



European Network of  
Transmission System Operators  
for Electricity

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# CAPACITY AUCTION SPECIFICATION DOCUMENT UML MODEL AND SCHEMA

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2022-02-01  
APPROVED DOCUMENT  
VERSION 1.1

2

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## Revision History

Version	Release	Date	Comments
0	1	2018-03-12	First drafting of the document.
1	0	2018-05-08	Document approved by MC
1	1	2022-02-01	Updates in capacity auction specification document XSD v7.2 <ul style="list-style-type: none"> <li>• Quantity_Measure_Unit.name &amp; Price_Measure_Unit.name attributes were renamed to Quantity_Measurement_Unit.name &amp; Price_Measurement_Unit.name to be compliant with the ESMP.</li> <li>• mRID of Document, Series and Timeseries (ID_String type) was enlarged from 35 to 60 characters.</li> </ul> Approved by MC.

68

## 69 **Objective**

70 The purpose of this document is to provide the contextual and assembly UML models and the  
71 schema of the CapacityAuctionSpecification\_MarketDocument.

72 The schema of the CapacityAuctionSpecification\_MarketDocument could be used in various  
73 business processes.

74 It is not the purpose of this document to describe all the use cases, sequence diagrams,  
75 business processes, etc. for which this schema is to be used.

76 This document shall only be referenced in an implementation guide of a specific business  
77 process. The content of the business process implementation guide shall be as follows:

- 78 • Description of the business process;
- 79 • Use case of the business process;
- 80 • Sequence diagrams of the business process;
- 81 • List of the schema (XSD) to be used in the business process and versions of the  
82 schema;
- 83 • For each schema, dependency tables providing the necessary information for the  
84 generation of the XML instances, i.e. when the optional attributes are to be used, which  
85 codes from which ENTSO-E codelist are to be used.

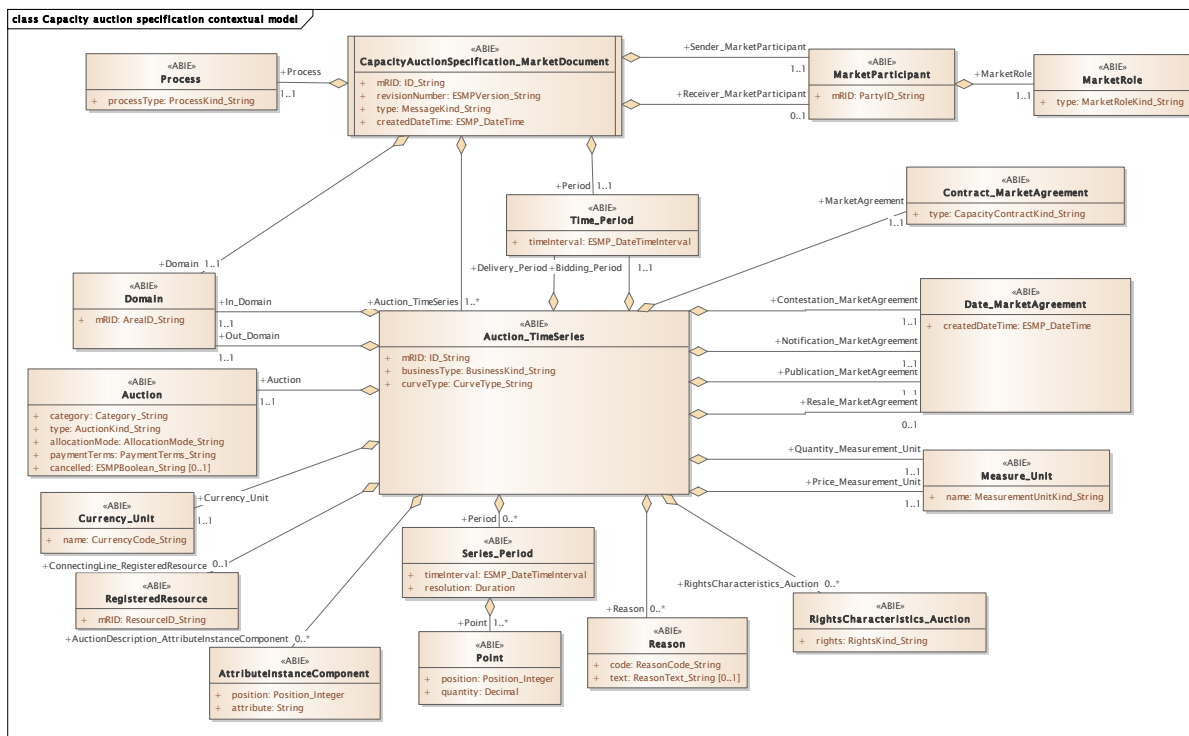
86

87 **CapacityAuctionSpecification\_MarketDocument**

88 **2.1 Capacity auction specification contextual model**

89 **2.1.1 Overview of the model**

90 Figure 1 shows the model.



91

92

**Figure 1 - Capacity auction specification contextual model**

93

94

95 **2.1.2 IsBasedOn relationships from the European style market profile**

96 Table 1 shows the traceability dependency of the classes used in this package towards the  
97 upper level.

98

**Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
AttributeInstanceComponent	TC57CIM::IEC62325::MarketManagement::AttributeInstanceComponent
Auction	TC57CIM::IEC62325::MarketManagement::Auction
Auction_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
CapacityAuctionSpecification_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Contract_MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
Currency_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Date_MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
Domain	TC57CIM::IEC62325::MarketManagement::Domain
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
Reason	TC57CIM::IEC62325::MarketManagement::Reason
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
RightsCharacteristics_Auction	TC57CIM::IEC62325::MarketManagement::Auction
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period

99

100

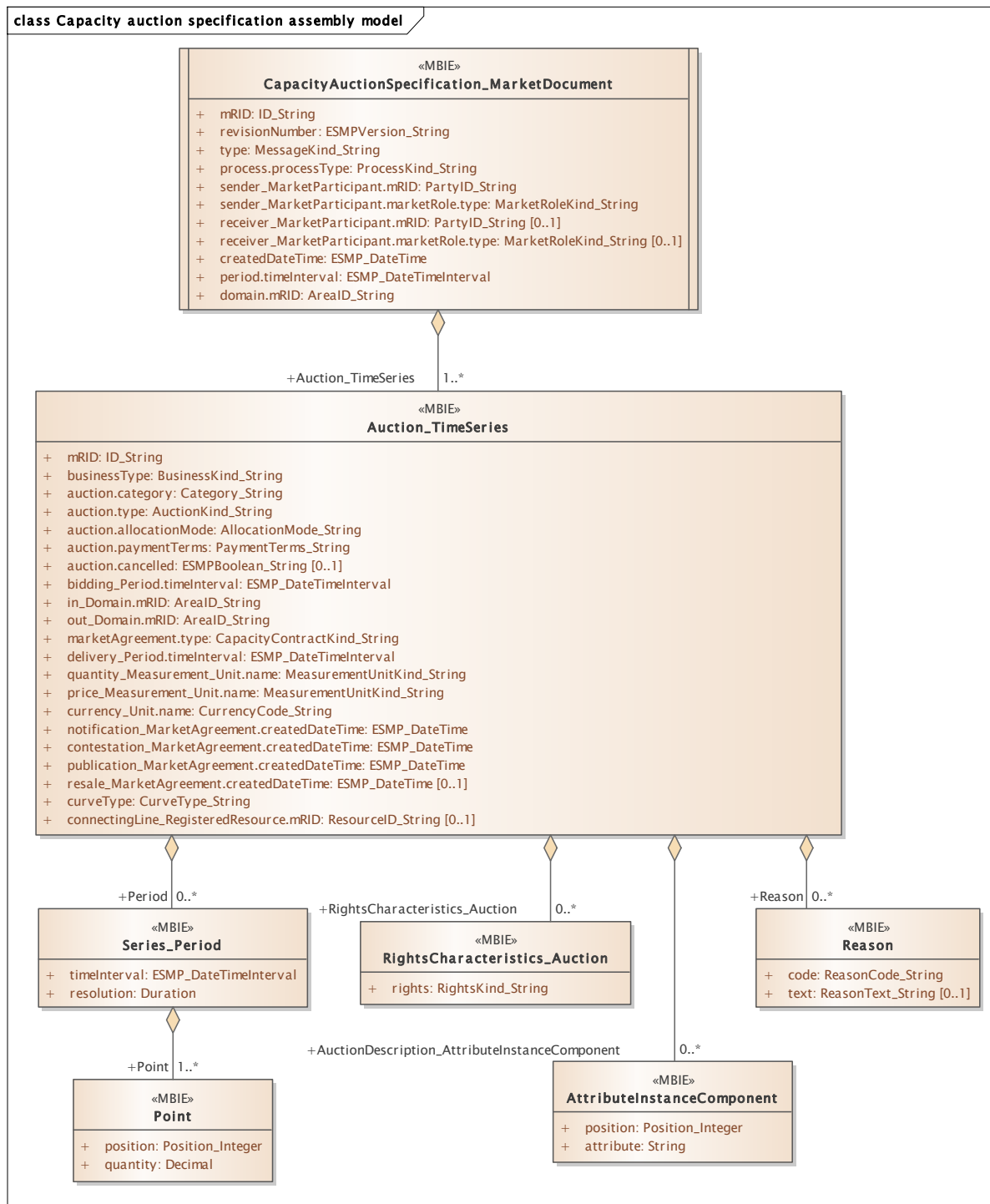


101

102 **2.2 Capacity auction specification assembly model**

103 **2.2.1 Overview of the model**

104 Figure 2 shows the model.



105

106

**Figure 2 - Capacity auction specification assembly model**

107

108

109 **2.2.2 IsBasedOn relationships from the European style market profile**

110 Table 2 shows the traceability dependency of the classes used in this package towards the  
111 upper level.

112 **Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
AttributeInstanceComponent	TC57CIM::IEC62325::MarketManagement::AttributeInstanceComponent
Auction_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
CapacityAuctionSpecification_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
RightsCharacteristics_Auction	TC57CIM::IEC62325::MarketManagement::Auction
Series_Period	TC57CIM::IEC62325::MarketManagement::Period

113

114 **2.2.3 Detailed Capacity auction specification assembly model**

115 **2.2.3.1 CapacityAuctionSpecification\_MarketDocument root class**

116 An electronic document containing the information necessary to satisfy the requirements of a  
117 given business process.

118 The CapacityAuctionSpecification\_MarketDocument is issued by the Transmission Capacity  
119 Allocator to any market participant interested in the reception of such information.

120 It provides information on the auction that will be carried out and in particular the unique  
121 identification of the auction.

122 Table 3 shows all attributes of CapacityAuctionSpecification\_MarketDocument.

123 **Table 3 - Attributes of Capacity auction specification assembly  
124 model::CapacityAuctionSpecification\_MarketDocument**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The unique identification of the document being exchanged within a business process flow.
1	[1..1]	revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
3	[1..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document owner.
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document owner.
6	[0..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.

Order	mult.	Attribute name / Attribute type	Description
7	[0..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient.
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The beginning and ending date and time of the period that the capacity auctions are covering.
10	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the Capacity AuctionSpecification document, i.e. the border.

125

126 Table 4 shows all association ends of CapacityAuctionSpecification\_MarketDocument with  
127 other classes.

128 **Table 4 - Association ends of Capacity auction specification assembly**  
129 **model::CapacityAuctionSpecification\_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
11	[1..*]	Auction_TimeSeries Auction_TimeSeries	Association Based On: Capacity auction specification contextual model::Auction_TimeSeries.Auction_TimeSeries[1..*] ----- Capacity auction specification contextual model::CapacityAuctionSpecification_MarketDocument.[]

130

### 131 2.2.3.2 AttributeInstanceComponent

132 A class used to provide information about an attribute.

133 Table 5 shows all attributes of AttributeInstanceComponent.

134 **Table 5 - Attributes of Capacity auction specification assembly**  
135 **model::AttributeInstanceComponent**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	position Position_Integer	The position provides the identification of each line within the textual description of an auction. A sequential value representing a relative sequence number.
1	[1..1]	attribute String	This provides the textual content of a line within a description (textual description of the auction and its market rules to clarify information that is not formally defined). The identification of an attribute for a given request component.

136

### 137 2.2.3.3 Auction\_TimeSeries

138 A set of time-ordered quantities being exchanged in relation to a product.

139 The Auction\_TimeSeries provide the necessary information about what is auctioned as  
140 transmission capacity.

141 Table 6 shows all attributes of Auction\_TimeSeries.

142  
143

**Table 6 - Attributes of Capacity auction specification assembly  
model::Auction\_TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The identification attributed by the auction office that uniquely identifies the auction. A unique identification of the time series.
1	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
2	[1..1]	auction.category Category_String	The product category of an auction.
3	[1..1]	auction.type AuctionKind_String	The kind of the auction (e.g. implicit, explicit, ...).
4	[1..1]	auction.allocationMode AllocationMode_String	The identification of the method of allocation in an auction.
5	[1..1]	auction.paymentTerms PaymentTerms_String	The terms which dictate the determination of the bid payment price.
6	[0..1]	auction.cancelled ESMPBoolean_String	An indicator that signifies that the object, subject of the TimeSeries, has been cancelled.
7	[1..1]	bidding_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The beginning and ending date and time of the bidding period within which capacity traders can submit a bid to the transmission capacity allocator.
8	[1..1]	in_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
9	[1..1]	out_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
10	[1..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract. --- The contract type defines the conditions under which the capacity will be allocated.
11	[1..1]	delivery_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The beginning and ending date and time of the period when the capacity is to be used.
12	[1..1]	quantity_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure in which the quantities in the time series are expressed, e.g. MAW.
13	[1..1]	price_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure in which the prices in the auction bids are to be expressed.
14	[1..1]	currency_Unit.name CurrencyCode_String	The identification of the formal code for a currency (ISO 4217). --- The currency in which the monetary amount is expressed.
15	[1..1]	notification_MarketAgreement.createdDateTime ESMP_DateTime	The date and time related to conditions of the agreement. The date and time of the creation of the agreement. --- The date and time that the participants will be notified of the results prior to the contestation period.

Order	mult.	Attribute name / Attribute type	Description
16	[1..1]	contestation_MarketAgreement.createdDateTime ESMP_DateTime	The date and time related to conditions of the agreement. The date and time of the creation of the agreement. --- The period in which contestations may be provided starts with the notification date time and ends with the contestation date and time. If there is no possibility of contestation both dates and times must be the same.
17	[1..1]	publication_MarketAgreement.createdDateTime ESMP_DateTime	The date and time related to conditions of the agreement. The date and time of the creation of the agreement. --- The date and time that the final auction results will be published to the market after the contestation period.
18	[0..1]	resale_MarketAgreement.createdDateTime ESMP_DateTime	The date and time related to conditions of the agreement. The date and time of the creation of the agreement. --- The date and time where the resale of capacity rights acquired in previous auctions for this auction will no longer be acceptable.
19	[1..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.
20	[0..1]	connectingLine_RegisteredResource.mRID ResourceID_String	The unique identification of a resource. --- The identification of a resource associated with a TimeSeries. The identification of a set of lines that connect two areas; the transmission capacity rights are related to this set of lines.

144

145 Table 7 shows all association ends of Auction\_TimeSeries with other classes.

146

**Table 7 - Association ends of Capacity auction specification assembly model::Auction\_TimeSeries with other classes**

147

Order	mult.	Class name / Role	Description
21	[0..*]	Series_Period Period	Association Based On: Capacity auction specification contextual model::Series_Period.Period[0..*] ----- Capacity auction specification contextual model::Auction_TimeSeries.[]
22	[0..*]	AttributeInstanceComponent AuctionDescription_AttributeInstanceComponent	It provides the textual description of the auction and its market rules to clarify information that is not formally defined. Association Based On: Capacity auction specification contextual model::AttributeInstanceComponent.AuctionDescription_AttributeInstanceComponent[0..*] ----- Capacity auction specification contextual model::Auction_TimeSeries.[]
23	[0..*]	RightsCharacteristics_Auction RightsCharacteristics_Auction	The definition of the type of the rights that are to be auctioned. Association Based On: Capacity auction specification contextual model::RightsCharacteristics_Auction.RightsCharacteristics_Auction[0..*] ----- Capacity auction specification contextual model::Auction_TimeSeries.[]

Order	mult.	Class name / Role	Description
24	[0..*]	Reason Reason	It may provide any coded or textual information that is necessary to completely describe a change to the auction specification or its eventual cancellation. Association Based On: Capacity auction specification contextual model::Reason.Reason[0..*] ----- Capacity auction specification contextual model::Auction_TimeSeries.[]

148

#### 149 2.2.3.4 Point

150 The identification of the values being addressed within a specific interval of time.

151 Table 8 shows all attributes of Point.

152 **Table 8 - Attributes of Capacity auction specification assembly model::Point**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	position Position_Integer	A sequential value representing the relative position within a given time interval.
1	[1..1]	quantity Decimal	The quantity to be auctioned for the interval in question. The principal quantity identified for a point.

153

#### 154 2.2.3.5 Reason

155 The motivation of an act.

156 Table 9 shows all attributes of Reason.

157 **Table 9 - Attributes of Capacity auction specification assembly model::Reason**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	code ReasonCode_String	The motivation of an act in coded form.
1	[0..1]	text ReasonText_String	The textual explanation corresponding to the reason code.

158

#### 159 2.2.3.6 RightsCharacteristics\_Auction

160 The identification of a formal specification of an energy product that is offered for sale.

161 Table 10 shows all attributes of RightsCharacteristics\_Auction.

162 **Table 10 - Attributes of Capacity auction specification assembly model::RightsCharacteristics\_Auction**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	rights RightsKind_String	The rights of use that is accorded to what is acquired in an auction.

164

165 **2.2.3.7 Series\_Period**

166 The identification of the period of time corresponding to a given time interval and resolution.

167 Table 11 shows all attributes of Series\_Period.

168 **Table 11 - Attributes of Capacity auction specification assembly model::Series\_Period**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	timeInterval ESMP_DateTimeInterval	The start and end time of the period.
1	[1..1]	resolution Duration	The definition of the number of units of time that compose an individual step within a period.

169

170 Table 12 shows all association ends of Series\_Period with other classes.

171 **Table 12 - Association ends of Capacity auction specification assembly  
172 model::Series\_Period with other classes**

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	Association Based On: Capacity auction specification contextual model::Point.Point[1..*] ----- Capacity auction specification contextual model::Series_Period.[]

173

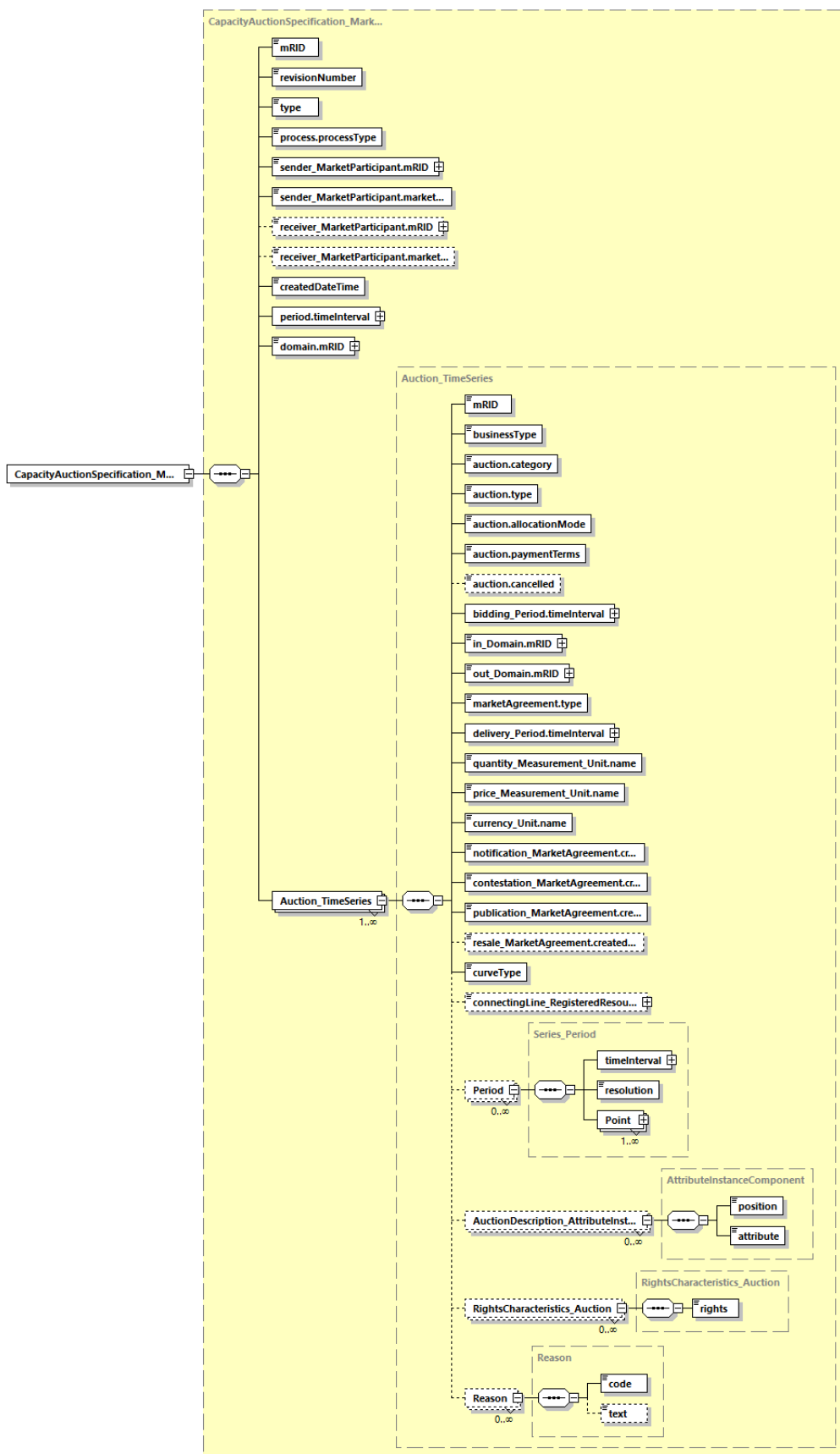
174 **2.2.4 Datatypes**

175 The list of datatypes used for the Capacity auction specification assembly model is as follows:

- 176 • ESMP\_DateTimeInterval compound
- 177 • AllocationMode\_String datatype, codelist AllocationModeTypeList
- 178 • AreaID\_String datatype, codelist CodingSchemeTypeList
- 179 • AuctionKind\_String datatype, codelist AuctionTypeList
- 180 • BusinessKind\_String datatype, codelist BusinessTypeList
- 181 • CapacityContractKind\_String datatype, codelist ContractTypeList
- 182 • Category\_String datatype, codelist CategoryTypeList
- 183 • CurrencyCode\_String datatype, codelist CurrencyTypeList
- 184 • CurveType\_String datatype, codelist CurveTypeList
- 185 • ESMP\_DateTime datatype
- 186 • ESMPBoolean\_String datatype, codelist IndicatorTypeList
- 187 • ESMPVersion\_String datatype
- 188 • ID\_String datatype
- 189 • MarketRoleKind\_String datatype, codelist RoleTypeList
- 190 • MeasurementUnitKind\_String datatype, codelist UnitOfMeasureTypeList
- 191 • MessageKind\_String datatype, codelist MessageTypeList
- 192 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 193 • PaymentTerms\_String datatype, codelist PaymentTermsTypeList
- 194 • Position\_Integer datatype
- 195 • ProcessKind\_String datatype, codelist ProcessTypeList
- 196 • ReasonCode\_String datatype, codelist ReasonCodeTypeList
- 197 • ReasonText\_String datatype
- 198 • ResourceID\_String datatype, codelist CodingSchemeTypeList
- 199 • RightsKind\_String datatype, codelist RightsTypeList
- 200 • YMDHM\_DateTime datatype
- 201

202 2.2.5 CapacityAuctionSpecification\_MarketDocument XML schema structure

203



Generated by XMLSpy www.altova.com

Figure 3 - CapacityAuctionSpecification\_MarketDocument schema structure

204  
 205  
 206



## 207 2.2.6 CapacityAuctionSpecification\_MarketDocument XML schema

208

209 The schema to be used to validate XML instances is to be identified by:

210 urn:iec62325.351:tc57wg16:451-3:capacityspecificationdocument:7:2

```
211 <?xml version="1.0" encoding="utf-8"?>
212 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
213 xmlns="urn:iec62325.351:tc57wg16:451-3:capacityspecificationdocument:7:2"
214 xmlns:sawSDL="http://www.w3.org/ns/sawSDL"
215 xmlns:cimp="http://www.iec.ch/cimprofile"
216 xmlns:xs="http://www.w3.org/2001/XMLSchema"
217 targetNamespace="urn:iec62325.351:tc57wg16:451-
218 3:capacityspecificationdocument:7:2" elementFormDefault="qualified"
219 attributeFormDefault="unqualified">
220   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
221 entsoe-eu-wgedi-codelists.xsd"/>
222   <xs:element name="CapacityAuctionSpecification_MarketDocument"
223 type="CapacityAuctionSpecification_MarketDocument"/>
224   <xs:simpleType name="Position_Integer"
225 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
226     <xs:restriction base="xs:integer">
227       <xs:maxInclusive value="999999"/>
228       <xs:minInclusive value="1"/>
229     </xs:restriction>
230   </xs:simpleType>
231   <xs:complexType name="AttributeInstanceComponent"
232 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
233 cim16#AttributeInstanceComponent">
234     <xs:sequence>
235       <xs:element name="position" type="Position_Integer"
236 minOccurs="1" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
237 schema-cim16#AttributeInstanceComponent.position"/>
238       <xs:element name="attribute" type="xs:string" minOccurs="1"
239 maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
240 cim16#AttributeInstanceComponent.attribute"/>
241     </xs:sequence>
242   </xs:complexType>
243   <xs:simpleType name="ID_String"
244 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
245     <xs:restriction base="xs:string">
246       <xs:maxLength value="60"/>
247     </xs:restriction>
248   </xs:simpleType>
249   <xs:simpleType name="BusinessKind_String"
250 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
251     <xs:restriction base="ecl:BusinessTypeList"/>
252   </xs:simpleType>
253   <xs:simpleType name="Category_String"
254 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
255     <xs:restriction base="ecl:CategoryTypeList"/>
256   </xs:simpleType>
257   <xs:simpleType name="AuctionKind_String"
258 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
259     <xs:restriction base="ecl:AuctionTypeList"/>
260   </xs:simpleType>
261   <xs:simpleType name="AllocationMode_String"
262 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
263     <xs:restriction base="ecl:AllocationModeTypeList"/>
```

```
264     </xs:simpleType>
265     <xs:simpleType name="PaymentTerms_String"
266 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
267         <xs:restriction base="ecl:PaymentTermsTypeList"/>
268     </xs:simpleType>
269     <xs:simpleType name="ESMPBoolean_String"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
271         <xs:restriction base="ecl:IndicatorTypeList"/>
272     </xs:simpleType>
273     <xs:simpleType name="AreaID_String-base"
274 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
275         <xs:restriction base="xs:string">
276             <xs:maxLength value="18"/>
277         </xs:restriction>
278     </xs:simpleType>
279     <xs:complexType name="AreaID_String"
280 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
281         <xs:simpleContent>
282             <xs:extension base="AreaID_String-base">
283                 <xs:attribute name="codingScheme"
284 type="ecl:CodingSchemeTypeList" use="required"/>
285             </xs:extension>
286         </xs:simpleContent>
287     </xs:complexType>
288     <xs:simpleType name="CapacityContractKind_String"
289 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
290         <xs:restriction base="ecl:ContractTypeList"/>
291     </xs:simpleType>
292     <xs:simpleType name="MeasurementUnitKind_String"
293 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
294         <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
295     </xs:simpleType>
296     <xs:simpleType name="CurrencyCode_String"
297 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
298         <xs:restriction base="ecl:CurrencyTypeList"/>
299     </xs:simpleType>
300     <xs:simpleType name="ESMP_DateTime"
301 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
302         <xs:restriction base="xs:dateTime">
303             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
304 9]|12)[0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-
305 9]|30)T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
306 9])Z)|(((13579)[26][02468][048]|13579[01345789](0)[48]|13579[01345789][2468][0
307 48]|02468[048][02468][048]|02468[1235679](0)[48]|02468[1235679][2468][048]|
308 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
309 5][0-9]:[0-5][0-
310 9])Z)|(((13579)[26][02468][1235679]|13579[01345789](0)[01235679]|13579[0134578
311 9][2468][1235679]|02468[048][02468][1235679]|02468[1235679](0)[01235679]|0246
312 8][1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
313 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
314         </xs:restriction>
315     </xs:simpleType>
316     <xs:simpleType name="CurveType_String"
317 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
318         <xs:restriction base="ecl:CurveTypeList"/>
319     </xs:simpleType>
320     <xs:simpleType name="ResourceID_String-base"
321 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
322         <xs:restriction base="xs:string">
323             <xs:maxLength value="60"/>
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324         </xs:restriction>
325     </xs:simpleType>
326     <xs:complexType name="ResourceID_String"
327 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
328         <xs:simpleContent>
329             <xs:extension base="ResourceID_String-base">
330                 <xs:attribute name="codingScheme"
331 type="ecl:CodingSchemeTypeList" use="required"/>
332             </xs:extension>
333         </xs:simpleContent>
334     </xs:complexType>
335     <xs:simpleType name="YMDHM_DateTime"
336 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
337         <xs:restriction base="xs:string">
338             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
339 9]|[12][0-9]|3[01]))|((0[0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
340 9]|30))T((0[1][0-9]|2[0-3]):[0-5][0-
341 9])Z)|(((13579)[26][02468][048]|13579[01345789](0)[48]|13579[01345789][2468][0
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343 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((0[1][0-9]|2[0-3]):[0-
344 5][0-
345 9])Z)|(((13579)[26][02468][1235679]|13579[01345789](0)[01235679]|13579[0134578
346 9][2468][1235679]|02468[048][02468][1235679]|02468[1235679](0)[01235679]|0246
347 8[1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
348 9]|2[0-8])T((0[1][0-9]|2[0-3]):[0-5][0-9])Z)"/>
349         </xs:restriction>
350     </xs:simpleType>
351     <xs:complexType name="ESMP_DateTimeInterval"
352 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
353         <xs:sequence>
354             <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
355 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
356 cim16#DateTimeInterval.start"/>
357             <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
358 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
359 cim16#DateTimeInterval.end"/>
360         </xs:sequence>
361     </xs:complexType>
362     <xs:complexType name="Auction_TimeSeries"
363 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
364         <xs:sequence>
365             <xs:element name="mRID" type="ID_String" minOccurs="1"
366 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
367 cim16#IdentifiedObject.mRID"/>
368             <xs:element name="businessType" type="BusinessKind_String"
369 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
370 schema-cim16#TimeSeries.businessType"/>
371             <xs:element name="auction.category" type="Category_String"
372 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
373 schema-cim16#Auction.category"/>
374             <xs:element name="auction.type" type="AuctionKind_String"
375 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
376 schema-cim16#Auction.type"/>
377             <xs:element name="auction.allocationMode"
378 type="AllocationMode_String" minOccurs="1" maxOccurs="1"
379 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
380 cim16#Auction.allocationMode"/>
381             <xs:element name="auction.paymentTerms"
382 type="PaymentTerms_String" minOccurs="1" maxOccurs="1"

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383 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
384 cim16#Auction.paymentTerms"/>
385 <xs:element name="auction.cancelled" type="ESMPBoolean_String"
386 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
387 schema-cim16#Auction.cancelled"/>
388 <xs:element name="bidding_Period.timeInterval"
389 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
390 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
391 cim16#Period.timeInterval"/>
392 <xs:element name="in_Domain.mRID" type="AreaID_String"
393 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
394 schema-cim16#IdentifiedObject.mRID"/>
395 <xs:element name="out_Domain.mRID" type="AreaID_String"
396 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
397 schema-cim16#IdentifiedObject.mRID"/>
398 <xs:element name="marketAgreement.type"
399 type="CapacityContractKind_String" minOccurs="1" maxOccurs="1"
400 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
401 <xs:element name="delivery_Period.timeInterval"
402 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
403 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
404 cim16#Period.timeInterval"/>
405 <xs:element name="quantity_Measurement_Unit.name"
406 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
407 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
408 <xs:element name="price_Measurement_Unit.name"
409 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
410 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
411 <xs:element name="currency_Unit.name"
412 type="CurrencyCode_String" minOccurs="1" maxOccurs="1"
413 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
414 <xs:element name="notification_MarketAgreement.createdDateTime"
415 type="ESMP_DateTime" minOccurs="1" maxOccurs="1"
416 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
417 cim16#Document.createdDateTime"/>
418 <xs:element name="contestation_MarketAgreement.createdDateTime"
419 type="ESMP_DateTime" minOccurs="1" maxOccurs="1"
420 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
421 cim16#Document.createdDateTime"/>
422 <xs:element name="publication_MarketAgreement.createdDateTime"
423 type="ESMP_DateTime" minOccurs="1" maxOccurs="1"
424 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
425 cim16#Document.createdDateTime"/>
426 <xs:element name="resale_MarketAgreement.createdDateTime"
427 type="ESMP_DateTime" minOccurs="0" maxOccurs="1"
428 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
429 cim16#Document.createdDateTime"/>
430 <xs:element name="curveType" type="CurveType_String"
431 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
432 schema-cim16#TimeSeries.curveType"/>
433 <xs:element name="connectingLine_RegisteredResource.mRID"
434 type="ResourceID_String" minOccurs="0" maxOccurs="1"
435 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
436 cim16#IdentifiedObject.mRID"/>
437 <xs:element name="Period" type="Series_Period" minOccurs="0"
438 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
439 cim16#TimeSeries.Period"/>
440 <xs:element
441 name="AuctionDescription_AttributeInstanceComponent"
442 type="AttributeInstanceComponent" minOccurs="0" maxOccurs="unbounded"/>
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443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
444 cim16#TimeSeries.AuctionDescription_AttributeInstanceComponent"/>
445     <xs:element name="RightsCharacteristics_Auction"
446 type="RightsCharacteristics_Auction" minOccurs="0" maxOccurs="unbounded"
447 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
448 cim16#TimeSeries.RightsCharacteristics_Auction"/>
449     <xs:element name="Reason" type="Reason" minOccurs="0"
450 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
451 cim16#TimeSeries.Reason"/>
452     </xs:sequence>
453 </xs:complexType>
454 <xs:simpleType name="ESMPVersion_String"
455 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
456     <xs:restriction base="xs:string">
457         <xs:pattern value="[1-9]([0-9]){0,2}"/>
458     </xs:restriction>
459 </xs:simpleType>
460 <xs:simpleType name="MessageKind_String"
461 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
462     <xs:restriction base="ecl:MessageTypeList"/>
463 </xs:simpleType>
464 <xs:simpleType name="ProcessKind_String"
465 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
466     <xs:restriction base="ecl:ProcessTypeList"/>
467 </xs:simpleType>
468 <xs:simpleType name="PartyID_String-base"
469 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
470     <xs:restriction base="xs:string">
471         <xs:maxLength value="16"/>
472     </xs:restriction>
473 </xs:simpleType>
474 <xs:complexType name="PartyID_String"
475 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
476     <xs:simpleContent>
477         <xs:extension base="PartyID_String-base">
478             <xs:attribute name="codingScheme"
479 type="ecl:CodingSchemeTypeList" use="required"/>
480         </xs:extension>
481     </xs:simpleContent>
482 </xs:complexType>
483 <xs:simpleType name="MarketRoleKind_String"
484 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
485     <xs:restriction base="ecl:RoleTypeList"/>
486 </xs:simpleType>
487 <xs:complexType name="CapacityAuctionSpecification_MarketDocument"
488 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
489     <xs:sequence>
490         <xs:element name="mRID" type="ID_String" minOccurs="1"
491 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
492 cim16#IdentifiedObject.mRID"/>
493         <xs:element name="revisionNumber" type="ESMPVersion_String"
494 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
495 schema-cim16#Document.revisionNumber"/>
496         <xs:element name="type" type="MessageKind_String" minOccurs="1"
497 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
498 cim16#Document.type"/>
499         <xs:element name="process.processType"
500 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
501 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
502 cim16#Process.processType"/>
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503         <xs:element name="sender_MarketParticipant.mRID"  
504 type="PartyID_String" minOccurs="1" maxOccurs="1"  
505 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
506 cim16#IdentifiedObject.mRID"/>  
507         <xs:element name="sender_MarketParticipant.marketRole.type"  
508 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"  
509 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>  
510         <xs:element name="receiver_MarketParticipant.mRID"  
511 type="PartyID_String" minOccurs="0" maxOccurs="1"  
512 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
513 cim16#IdentifiedObject.mRID"/>  
514         <xs:element name="receiver_MarketParticipant.marketRole.type"  
515 type="MarketRoleKind_String" minOccurs="0" maxOccurs="1"  
516 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>  
517         <xs:element name="createdDateTime" type="ESMP_DateTime"  
518 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
519 schema-cim16#Document.createdDateTime"/>  
520         <xs:element name="period.timeInterval"  
521 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"  
522 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
523 cim16#Period.timeInterval"/>  
524         <xs:element name="domain.mRID" type="AreaID_String"  
525 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
526 schema-cim16#IdentifiedObject.mRID"/>  
527         <xs:element name="Auction_TimeSeries" type="Auction_TimeSeries"  
528 minOccurs="1" maxOccurs="unbounded"  
529 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
530 cim16#MarketDocument.Auction_TimeSeries"/>  
531     </xs:sequence>  
532 </xs:complexType>  
533 <xs:complexType name="Point"  
534 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">  
535     <xs:sequence>  
536         <xs:element name="position" type="Position_Integer"  
537 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
538 schema-cim16#Point.position"/>  
539         <xs:element name="quantity" type="xs:decimal" minOccurs="1"  
540 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
541 cim16#Point.quantity"/>  
542     </xs:sequence>  
543 </xs:complexType>  
544 <xs:simpleType name="ReasonCode_String"  
545 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
546     <xs:restriction base="ecl:ReasonCodeTypeList"/>  
547 </xs:simpleType>  
548 <xs:simpleType name="ReasonText_String"  
549 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
550     <xs:restriction base="xs:string">  
551         <xs:maxLength value="512"/>  
552     </xs:restriction>  
553 </xs:simpleType>  
554 <xs:complexType name="Reason"  
555 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">  
556     <xs:sequence>  
557         <xs:element name="code" type="ReasonCode_String" minOccurs="1"  
558 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
559 cim16#Reason.code"/>  
560         <xs:element name="text" type="ReasonText_String" minOccurs="0"  
561 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
562 cim16#Reason.text"/>
```

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563         </xs:sequence>
564     </xs:complexType>
565     <xs:simpleType name="RightsKind_String"
566     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
567         <xs:restriction base="ecl:RightsTypeList"/>
568     </xs:simpleType>
569     <xs:complexType name="RightsCharacteristics_Auction"
570     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Auction">
571         <xs:sequence>
572             <xs:element name="rights" type="RightsKind_String"
573             minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
574             schema-cim16#Auction.rights"/>
575         </xs:sequence>
576     </xs:complexType>
577     <xs:complexType name="Series_Period"
578     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
579         <xs:sequence>
580             <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
581             minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
582             schema-cim16#Period.timeInterval"/>
583             <xs:element name="resolution" type="xs:duration" minOccurs="1"
584             maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
585             cim16#Period.resolution"/>
586             <xs:element name="Point" type="Point" minOccurs="1"
587             maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
588             cim16#Period.Point"/>
589         </xs:sequence>
590     </xs:complexType>
591 </xs:schema>
592
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