding zones less than necessary induces higher costs than the risk of splitting bidding zones more than necessary.

(191) *Institutional inertia:* Most institutions in this process have partial interests, which sometimes correspond to national interests and sometimes to specific industry's interest. The common EU interest is not sufficiently represented and empowered in this process. Further attempts to review the bidding zones are unlikely to be successful without institutional changes to empower an EU interest.

Annex 1: List of acronyms used in the report

Acronyms	Explanation
ACER/ the Agency	European Agency for the Cooperation of Energy Regulators
CA Regulation	Capacity Allocation Regulation
CACM	Capacity Allocation and Congestion Management
CBI project	Cross-border intraday project
CCM	Capacity calculation methodology
CCCM	Common capacity calculation methodology
CCR	Capacity Calculation Region
CGM	Common grid models
CNTC	
CWE Region	
CZC	Cross Zonal Capacities
EC	European Commission
EB	Electricity Balancing
ERF	
ENTSO-E	European Network of Transmission System Operators for Electricity
FCA	Forward Capacity Allocation
FTR	
GLDPM	
HAR	Harmonised Allocation Rules
JAC	Joint Allocation Platform
JAO	Joint Allocation Office
LTCC	Long-Term Capacity Calculation
LTTR	Long-Term Transmission Rights
MCO	Market Coupling Operator
MMC	Markets Market Coupling
MMR	Market Monitoring Report
MRC	Multi-Regional-Coupling
MS	Member State
NEMO	Nominated Electricity market Operator
NRA	National Regulatory Authority
NTC	Net Transfer Capacity
PCR	Price Coupling of Regions
PTR	
RCS	Regional Security Coordinators
SAP	Single Allocation Platform
SDAC	
SIDC	
TSO	Transmission System Operators
XBID	software solution to run the single intraday coupling

Annex 2: long-term cross-zonal hedging opportunities for market participants

Table 9: long-term cross-zonal hedging opportunities for market participants

CCR name	BZB	Status		Platform
Nordic	DK1-SE3	no arrangements		
	DK2-SE4	no arrangements		
	DK1-DK2	LTTRs	JAO	PTRs
	SE4-SE3	no arrangements		
	SE3-SE2	no arrangements		
	SE2-SE1	no arrangements		
	SE3-FI	no arrangements		
	SE1-FI	no arrangements		
Hansa	DK1-DE/LU	LTTRs	JAO	PTRs
	DK2-DE/LU	LTTRs	JAO	PTRs
	SE4-PL	no arrangements		
Core	FR-BE	LTTRs	JAO	FTR Options
	BE-NL	LTTRs	JAO	FTR Options
	FR-DE/LU	LTTRs	JAO	PTRs
	NL-DE-LU	LTTRs	JAO	PTRs
	DE-LU-PL	LTTRs	JAO	PTRs
	DE/LU-CZ	LTTRs	JAO	PTRs
	AT-CZ	LTTRs	JAO	PTRs
	AT-HU	LTTRs	JAO	PTRs
	AT-SI	LTTRs	JAO	PTRs
	CZ-SK	LTTRs		
	CZ-PL	LTTRs	JAO	PTRs
	HU-SK	LTTRs	JAO	PTRs
	PL-SK	LTTRs	JAO	PTRs
	HR-SI	LTTRs	JAO	PTRs
	HR-HU	LTTRs	JAO	PTRs
	RO-HU	LTTRs	MAVIR	PTRs
	DE/LU-AT	LTTRs	JAO	FTR Options
Italy North	NORD-FR	LTTRs	JAO	PTRs
	NORD-AT	LTTRs	JAO	PTRs
	NORD-SI	LTTRs	JAO	PTRs
Greece-Italy	BRNN-GR	LTTRs	JAO	PTRs
	NORD-CNOR	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	CNOR-CSUD	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	CNOR-SARD	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone

CCR name	BZB	Status		Platform
	SARD-CSUD	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	CSUD-CUD	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	SUD-BRNN	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	SUD-FOGN	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	SUD-ROSN	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	ROSN-SICI	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
	SICE-PRGP	no new arrangements	Terna	FTRs obligations referred to PUN or to adjacent bidding zone
South-west Europe	**FR-ES**	LTTRs	JAO	PTRs
	ES-PT	LTTRs	OMIP	FTR Options
Ireland and United Kingdom	**NI-GB**	LTTRs	JAO	FTR Options
	IE-GB	LTTRs	JAO	FTR Options
Channel	**FR-GB**	LTTRs	TSOs	PTRs
	NL-GB	LTTRs	TSOs	PTRs
	BE-GB	LTTRs	JAO	PTRs
Baltic	**EE->LV**	LTTRs	JSC Augstsprieguma tīkls	FTR Options
	LV-LT	no arrangements		
	EE-FI	no arrangements		
	LT-SE4	no arrangements		
	LT-PL	no arrangements		
South-east Europe	**GR-BG**	LTTRs	TSOs	PTRs
	BG-RO	LTTRs	TSOs	PTRs

Source: ACER.

Annex 3: Current deviations to the full harmonization in forward capacity allocation rules

Table 10: Current deviations to the full harmonization in forward capacity allocation rules

CCR	Border specific	Cap	Regional Provisions			
			Timescale	Platform related	Not compliant with FCA	Others
Nordic		Yes				
Hansa		Yes				
Core	**CZ-SK-DE/LU-PL**	Yes				Technical profile
	HU-RO	Yes		Deposit, invoicing, payment, notices		
Italy-N		Yes				
GR-IT		Yes	No timescale for full compliance		Marginal price (+45 days) instead of market spread	Curtailment deadline: submission of nominations
SWE		Yes		Collateral, invoicing and payment		Returns, settlement, secondary market, compensation
IU		Yes	I-SEM 23.05.2018			Price adjustment for losses, curtailment
Channel	BritNed	Yes	Timescale for some of the deviations	Collateral, transfer, return, invoicing, for limited time		Credit limit, reduction periods, reserve price, cancellation of LT nomination gate, curtailments
	IFA	Yes	Timescale for some of the deviations	Collateral, transfer, return, invoicing, for limited time		Credit limit, price adjustment for losses
Baltic		Yes	No timescale for full compliance	Collateral, credit limit, financial	Non-transferable	Max bid volume per participant
SEE		Yes	harmonised allocation rules implementation from 2019			

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