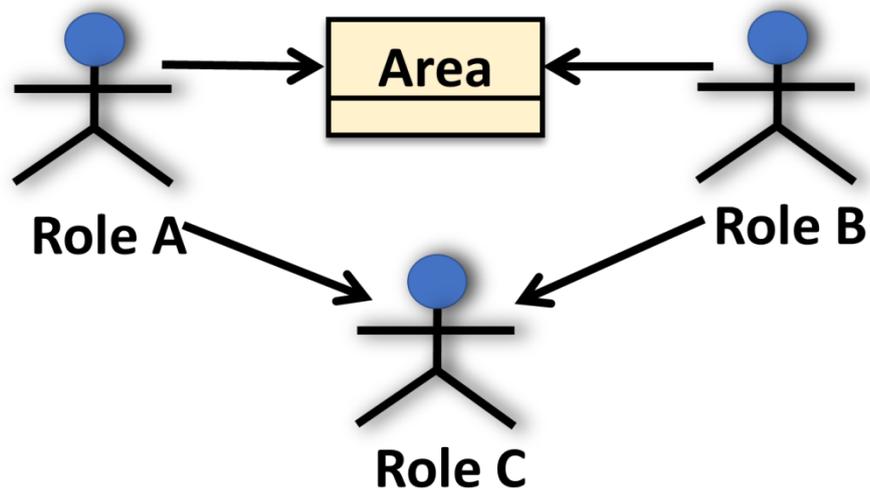

THE HARMONISED ELECTRICITY MARKET ROLE MODEL



VERSION: 2018-01

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REVISION HISTORY

Version	Date	Change (compared to version 2015-01)
2018-01	2018-11-08	Approved by MC. Editorial updates: <ol style="list-style-type: none">1. Updated the front page2. Updated chapter 1 and 2; the three organisations developing the role model are described as “ENTSO-E, EFET and eBIX®”3. Corrected the alphabetical order of the role <i>Merit Order List Responsible</i>

2017-01	2017-10-02	<ol style="list-style-type: none"> 1. Removed association between Nomination Validator and Transmission Capacity Allocator 2. Added a new association from Transmission Capacity Allocator to System Operator 3. Renamed the Block Energy Trader to Trader and simplified the definition 4. Added association from Trader to Balance Responsible Party 5. Changed cardinalities: <ol style="list-style-type: none"> a. The association from Balance Supplier to Grid Access Provider was changed from undefined to [0..*] at the Grid Access Provider side. b. The association from Party Connected to Grid to Grid Access Provider was changed from undefined to [1] at the Grid Access Provider side. c. The association from Interconnection Trade Responsible to Capacity Trader was changed from undefined to [1..*] at the Capacity Trader side. 6. Depreciated the following domains: <ol style="list-style-type: none"> a. ITC b. Certificate Area c. National Area 7. Functional Group was depreciated in version 2015-01, hence removed from 2017-01 8. Depreciated the Regional Group Continental Europe package, including the links to Control Entity and RGCE Interconnected Group 9. Rephrased the definition of Balance Group 10. Removed text related to “Equivalent to” under “Additional Information” in the definition of Balance Responsible Party 11. Corrected the definition of the Data Provider 12. Updated the definition of Metering Point Administrator 13. Updated the definition of Grid Access Provider 14. Added a footnote to the Scheduling Coordinator 15. Added the role Energy Service Company (ESCO) 16. Changed the HRM diagram: <ol style="list-style-type: none"> a. The model is made more readable by making the distance between roles and domains smaller b. All associations in the HRM have got a direction (arrow) c. Removed text and colour related to responsibility of roles and domains d. Removed the text box related to Control Entity 17. Changed the HRM document: <ol style="list-style-type: none"> a. Renamed “Actor” to “Role” in the first column of the table in chapter 5.1 b. Renamed “Domain” to “Type” in the header part of the table in chapter 5.2 c. All association names start with an upper-case letter d. Updated the definition of Domain in chapter 3 of the HRM e. Removed the introductory text in chapter 5.2 f. Textual corrections and clarifications 18. Renamed MOL Responsible to Merit Order List Responsible 19. Added an explanation of RGCE (Regional Group Continental Europe) to the definition of RGCE Interconnected Group
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53 The complete revision history of the Harmonisation Role Model can be found at:

54 ENTSO-E web site: [Harmonised Electricity Role Model](#) or

55 eBIX® web site: [Harmonised Electricity Role Model](#)

56 **1 INTRODUCTION**

57 The Role Model has been developed in order to facilitate the dialogue between the market
58 participants from different countries through the designation of a single name for each role
59 and domain that are prevalent within the electricity market. Its focus is essentially to enable
60 a common terminology for IT development.

61 This document describes a model identifying all the roles that can be played for given
62 domains within the electricity market. The Role Model has been developed by ENTSO-E,
63 EFET and eBIX[®]. It covers both the electricity wholesale and retail markets. Roles are of a
64 logical nature that act within or upon a given domain.

65 The document covers the roles as identified in current development being carried out in
66 information exchange. It will naturally grow or evolve as this work progresses. The reader is
67 therefore encouraged to ensure that the document is the latest available version. This may
68 be found at the following URL:

69 <https://www.entsoe.eu/publications/electronic-data-interchange-edilibrary/Pages/default.aspx>
70

71 A Role Model of this nature shall be the formal means of identifying roles and domains that
72 are used in information interchange in the electricity market. It is important to stress that it is
73 not a model of the electricity market but rather a Role Model related to the information
74 interchange.

75 The necessity for such a model arises from the possibility that a single party in the market
76 may assume multiple roles. This implies that the roles need to be atomically decomposed
77 where necessary in order to satisfy the minimal information flows for a given process
78 required within the electricity market.

79 The Harmonised Role Model represents the abstract roles and domains used in information
80 interchange.

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82 2 ABOUT THE ROLE MODEL

83 A “Role Model” provides a common definition of the roles and domains employed in the
84 electricity market which enables people to use a common language in the development of
85 information interchange.

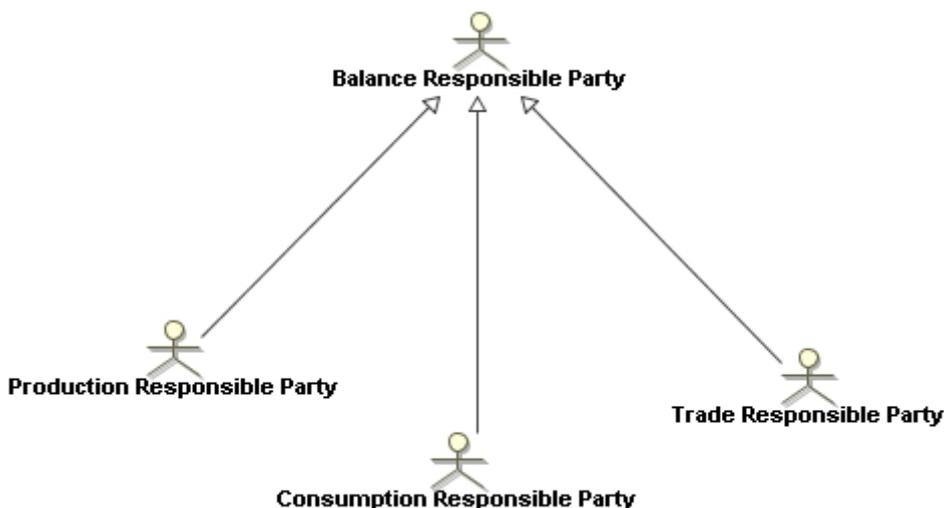
86 A party on the market may play several roles, for example a TSO frequently plays both the
87 role of System Operator and the role of Imbalance Settlement Responsible. However, two
88 different roles have been defined since these roles are not always played by the same
89 party. Even in a large organisation the roles may not be played by the same business unit.
90 Consequently, it is necessary to clearly define the roles in order to be in a position to
91 correctly use them as required.

92 It is important to differentiate between the roles that can be found on a given marketplace
93 and the parties that can play such roles. ENTSO-E, EFET and eBIX[®] have identified a given
94 role whenever it has been found necessary to distinguish it in an information interchange
95 process.

96 The Model consequently identifies all the roles that intervene in the exchange of information
97 in the electricity market. These roles define the external interfaces managed by a party for
98 given processes.

99 It also identifies the different domains that are necessary in the electricity market for
100 information interchange.

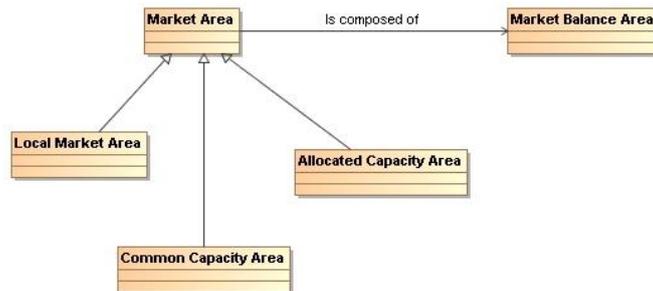
101 To build a Role Model diagram the UML class diagramming technique has been used. The
102 diagram makes use of two UML symbols, the “actor” symbol (not to be confused with a
103 party on a marketplace) is used to represent a role and the “class” symbol is used to define
104 a domain.



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Figure 1: The UML Actor symbol in the Role Model

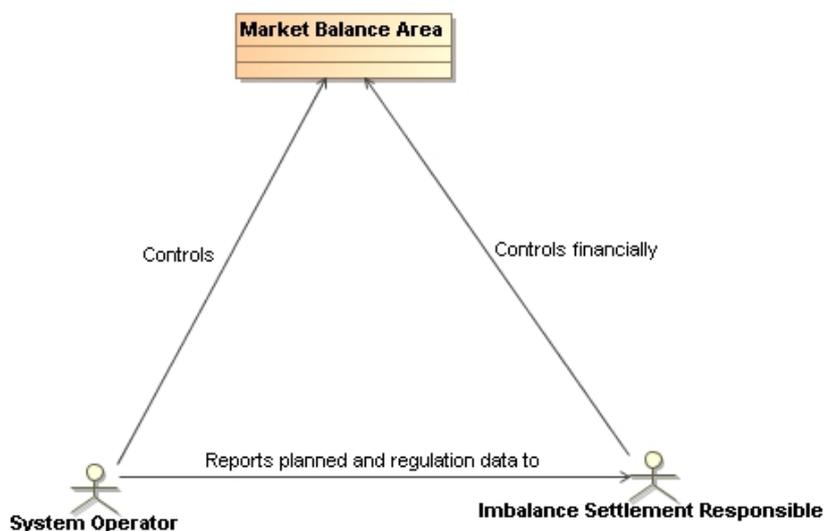
107 The Role Model shown in figure 1 shows the actor symbol used to identify roles. It also
108 introduces the concept of a “generalisation” relationship. The generalisation relationships in
109 the figure show that three roles inherit the basic properties of a “Balance Responsible
110 Party”.



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Figure 2: The class symbol in the Role Model

113 The class symbols outlined in figure 2 show an example of domains and indicate that a
114 Market Area is a generalisation of Local Market Areas, Common Capacity Areas and
115 Allocated Capacity Areas. One also sees that a Market Area is composed of Market
116 Balance Areas.



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Figure 3: Role and Domain relationships

119 Figure 3 shows how roles may interact. The relationship that exists between the roles and
120 domains are shown by the arrows drawn between them. For example, the System Operator
121 controls a Market Balance Area and reports the planned and regulation data to the
122 Imbalance Settlement Responsible who controls financially the Market Balance Area.

123 Naturally enough the role model does not show all the relationships that may exist between
124 the roles and the domains. The relationships in the model are there only to highlight the
125 major relationship that justifies the presence of a role or a domain. In other words, not all
126 relationships are present.

127 **3 PROCEDURES FOR THE USE OF THE ROLE MODEL**

128 **3.1 Introduction**

129 *A role* represents the external intended behaviour of a party. Parties cannot share a role.
130 Businesses carry out their activities by performing roles, e.g. system operator, trader. Roles
131 describe external business interactions with other parties in relation to the goal of a given
132 business transaction.

133 *A domain* defined in the harmonised role model represent abstract objects used in the
134 electricity market necessary for the management of various processes, resources or areas.

135 *An actor* represents a party that participates in a business transaction. Within a given
136 business transaction an actor assumes a specific role or a set of roles. An actor is a
137 composition of one or more roles and as such does not appear in the model.

138 The objective of decomposing the electricity market into a set of autonomous roles and
139 domains is to enable the construction of business processes where the relevant role
140 participates to satisfy a specific transaction. Business processes should be designed to
141 satisfy the requirements of the roles and not of the parties.

142 It is not the intent of the Role Model to define the business processes and their
143 transactions. Business processes and their transactions shall be completely defined in a
144 Business Requirements Specification (BRS).

145 **3.2 Role constraints**

146 A role must be able to stand alone within the model. In other words, it must represent a
147 relatively autonomous function. A good guide to determining the validity for the insertion of
148 a role is to determine whether it provides:

149 1. All the information relevant to interoperability. It must be able to participate in the
150 development of a business process by being a key factor in the construction of the
151 allowable sequences of information exchanges and satisfy the conditions in which it is
152 allowed to send information. In this respect, it has to be autonomous. That is to say it
153 must have the business responsibility which enables it to:

- 154 ➤ receive information from another role,
- 155 ➤ determine the actions to be carried out on the information in question,
- 156 ➤ terminate, if necessary, prematurely, the exchange with respect to predefined
157 rules,
- 158 ➤ send information to the role in question or to another role,
- 159 ➤ manage error conditions.

160 2. Satisfy the process constraints in which the role participates. Such constraints impose
161 restrictions on how roles may or must react. These constraints will be defined within the
162 business process specification. Such constraints include:

- 163 ➤ demands on quality of service imposed by the business process requirements for a
164 role, such as network acknowledgement or security features;
- 165 ➤ constraints on the characteristics of the party that can play the role;

- 166 ➤ constraints on the preconditions that must be met before a role can be played;
- 167 ➤ constraints on the ability of a party to assign all or part of a role to another party;
- 168 ➤ The role shall be generic. The model is intended to be employed throughout the
- 169 industry. Consequently, roles that are specific or that are particular to only one
- 170 European context shall not appear in the model.

171 In essence, this means that a separate role shall be identified when it can be played by a
172 third party (= a party that can carry out the task on behalf of another party or as an
173 independent entity). E.g. the Transmission Capacity Allocator can carry out the capacity
174 allocation on behalf of the System Operator.

175 **3.3 Role Model use**

176 The Role Model shall be used as the basis for the construction of the business processes
177 that are necessary for the electricity market. The generic nature of the Role Model should
178 cover all the roles that can be used in a heterogeneous environment.

179 If, during the course of the construction of a process, a role is found to be missing from the
180 Role Model a maintenance request should be made requesting its inclusion in the model.

181

4 THE ROLE MODEL

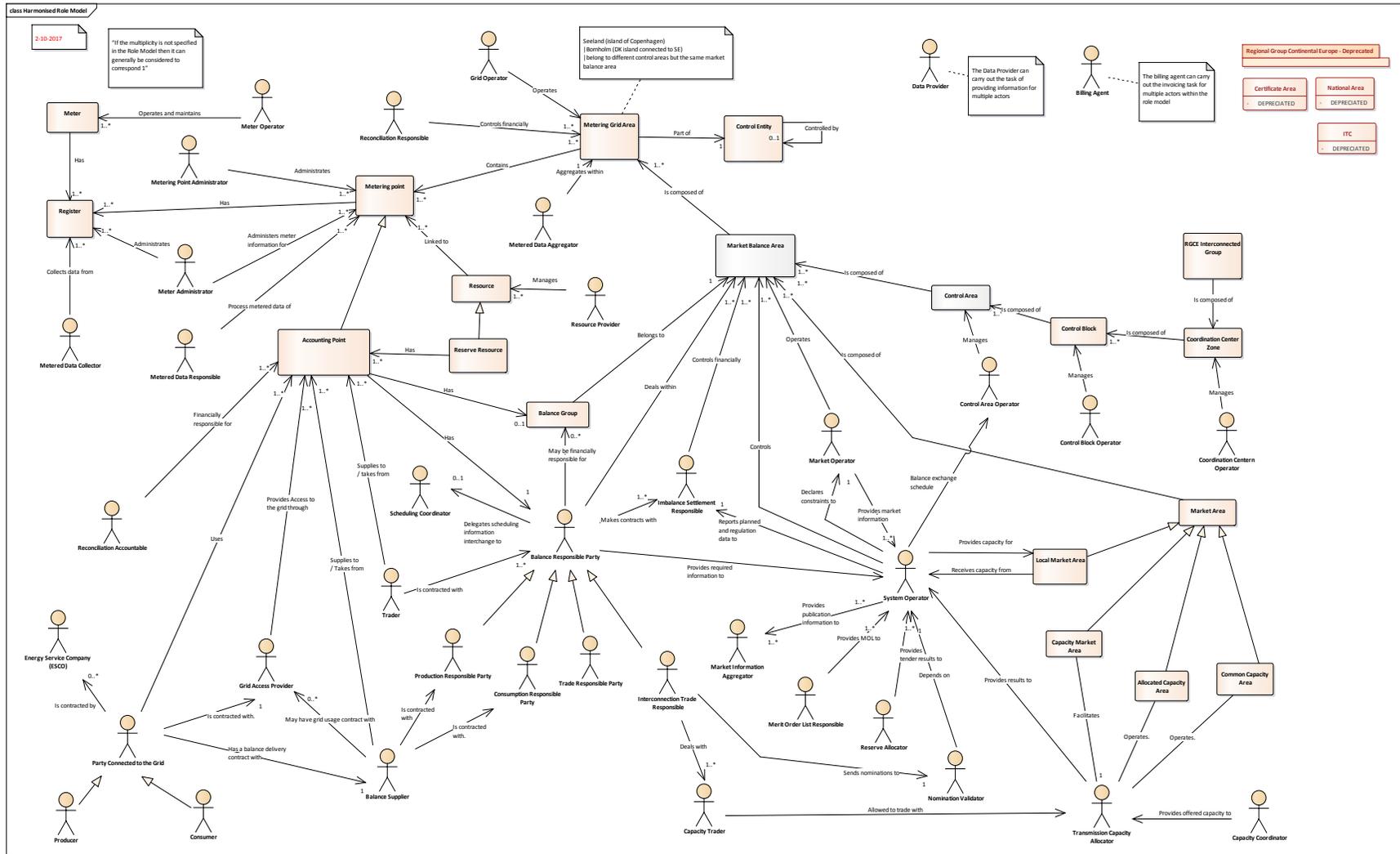


Figure 4: The Harmonised European Electricity Market Role Model

185 **5 ROLE MODEL DEFINITIONS**

186 **5.1 Roles**

ROLES		
TYPE	ROLE NAME	DESCRIPTION
Role	Balance Responsible Party	<p>A party that has a contract proving financial security and identifying balance responsibility with the Imbalance Settlement Responsible of the Market Balance Area entitling the party to operate in the market. This is the only role allowing a party to nominate energy on a wholesale level.</p> <p>Additional information: The meaning of the word “balance” in this context signifies that the quantity contracted to provide or to consume must be equal to the quantity really provided or consumed.</p>
Role	Balance Supplier	<p>A party that markets the difference between actual metered energy consumption and the energy bought with firm energy contracts by the Party Connected to the Grid. In addition, the Balance Supplier markets any difference with the firm energy contract (of the Party Connected to the Grid) and the metered production.</p> <p>Additional information: There is only one Balance Supplier for each Accounting Point.</p>
Role	Billing Agent	The party responsible for invoicing a concerned party.
Role	Capacity Coordinator	A party, acting on behalf of the System Operators involved, responsible for establishing a coordinated Offered Capacity and/or NTC and/or ATC between several Market Balance Areas.
Role	Capacity Trader	<p>A party that has a contract to participate in the Capacity Market to acquire capacity through a Transmission Capacity Allocator.</p> <p>Note: The capacity may be acquired on behalf of an Interconnection Trade Responsible or for sale on secondary capacity markets.</p>
Role	Consumer	<p>A party that consumes electricity.</p> <p>Additional information: This is a Type of Party Connected to the Grid.</p>

ROLES		
TYPE	ROLE NAME	DESCRIPTION
Role	Consumption Responsible Party	<p>A party who can be brought to rights, legally and financially, for any imbalance between energy nominated and consumed for all associated Accounting Points.</p> <p>Additional information: This is a type of Balance Responsible Party.</p>
Role	Control Area Operator	<p>Responsible for:</p> <ol style="list-style-type: none"> 1. The coordination of exchange programs between its related Market Balance Areas and for the exchanges between its associated Control Areas. 2. The load frequency control for its own area. 3. The coordination of the correction of time deviations.
Role	Control Block Operator	<p>Responsible for:</p> <ol style="list-style-type: none"> 1. The coordination of exchanges between its associated Control Blocks and the organisation of the coordination of exchange programs between its related Control Areas. 2. The load frequency control within its own block and ensuring that its Control Areas respect their obligations in respect to load frequency control and time deviation. 3. The organisation of the settlement and/or compensation between its Control Areas.
Role	Coordination Center Operator	<p>Responsible for:</p> <ol style="list-style-type: none"> 1. The coordination of exchange programs between its related Control Blocks and for the exchanges between its associated Coordination Center Zones. 2. Ensuring that its Control Blocks respect their obligations in respect to load frequency control. 3. Calculating the time deviation in cooperation with the associated coordination centers. 4. Carrying out the settlement and/or compensation between its Control Blocks and against the other Coordination Center Zones.
Role	Data Provider	<p>A party that has a mandate to provide information to other parties in the energy market.</p> <p>Note: For example, due to Article 2 of the European Commission Regulation 543/2013 of the 14th of June 2013, a data provider may be a Transmission System Operator or a third party agreed by a TSO.</p>
Role	Energy Service Company (ESCO)	<p>A party offering energy-related services to the Party Connected to Grid, but not directly active in the energy value chain or the physical infrastructure itself. The ESCO may provide insight services as well as energy management services.</p>

ROLES		
TYPE	ROLE NAME	DESCRIPTION
Role	Grid Access Provider	A party responsible for providing access to the grid through a Metering Point for energy consumption or production to the Party Connected to the Grid. The party is also responsible for creating and terminating Metering Points.
Role	Grid Operator	A party that operates one or more grids.
Role	Imbalance Settlement Responsible	A party that is responsible for settlement of the difference between the contracted quantities and the realised quantities of energy products for the Balance Responsible Parties in a Market Balance Area. Note: The Imbalance Settlement Responsible has not the responsibility to invoice. The Imbalance Settlement Responsible may delegate the invoicing responsibility to a more generic role such as a Billing Agent.
Role	Interconnection Trade Responsible	Is a Balance Responsible Party or depends on one. He is recognised by the Nomination Validator for the nomination of already allocated capacity. Additional information: This is a type of Balance Responsible Party.
Role	Market Information Aggregator	A party that provides market related information that has been compiled from the figures supplied by different actors in the market. This information may also be published or distributed for general use. Note: The Market Information Aggregator may receive information from any market participant that is relevant for publication or distribution.
Role	Market Operator	The unique power exchange of trades for the actual delivery of energy that receives the bids from the Balance Responsible Parties that have a contract to bid. The Market Operator determines the market energy price for the Market Balance Area after applying technical constraints from the System Operator. It may also establish the price for the reconciliation within a Metering Grid Area.
Role	Merit Order List Responsible	Responsible for the management of the available tenders for all Acquiring System Operators to establish the order of the reserve capacity that can be activated.
Role	Meter Administrator	A party responsible for keeping a database of meters.

ROLES		
TYPE	ROLE NAME	DESCRIPTION
Role	Metered Data Aggregator	A party responsible for the establishment and qualification of metered data from the Metered Data Responsible. This data is aggregated according to a defined set of market rules.
Role	Metered Data Collector	A party responsible for meter reading and quality control of the reading.
Role	Metered Data Responsible	A party responsible for the establishment and validation of metered data based on the collected data received from the Metered Data Collector. The party is responsible for the history of metered data for a Metering Point.
Role	Metering Point Administrator	A party responsible for registering the parties linked to the metering points in a Metering Grid Area. The party is also responsible for registering and making available the Metering Point characteristics.
Role	Meter Operator	A party responsible for installing, maintaining, testing, certifying and decommissioning physical meters.
Role	Nomination Validator	Has the responsibility of ensuring that all capacity nominated is within the allowed limits and confirming all valid nominations to all involved parties. He informs the Interconnection Trade Responsible of the maximum nominated capacity allowed. Depending on market rules for a given interconnection the corresponding System Operators may appoint one Nomination Validator.
Role	Party Connected to the Grid	A party that contracts for the right to consume or produce electricity at an Accounting Point.
Role	Producer	A party that produces electricity. Additional information: This is a type of Party Connected to the Grid.
Role	Production Responsible Party	A party who can be brought to rights, legally and financially, for any imbalance between energy nominated and produced for all associated Accounting Points. Additional information: This is a type of Balance Responsible Party.
Role	Reconciliation Accountable	A party that is financially accountable for the reconciled volume of energy products for a profiled Accounting Point.

ROLES		
TYPE	ROLE NAME	DESCRIPTION
Role	Reconciliation Responsible	<p>A party that is responsible for reconciling, within a Metering Grid Area, the volumes used in the imbalance settlement process for profiled Accounting Points and the actual metered quantities.</p> <p>Note: The Reconciliation Responsible may delegate the invoicing responsibility to a more generic role such as a Billing Agent.</p>
Role	Reserve Allocator	<p>Informs the market of reserve requirements, receives tenders against the requirements and in compliance with the prequalification criteria, determines what tenders meet requirements and assigns tenders.</p>
Role	Resource Provider	<p>A role that manages a resource and provides the schedules for it, if required.</p>
Role	Scheduling Coordinator ¹	<p>A party that is responsible for the schedule information and its exchange on behalf of a Balance Responsible Party.</p> <p>For example, in the Polish market a Scheduling Coordinator is responsible for information interchange for scheduling and settlement.</p>

¹ There is a Scheduling Agent in the new network code (Commission Regulation (EU) 2017/1485 of 2 August 2017) that probably will replace the Scheduling Coordinator;

ROLES		
TYPE	ROLE NAME	DESCRIPTION
Role	System Operator	<p>A party that is responsible for a stable power system operation (including the organisation of physical balance) through a transmission grid in a geographical area. The System Operator will also determine and be responsible for cross border capacity and exchanges. If necessary he may reduce allocated capacity to ensure operational stability.</p> <p>Transmission as mentioned above means “the transport of electricity on the extra high or high voltage network with a view to its delivery to final customers or to distributors. Operation of transmission includes as well the tasks of system operation concerning its management of energy flows, reliability of the system and availability of all necessary system services”. (definition taken from the ENTSO-E RGCE Operation handbook Glossary).</p> <p>Note: Additional obligations may be imposed through local market rules.</p>
Role	Trade Responsible Party	<p>A party who can be brought to rights, legally and financially, for any imbalance between energy nominated and consumed for all associated Accounting Points.</p> <p>Note: A power exchange without any privileged responsibilities acts as a Trade Responsible Party.</p> <p>Additional information: This is a type of Balance Responsible Party.</p>
Role	Trader	A party that is selling or buying energy.
Role	Transmission Capacity Allocator	<p>Manages the allocation of transmission capacity for an Allocated Capacity Area.</p> <p>For explicit auctions: The Transmission Capacity Allocator manages, on behalf of the System Operators, the allocation of available transmission capacity for an Allocated Capacity Area. He offers the available transmission capacity to the market, allocates the available transmission capacity to individual Capacity Traders and calculates the billing amount of already allocated capacities to the Capacity Traders.</p>

187 **5.2 Domains**

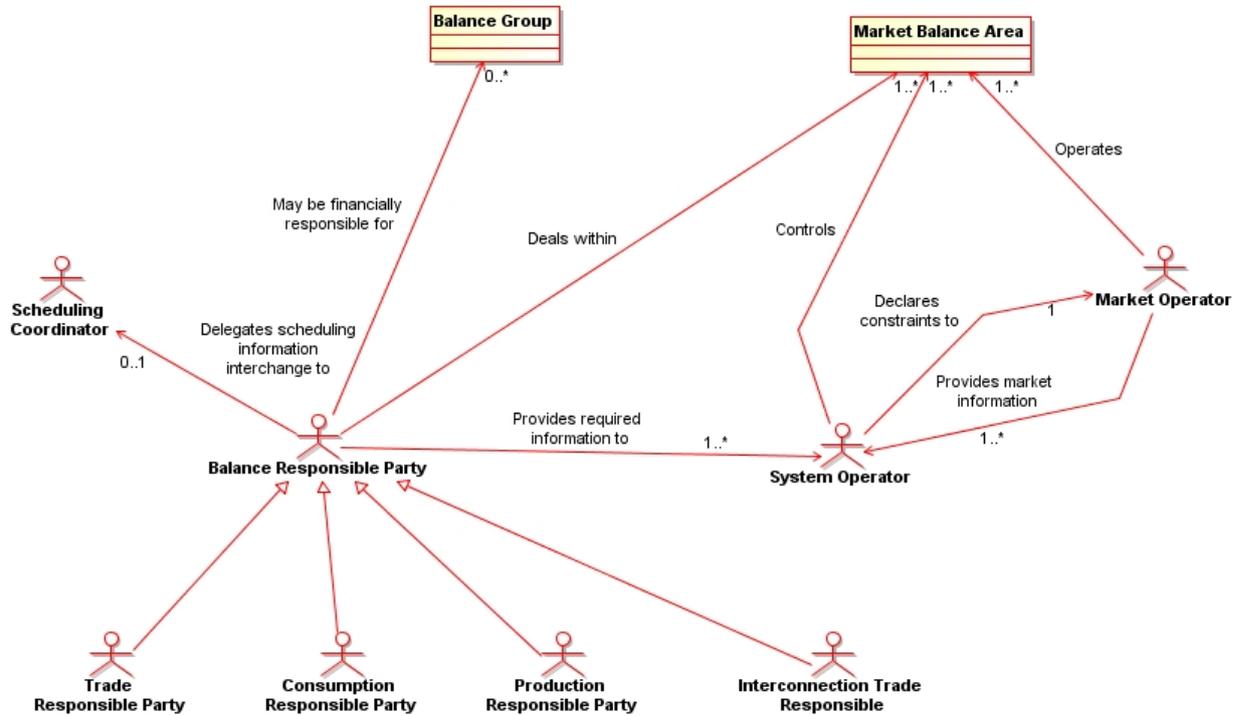
DOMAINS		
Type	DOMAIN NAME	DESCRIPTION
Domain	Accounting Point	<p>A domain under balance responsibility where balance supplier change can take place and for which commercial business processes are defined.</p> <p>Additional information: These domains are usually defined in a contract. Typical business processes where this would be used may be “compensation management”, “settlement”, “calculation of energy volumes”, etc This is a type of Metering Point.</p>
Domain	Allocated Capacity Area	<p>A market area where the transmission capacity between the Balance Areas is given to the Balance Responsible Parties according to rules carried out by a Transmission Capacity Allocator. Trade between balance areas is carried out on a bilateral or unilateral basis.</p> <p>Additional information: This is a type of Market Area.</p> <p>Note: Example are also France-Spain (Pyrenees) and Portugal-Spain.</p>
Domain	Balance Group	<p>An energy account under responsibility of a Balance Responsible Party used to determine balance considering predefined inputs and outputs within a specific Market Balance Area.</p>
Domain	Capacity Market Area	<p>A market area where the transmission capacity between the Market Balance Areas is given to the Balance Responsible Parties in a price based process separated from trading carried out by a Transmission Capacity Allocator. Trade between Market Balance Areas is carried out on a bilateral or unilateral basis.</p> <p>For example The auctioning system between TenneT and RWE Net.</p> <p>Additional information: This is a type of Market Area.</p>
Domain	Certificate Area	<p>A Certificate Market Area where a common set of rules relative to taxes and pricing for defined types of</p>

DOMAINS		
Type	DOMAIN NAME	DESCRIPTION
		energy production are applied. Additional information: This is a type of Market Area. DEPRECIATED
Domain	Common Capacity Area	A Market Area where the available transmission capacity between the Market Balance Areas is given to the Balance Responsible Parties based on their bidding to the Market Operator. Trade between Market Balance Areas is carried out through the Market Operator. Additional information: This is a type of Market Area.
Domain	Control Area	The composition of one or more Market Balance Areas under the same technical load frequency control responsibility. Note: In some cases there may be some Metering Points that belong to a Market Balance Area that is not a part of the Control Area. However, these do not impact the general definition, for example, a village in one country connected to the grid of another.
Domain	Control Block	The composition of one or more Control Areas, working together to ensure the load frequency control on behalf of RGCE.
Domain	Control Entity	A geographic area consisting of one or more Metering Grid Areas with an energy delivery responsibility. Each area is synchronously connected to another area. In most cases such areas have a load frequency responsibility and therefore may have to report to a higher level control entity.
Domain	Coordination Center Zone	The composition of a number of Control Blocks under the responsibility of the same Coordination Center Operator.
Domain	ITC	The Inter TSO Compensation (ITC) market is composed of a group of System Operators that accept a common set of rules for the invoicing of energy flows over the border. Additional information: This is a type of Market Area. DEPRECIATED

DOMAINS		
Type	DOMAIN NAME	DESCRIPTION
Domain	Local Market Area	<p>A Market Area where there is no transmission capacity restrictions between the Market Balance Areas.</p> <p>Additional information: This is a type of Market Area.</p>
Domain	Market Area	<p>An area made up of several Market Balance Areas interconnected through AC or DC links. Trade is allowed between different Market Balance Areas with common market rules for trading across the interconnection.</p>
Domain	Market Balance Area	<p>A geographic area consisting of one or more Metering Grid Areas with common market rules for which the settlement responsible party carries out a balance settlement and which has the same price for imbalance.</p> <p>A Market Balance Area may also be defined due to bottlenecks.</p>
Domain	Meter	A physical device containing one or more registers.
Domain	Metering Grid Area	<p>A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses.</p>
Domain	Metering point	A domain where energy products are measured or computed.
Domain	National Area	<p>An area covered by a single set of national electricity arrangements established at government level.</p> <p>This is not necessarily the same as the geographical boundaries of a nation.</p> <p>Additional information: This is a type of Market Area.</p> <p>DEPRECIATED</p>
Domain	Register	A physical or logical counter measuring energy products.
Domain	Reserve Resource	A resource technically pre-qualified using a uniform set of standards to supply reserve capabilities to a System Operator and is associated with one or more

DOMAINS		
Type	DOMAIN NAME	DESCRIPTION
		<p>tele-measuring devices.</p> <p>Additional information: This is a type of Resource.</p>
Domain	Resource	<p>An object that represents a grid asset, a consumption resource or a production resource related to the energy industry.</p> <p>Additional information: A Resource can represent for example a generating unit, a consumption unit or a virtual power plant defined in a contract.</p>
Domain	RGCE Interconnected Group	<p>The composition of a number of coordination center zones, operating under RGCE (Regional Group Continental Europe) rules, where the exchange and compensation programmes within the zone must sum up to zero.</p>

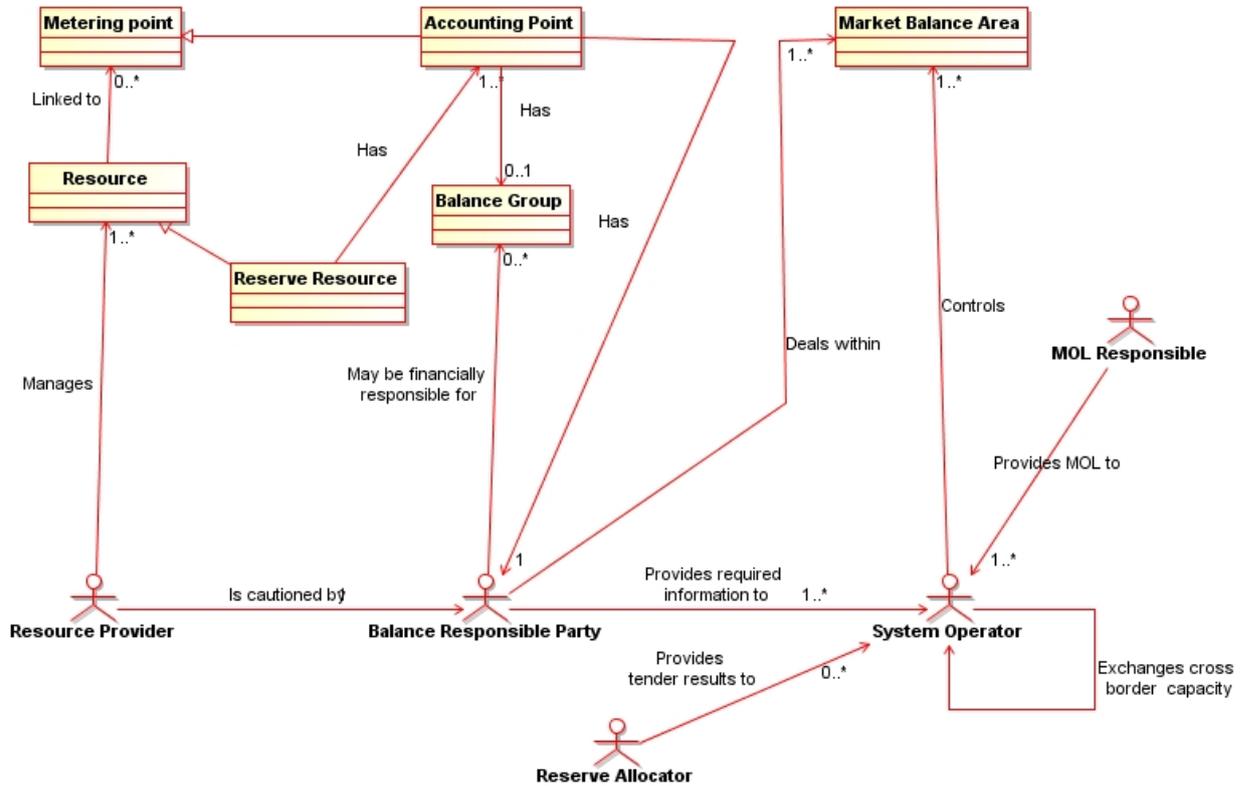
188 **6 THE ENTSO-E SCHEDULING SYSTEM WITHIN THE ROLE**
 189 **MODEL**



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Figure 5: The ENTSO-E Scheduling System within the Role Model

198 **8 THE ENTSO-E RESERVE RESOURCE PROCESS SYSTEM**
 199 **WITHIN THE ROLE MODEL**
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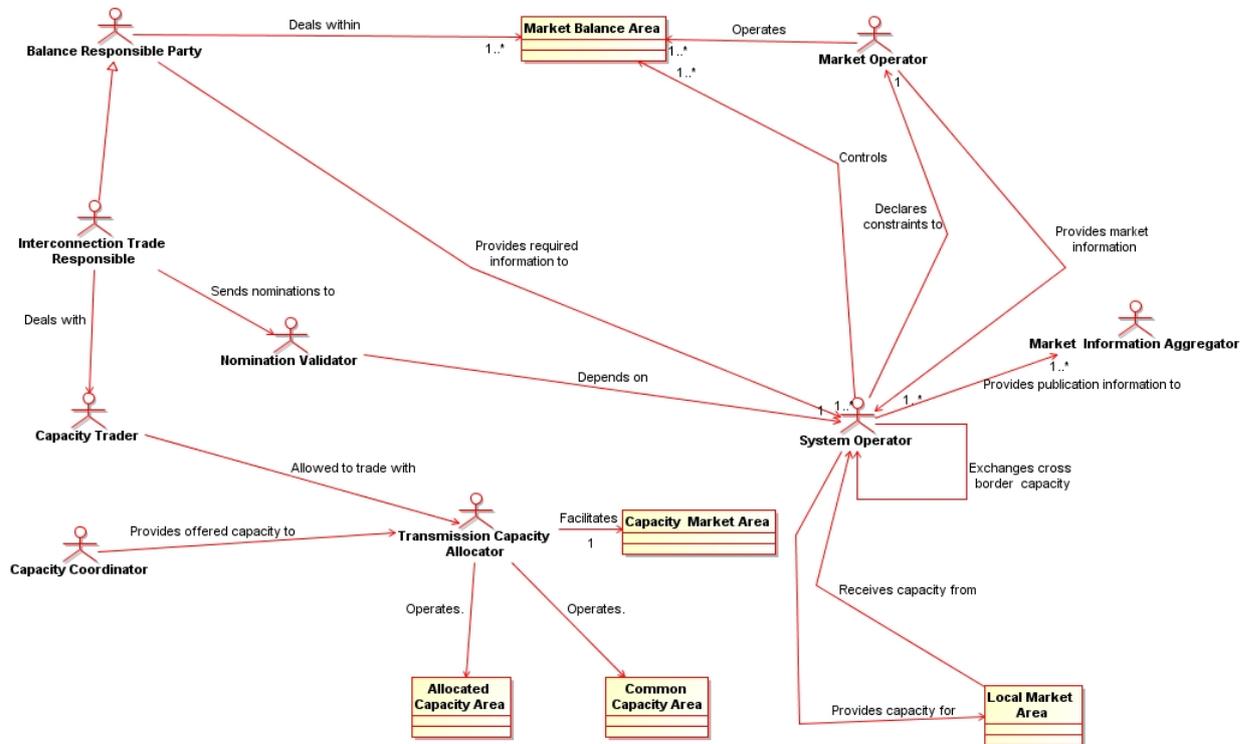


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Figure 7: The ENTSO-E Reserve Resource Process System within the Role Model

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9 THE ENTSO-E CAPACITY ALLOCATION AND NOMINATION PROCESS WITHIN THE ROLE MODEL

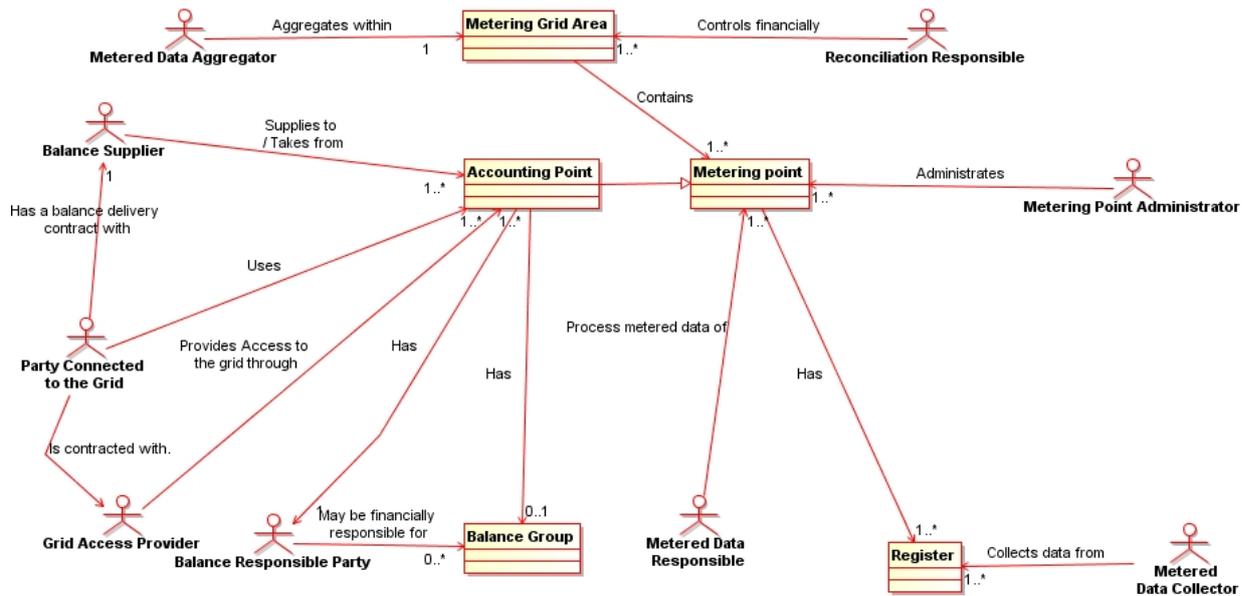


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Figure 8: The ENTSO-E Capacity Allocation and Nomination Process within the Role Model

210 **10 THE EBIX® STRUCTURE DOMAIN WITHIN THE**
 211 **ROLE MODEL**

212 The subset of the ENTSO-E, EFET and ebIX® Harmonised Role Model related to the ebIX®
 213 Master Data processes concern changes, additions and ending of objects. Examples of
 214 such processes are Change of Supplier, End of Supply, Change of Balance Responsible
 215 Party and Query/Response Metering Point Master Data.

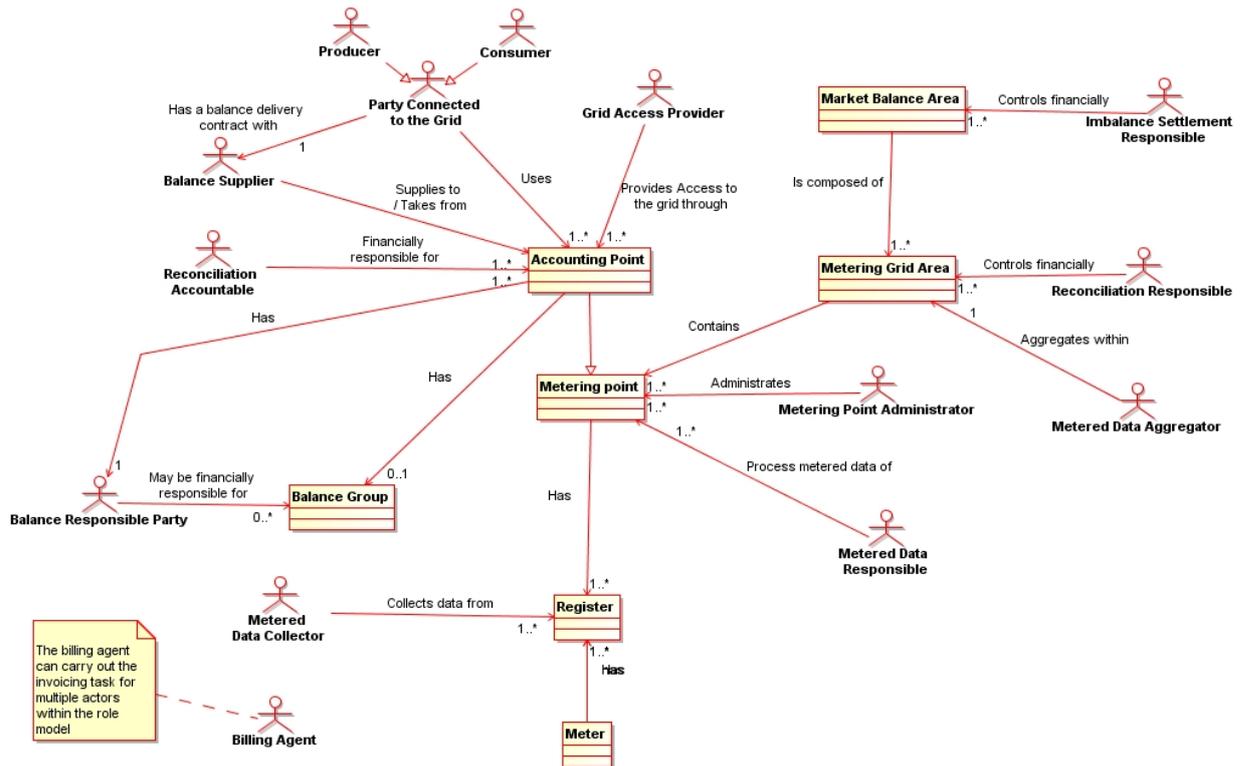


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Figure 9: The ebIX® Structure Domain within the Role Model

219 **11 THE EBIX® MEASURE DOMAIN WITHIN THE**
 220 **ROLE MODEL**

221 The subset of the ENTSO-E, EFET and ebIX® Harmonised Role Model related to the ebIX®
 222 Measure domain concerns the exchange of collected data, validated and/or aggregated
 223 measured data for use in various business processes. Examples of such business
 224 processes are Imbalance Settlement, Reconciliation, Billing, Labelling (green certificates).

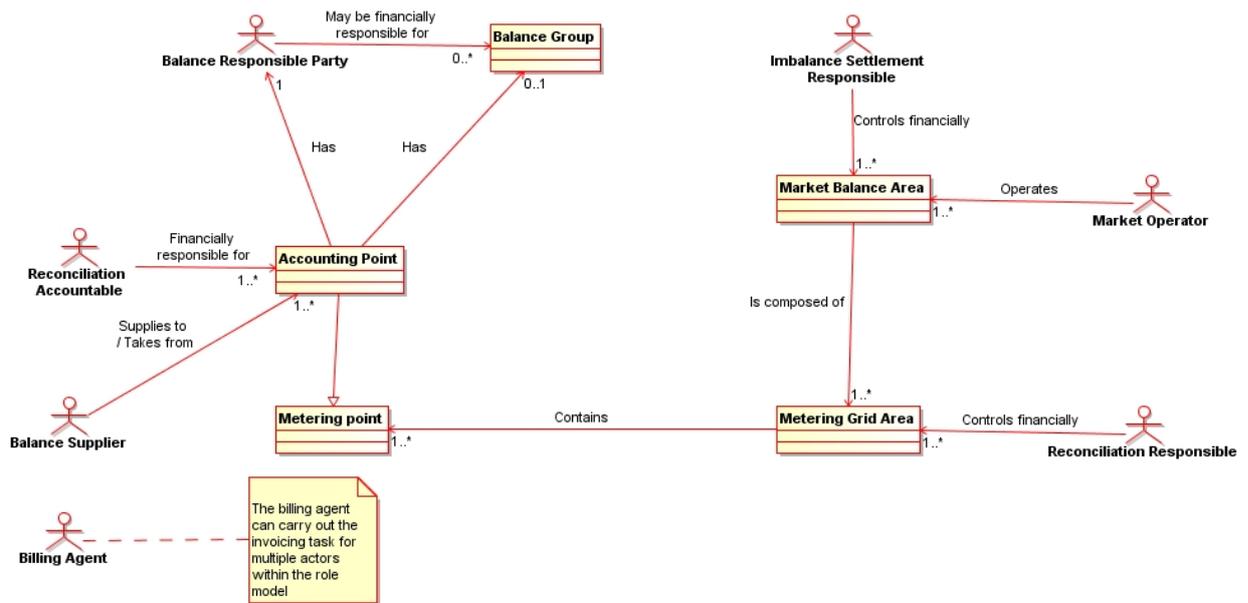


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Figure 10: The ebIX® Measure Domain within the Role Model

228 **12 THE EBIX® RECONCILIATION PROCESS WITHIN**
 229 **THE ROLE MODEL**

230 The subset of the ENTSO-E, EFET and ebIX® Harmonised Role Model related to the ebIX®
 231 business process for Reconciliation (as part of the ebIX® Settle domain) concerns the
 232 exchange of business data in the various steps of the reconciliation process.



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Figure 11: The ebIX® Reconciliation Process within the Role Model