



European Network of
Transmission System Operators
for Electricity

CACM ROLE MODEL DESCRIPTION

2020-12-15

APPROVED DOCUMENT
VERSION 1.0

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21 absolute requirement of the specification.
- 22 • SHALL NOT: This phrase, or the phrase "MUST NOT", means that the definition is an
23 absolute prohibition of the specification.
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25 reasons in particular circumstances to ignore a particular item, but the full implications must
26 be understood and carefully weighed before choosing a different course.
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28 exist valid reasons in particular circumstances when the particular behaviour is acceptable
29 or even useful, but the full implications should be understood and the case carefully weighed
30 before implementing any behaviour described with this label.
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Revision History

Version	Release	Date	Paragraph	Comments
0	1	2020-05-04		Initial release
0	2	2020-09-30		Comments from RMSG members were considered.
1	0	2020-12-15		Approved by MC.

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68 1 Scope

69

70 The European Electricity Market Role Model (EEMRM) methodology has been developed in
71 order to extract the different Business Roles, Services and Objects from the network codes
72 and regulation.

73 The purpose of this document is to describe the Roles, Services and associations that can be
74 played for given Objects within the European electricity market according to CACM network
75 code. These roles are presented in a model way as an illustrative of the European electricity
76 market.

77 The document covers the Roles as identified in current CACM network codes. It will naturally
78 grow or evolve as the network codes progresses. The reader is therefore encouraged to
79 ensure that the document is the latest available version.

80 EEMRM of this nature shall be formal means of identifying roles and objects that are used in
81 network codes. It is important to stress that is not a model of the electricity market but rather
82 model of roles related to network codes and guidelines.

83

84 2 References

85 2.1 Normative references

86 • [Commission Regulation \(EU\) 2015/1222 of 24 July 2015 establishing a guideline on](#)
87 [capacity allocation and congestion management.](#)

88 • [REGULATION \(EU\) No 1227/2011 OF THE EUROPEAN PARLIAMENT AND OF THE](#)
89 [COUNCIL of 25 October 2011 on wholesale energy market integrity and transparency](#)
90 [\(REMIT\)](#)

91 • [DIRECTIVE 2009/72/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL](#)
92 [of 13 July 2009 concerning common rules for the internal market in electricity and](#)
93 [repealing Directive 2003/54/EC](#)

94

95 2.2 Other references

96 • [The ArchiMate® v3.1 modelling language.](#)

97 • EEMRM Methodology v 3.0.

98 • The Harmonised Role Model.

99

100 3 Modelling elements used

101 The ArchiMate® modelling language provides three types of elements which are to be used
102 jointly to describe processes:

103 • **Active structure elements** are defined as entities that are capable of performing
104 behaviour. The only used active structure element is the Business Role.

105 • **Behaviour elements** represent the dynamic aspects of the enterprise. Only external
106 behaviour element, also called Business Service, is used in this role model. It represents
107 an explicitly defined exposed behaviour

108 • **Passive structure elements** are structural elements that cannot perform behaviour.
109 The only used passive structure element is the Business Object. Business Object can
110 be generated or used by Business Service.

111

112 4 Level of detail of the description

113 Specialisation of Business Services

114 The EEMRM introduces a distinction between two types of Business Services:

- 115 • **EEMRM Operational Services:** Services meant to carry out a core process¹ and fulfil
116 its requirements,
- 117 • **EEMRM Strategic Services:** Services meant to design a process, monitor it, and report
118 on how it works

119 This distinction between Operational and Strategic Services ensures clarity of the EEMRM as
120 it allows to create two high level views describing either the main operational tasks set up by
121 the network codes, or the strategic tasks which structure the market and the processes to be
122 fulfilled.

123 Sources of the elements

124 In order to specify the source of the elements displayed in the EEMRM, two tags are added to
125 the Business Service and Business Object classes:

126 One tag describes the source of the elements (network code, methodology, other regulation...).

127 Whenever possible, one tag more specifically describes the article or paragraph from this
128 source where this element is mentioned.

129

130 5 Merged views development

131 For each relevant role in the CACM, detailed individual views were developed including both
132 Operational and Strategic Services. The purpose of these individual role views is to have a
133 clear understanding of each Role and its associated Business Services and Objects. These
134 individual role views can be found in an annex to the CACM role model view.

135 Once that the individual views were finished, the group developed the merged Operational and
136 Strategic views that can be found in the following chapter. The aim of these merged views is to
137 help the reader to have a general understanding of the whole CACM at a single glance and
138 make possible for the reader to understand how all the roles within the CACM network code
139 interact with each other.

140

¹ The core processes are the following processes described in the CACM: Harmonization for CACM to allow more efficient use of the network and increase competition, Calculation of Cross-border capacity using a CGM, Market coupling performed by the MCO (continuous in intraday, single calculation in day-ahead), Coordination of capacity calculation via methodologies, Establishment of a CGM, Preparation of an IGM by TSOs, Implicit allocation (implicit auction in day-ahead, continuous in intraday), Ensure Union-wide price coupling process

141 **6 CACM role model**

142 **6.1 Operational view**

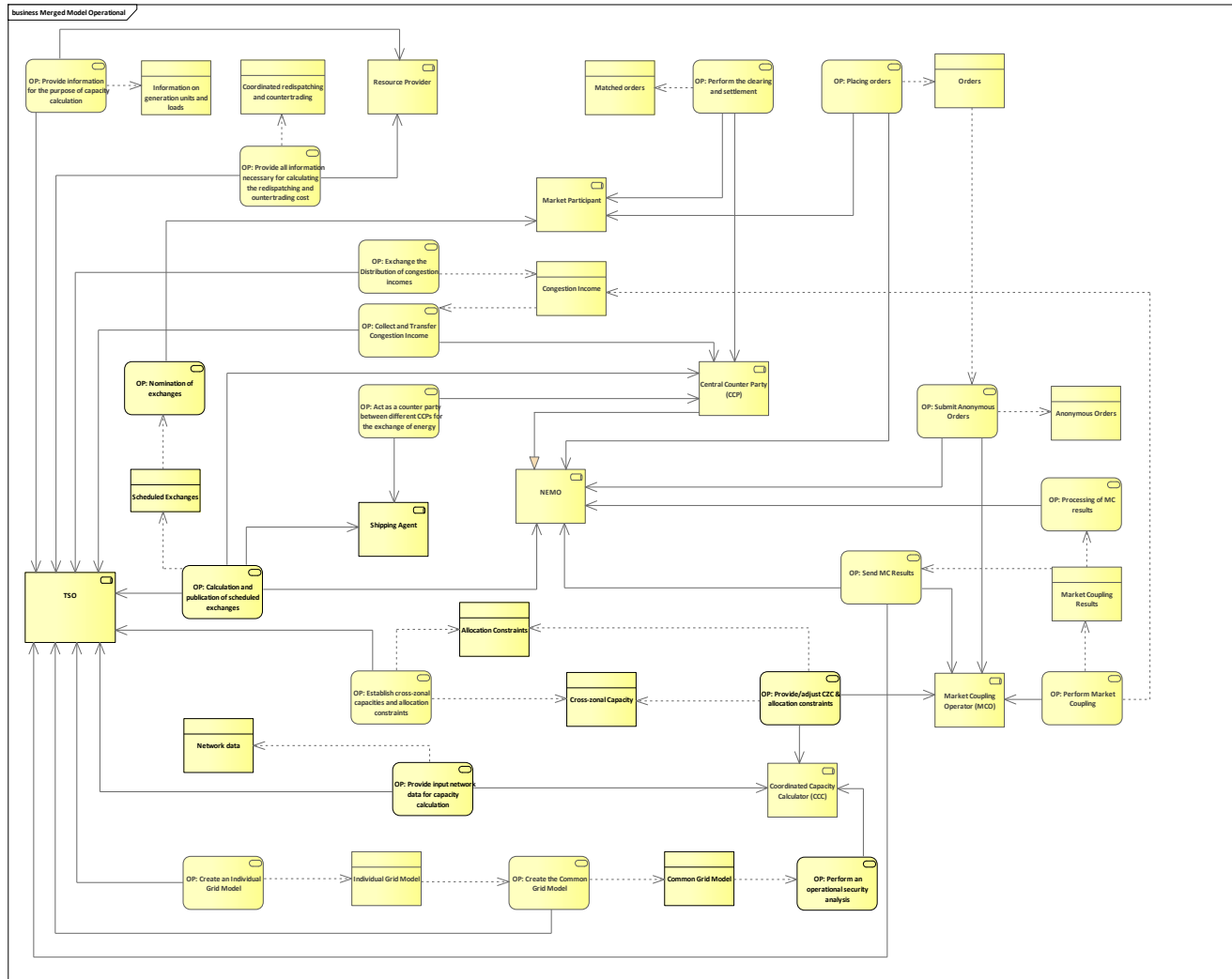


Figure 1: Operational view

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145 6.2 Strategic view

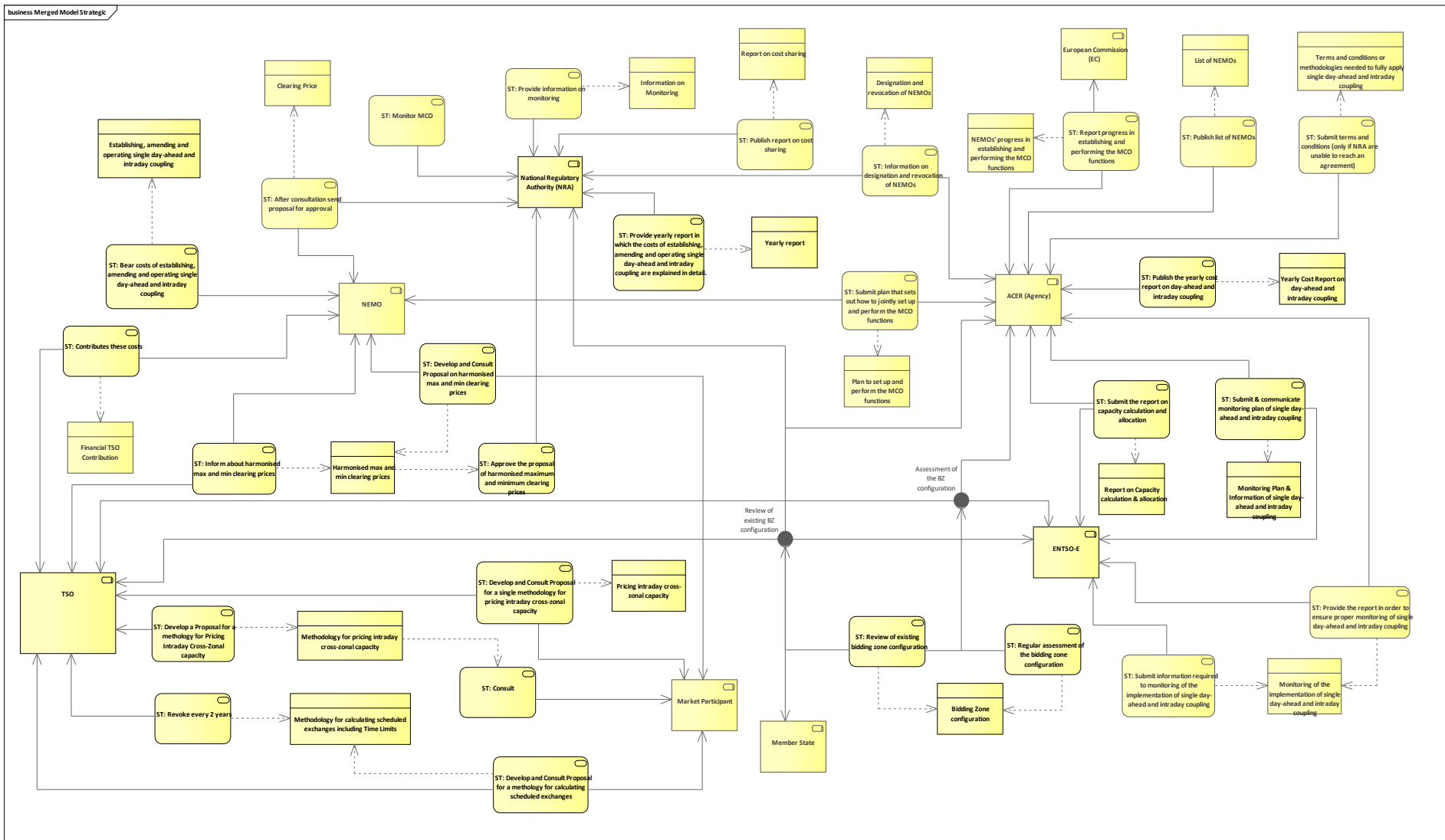


Figure 2: Strategic view

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148 **7 EEMRM definitions**149 **7.1 Roles**

150

Role	Definition	Source
ACER (Agency)	Agency for the Cooperation of Energy Regulators. An independent European structure which fosters cooperation among European energy regulators, ensures that market integration and the harmonisation of regulatory frameworks are achieved within the framework of the EU's energy policy objectives.	RMSG and ACER website
Central Counter Party (CCP)	The entity or entities with the task of entering into contracts with Market Participants, by novation of the contracts resulting from the matching process, and of organising the transfer of net positions resulting from capacity allocation with other Central Counter Parties or Shipping Agents.	Regulation (EU) 2015/1222 (CACM)
Coordinated Capacity Calculator (CCC)	The entity or entities with the task of calculating transmission capacity, at regional level or above	Regulation (EU) 2015/1222 (CACM)
ENTSO-E	European Network of Transmission System Operators for Electricity. International association of electricity transmission system operators cooperating at the European Community level for: 1) promote the completion and functioning of the internal market for electricity and cross-border trade in electricity, 2) ensure optimal management of the European electricity transmission network, its coordinated operation and its appropriate technical development according to Regulation (EC) No 714/2009 and the provisions of the association's statute.	RMSG
European Commission (EC)	The European Commission aims at promoting the general interest of the EU by proposing and enforcing legislation as well as by implementing policies and the EU budget.	RMSG, EC website
Market Coupling Operator (MCO)	An entity matching orders from the day-ahead and intraday markets for different bidding zones and simultaneously allocating cross-zonal capacities.	ENTSOE glossary

Role	Definition	Source
Market Participant	Any person, including Transmission System Operators, who enters into transactions, including the placing of orders to trade, in one or more wholesale energy markets	Regulation (EU) 1227/2011 (REMIT)
Member State	Member State of EU	RMSG
National Regulatory Authority (NRA)	A National Regulatory Authority designated in accordance with Article 35(1) of Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity	Regulation (EU) 1227/2011 (REMIT)
Nominated Electricity Market Operator (NEMO)	An entity designated by the competent authority to perform tasks related to single day-ahead or single intraday coupling. Additional Information (from HRM): A NEMO performs MCO functions. (Market Coupling Operator)	Regulation (EU) 2015/1222 (CACM)
Resource Provider	A role that manages a resource and provides production/consumption schedules for it, if required.	HRM
Shipping Agent	The entity or entities with the task of transferring net positions between different Central Counter Parties.	Regulation (EU) 2015/1222 (CACM)
Transmission System Operator (TSO)	A natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long term ability of the system to meet reasonable demands for the transmission of electricity	Directive 2009/72/EC and ENTSOE glossary

Table 1: Roles

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153 7.2 Services

154 7.2.1 Operational Services

Name	Article in CACM	Used at detailed diagram
Act as a counter party between different CCPs for the exchange of energy	Article 6.6	Shipping Agent
Allocate CZC	Point 5, Article 47 and 59	MCO, Perform Market Coupling
Calculation and publication of scheduled exchanges	Article 8.2 g	TSO Tasks, Market Participant
Collect and transfer congestion income	Article 68.7 and 68.8	Collect and transfer congestion income
Collect Congestion Income	Article 68.7	Shipping Agent, Collect and transfer congestion income, NEMO
Create an Individual Grid Model	Article 19	TSO Tasks
Create the Common Grid Model	Article 16 and 17	TSO Tasks

Name	Article in CACM	Used at detailed diagram
Establish cross-zonal capacities and allocation constraints	Article 8.2.d	Only in Merged Model Operational
Exchange the Distribution of congestion incomes	Article 73	TSO Tasks
Inform about operational changes on the transmission system	Article 58.2	TSO Tasks
Inform about order results	Point 5, Article 7f, 48 and 62	NEMO, Market Participant
Inform about problems	Article 58.3	TSO Tasks
Match Bids & Offers	Point 5, Article 7.1	MCO, Perform Market Coupling
Nomination of exchanges	Article 47.3	Market Participant
Notify of updates of Cross-zonal Capacity and allocation constraints	Article 58.2	CCC
Perform an operational security analysis	Article 29.2	CCC
Perform Market Coupling	Point 5, Article 7	MCO, NEMO, Perform Market Coupling
Perform the clearing and settlement	Article 7 and 68	NEMO, Market Participant
Placing orders	Article 39 and 47	NEMO, Market Participant
Processing of MC results	Article 7e, 8f, 48 and 60	NEMO, Market Participant
Provide all information necessary for calculating the redispatching and countertrading cost	Article 35.5	TSO Tasks
Provide information for the purpose of capacity calculation	Article 16.2	TSO Tasks
Provide input network data for capacity calculation	Article 21.1 a	TSO Tasks, CCC
Provide/adjust CZC & allocation constraints	Article 30.3, 46, 58 and 70	MCO, CCC
Redispatch generation units and loads	Article 35.3, 5 and 6	TSO Tasks
Send MC Results	Article 7d, 48 and 60	MCO
Submit Anonymous Orders	Article 7, 47 and 59	MCO, NEMO
Submit Cross-zonal Capacity for validation	Article 26	CCC
Transfer Congestion Income	Article 68.8	Shipping Agent, Collect and transfer congestion income, NEMO
Validate MC Results	Article 8, 39.4 and 48	MCO, Perform Market Coupling
Verify market coupling results	Article 52.3	TSO Tasks

Table 2: Operational services

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7.2.2 Strategic Services

Name	Article in CACM	Used at detailed diagram
After consultation send proposal for approval	Article 41 and 54	National Regulatory Authority (NRA)
Agree on bidding zone configuration	Article 32.4	Review of existing bidding zone configuration (Article 32)

Name	Article in CACM	Used at detailed diagram
Approve the proposal of harmonised maximum and minimum clearing prices	Article 54.1	Only in Merged Model Strategic
Bear costs of establishing, amending and operating single day-ahead and intraday coupling	Article 76	TSO Tasks
Consult	Article 55.3	TSO Tasks
Contribute financially	Article 78	TSO Tasks
Contributes these costs	Article 76	TSO Tasks
Develop a Proposal for a methodology for Pricing Intraday Cross-Zonal capacity	Article 55.3	TSO Tasks
Develop and Consult Proposal for a methodology for calculating scheduled exchanges	Article 56	TSO Tasks
Develop and Consult Proposal for a single methodology for pricing intraday cross-zonal capacity	Article 16	TSO Tasks
Develop and Consult Proposal on harmonised max and min clearing prices	Article 54.1	Only in Merged Model Strategic
Inform about harmonised max and min clearing prices	Article 54.1	Only in Merged Model Strategic
Information on designation and revocation of NEMOs	Article 4.10	Agency (ACER)
Monitor MCO	Article 82.1	National Regulatory Authority (NRA)
Provide information for bidding zone configuration review	Article 32.2, 32.3.d and 32.3.e	Review of existing bidding zone configuration (Article 32)
Provide information on monitoring	Article 82.1	National Regulatory Authority (NRA)
Provide the report in order to ensure proper monitoring of single day-ahead and intraday coupling	Article 82	Only in Merged Model Strategic
Provide yearly report in which the costs of establishing, amending and operating single day-ahead and intraday coupling are explained in detail.	Article 80.1	National Regulatory Authority (NRA)
Publish list of NEMOs	Article 4.10	Agency (ACER)
Publish report on cost sharing	Article 80.1	National Regulatory Authority (NRA)
Publish the initiative for the review of bidding zone configuration	Article 32.1, 32.3, 32.4 and 32.5	Review of existing bidding zone configuration (Article 32)
Publish the results of the bidding zone configuration review	Article 32.6	Review of existing bidding zone configuration (Article 32)
Publish the yearly cost report on day-ahead and intraday coupling	Article 80	Agency (ACER)

Name	Article in CACM	Used at detailed diagram
Regular assessment of the bidding zone configuration	Article 34	ENTSO-E, Agency (ACER), Synthesis of articles 32 and 34
Report progress in establishing and performing the MCO functions	Article 7.5	Agency (ACER)
Review of existing bidding zone configuration	Article 32.6	ENTSO-E, Agency (ACER), National Regulatory Authority (NRA), Synthesis of articles 32 and 34
Revoke every 2 years	Article 56	TSO Tasks
Submit & communicate monitoring plan of single day-ahead and intraday coupling	Article 82.3	ENTSO-E, Agency (ACER)
Submit a joint proposal to maintain or amend the bidding zone configuration	Article 32.4	Review of existing bidding zone configuration (Article 32)
Submit information required to monitoring of the implementation of single day-ahead and intraday coupling	Article 82.5	ENTSO-E
Submit plan that sets out how to jointly set up and perform the MCO functions	Article 7	Agency (ACER)
Submit terms and conditions (only if NRA are unable to reach an agreement)	Point 31	Agency (ACER)
Submit the report on capacity calculation and allocation	Article 31.1	ENTSO-E, Agency (ACER)

Table 3: Strategic services

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160 7.3 Business Objects

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Name	Article in CACM	Used at detailed diagram
Allocation Constraints	Article 30 and 46	MCO, CCC
Anonymous Orders	Article 7 and 47.4	MCO, NEMO
Bidding Zone configuration	Article 32 and 34	ENTSO-E, National Regulatory Authority (NRA), Agency (ACER), Synthesis of articles 32 and 34, Review of existing bidding zone configuration (Article 32), Regular assessment of the bidding zone configuration
Bidding Zone configuration proposal	Article 32.4 b	Review of existing bidding zone configuration (Article 32)
Clearing Price	Article 41 and 54	National Regulatory Authority (NRA)
Common Grid Model	Article 16 and 17 / Section 2	TSO Tasks, CCC
Congestion Income	Article 68.7 and 68.8	Shipping Agent, Collect and transfer congestion income, MCO, TSO Tasks, NEMO
Coordinated redispatching and countertrading	Article 35.5	TSO Tasks

Name	Article in CACM	Used at detailed diagram
Cross-zonal Capacity	Article 7, 26, 29, 30, 39, 46, 52, 58 and 67	MCO, CCC
Designation and revocation of NEMOs	Article 4.10	Agency (ACER)
Establishing, amending and operating single day-ahead and intraday coupling	Article 76	TSO Tasks
Financial TSO Contribution	Article 76	TSO Tasks
Harmonised max and min clearing prices	Article 54.1	Only in Merged Model Strategic
Generation units and loads	Article 16	TSO Tasks
Individual Grid Model	Article 19	TSO Tasks
Information for bidding zone configuration review	Article 32	Review of existing bidding zone configuration (article 32)
Information on generation units and loads	Article 16.3	TSO Tasks
Information on Monitoring	Article 82	National Regulatory Authority (NRA)
Initiative for the review of bidding zone configuration	Article 32	Review of existing bidding zone configuration (Article 32)
Input Data for intraday coupling process	Article 58.3	Review of existing bidding zone configuration (Article 32)
List of NEMOs	Article 4.10	Agency (ACER)
Market Coupling Results	Article 8.2 f and 48	TSO Tasks, Market Participant, Perform Market Coupling, MCO, NEMO
Matched orders	Article 68	Market Participant, NEMO
Merging of individual grid models	Article 78	TSO Tasks
Methodology for calculating scheduled exchanges including Time Limits	Article 56	TSO Tasks
Methodology for pricing intraday cross-zonal capacity	Article 55.3	TSO Tasks
Monitoring of the implementation of single day-ahead and intraday coupling	Article 82	ENTSO-E
Monitoring Plan & Information of single day-ahead and intraday coupling	Article 82.3	Agency (ACER), ENTSO-E
NEMOs' progress in establishing and performing the MCO functions	Article 7.5	Agency (ACER)
Network data	Article 19	TSO Tasks, CCC
Operational changes on the transmission system	Article 58.2	TSO Tasks
Execution status of orders	Article 48	Market Participant, NEMO
Orders	Article 39 and 47	Market Participant, NEMO
Plan to set up and perform the MCO functions	Article 7	Agency (ACER)
Pricing intraday cross-zonal capacity	Article 16	TSO Tasks
Report on Capacity calculation & allocation	Article 31.1	Agency (ACER), ENTSO-E

Name	Article in CACM	Used at detailed diagram
Report on cost sharing	Article 80	National Regulatory Authority (NRA)
Scheduled Exchanges	Article 43	TSO Tasks, Market Participant
Terms and conditions or methodologies needed to fully apply single day-ahead and intraday coupling	Point 31	Agency (ACER)
Yearly Cost Report on day-ahead and intraday coupling	Article 80	Agency (ACER)
Yearly report	Article 80	National Regulatory Authority (NRA)

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Table 4: Business objects