



European Network of
Transmission System Operators
for Electricity

RESERVE BID DOCUMENT UML MODEL AND SCHEMA

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APPROVED DOCUMENT
VERSION 1.1

2

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Revision History

| Version | Release | Date | Comments |
|---------|---------|------------|--|
| 0 | 0 | 2016-12-02 | First drafting of the document. |
| 1 | 0 | 2018-01-10 | First drafting of the document. XSD: V7.1: difference with V7.0: Added optional attribute MarketProduct Added optional attribute ValidityPeriod |
| 1 | 1 | 2018-03-08 | XSD: V7.1 Added two new relations between MarketProduct and BidTimeSeries Version approved by MC |

60

61 **1 Objective**

62 The purpose of this document is to provide the contextual and assembly UML models and the
63 schema of the ReserveBid_MarketDocument.

64 The schema of the ReserveBid_MarketDocument could be used in various business processes.

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

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

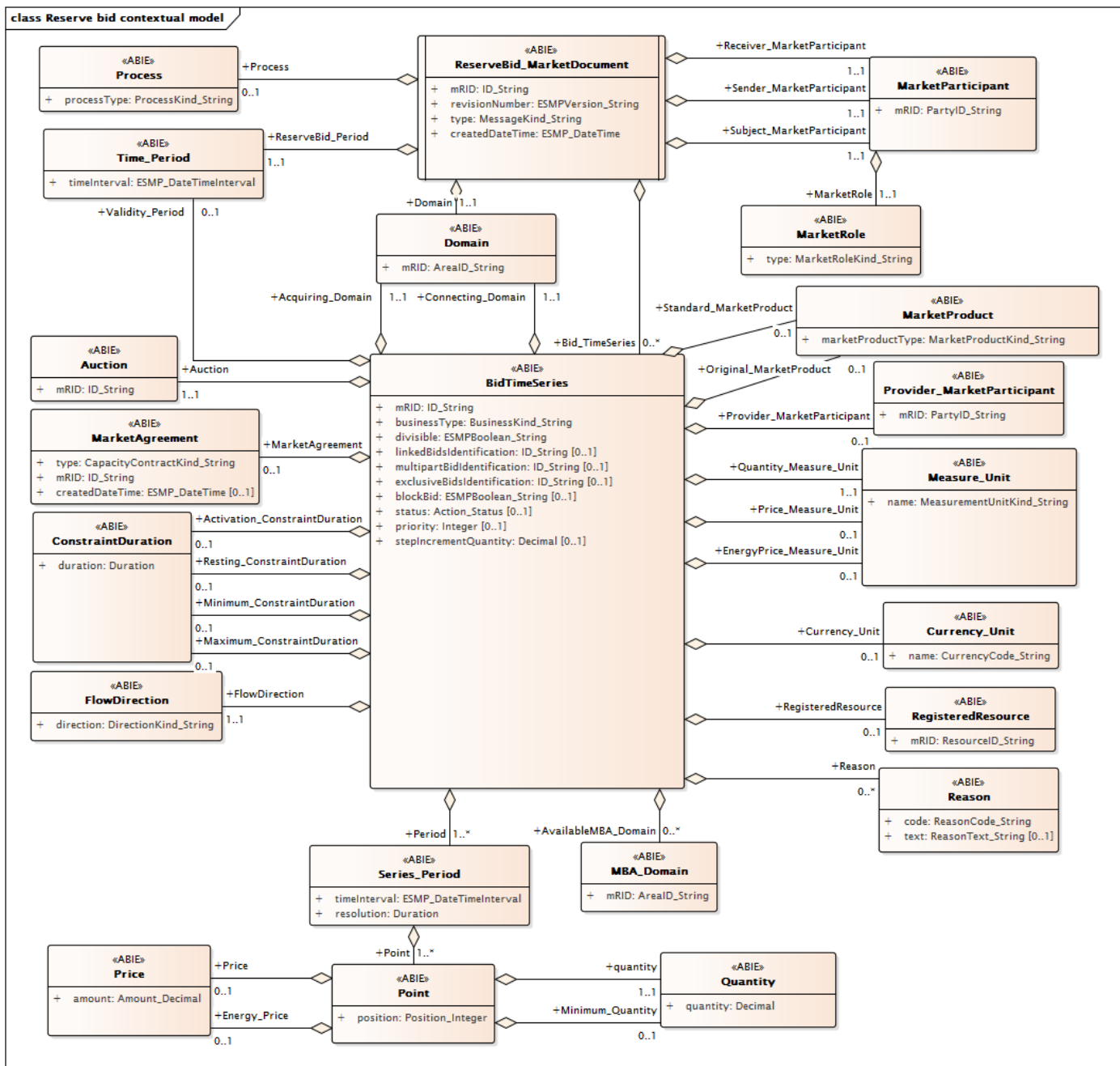
- 69 • Description of the business process;
- 70 • Use case of the business process;
- 71 • Sequence diagrams of the business process;
- 72 • List of the schema (XSD) to be used in the business process and versions of the
73 schema;
- 74 • For each schema, dependency tables providing the necessary information for the
75 generation of the XML instances, i.e. when the optional attributes are to be used, which
76 codes from which ENTSO-E codelist are to be used.

77

78 **2 Reserve bid contextual model**

79 **2.1.1 Overview of the model**

80 Figure 1 shows the model.



81

82

Figure 1 - Reserve bid contextual model

83 **2.1.2 IsBasedOn relationships from the European style market profile**

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

86 **Table 1 - IsBasedOn dependency**

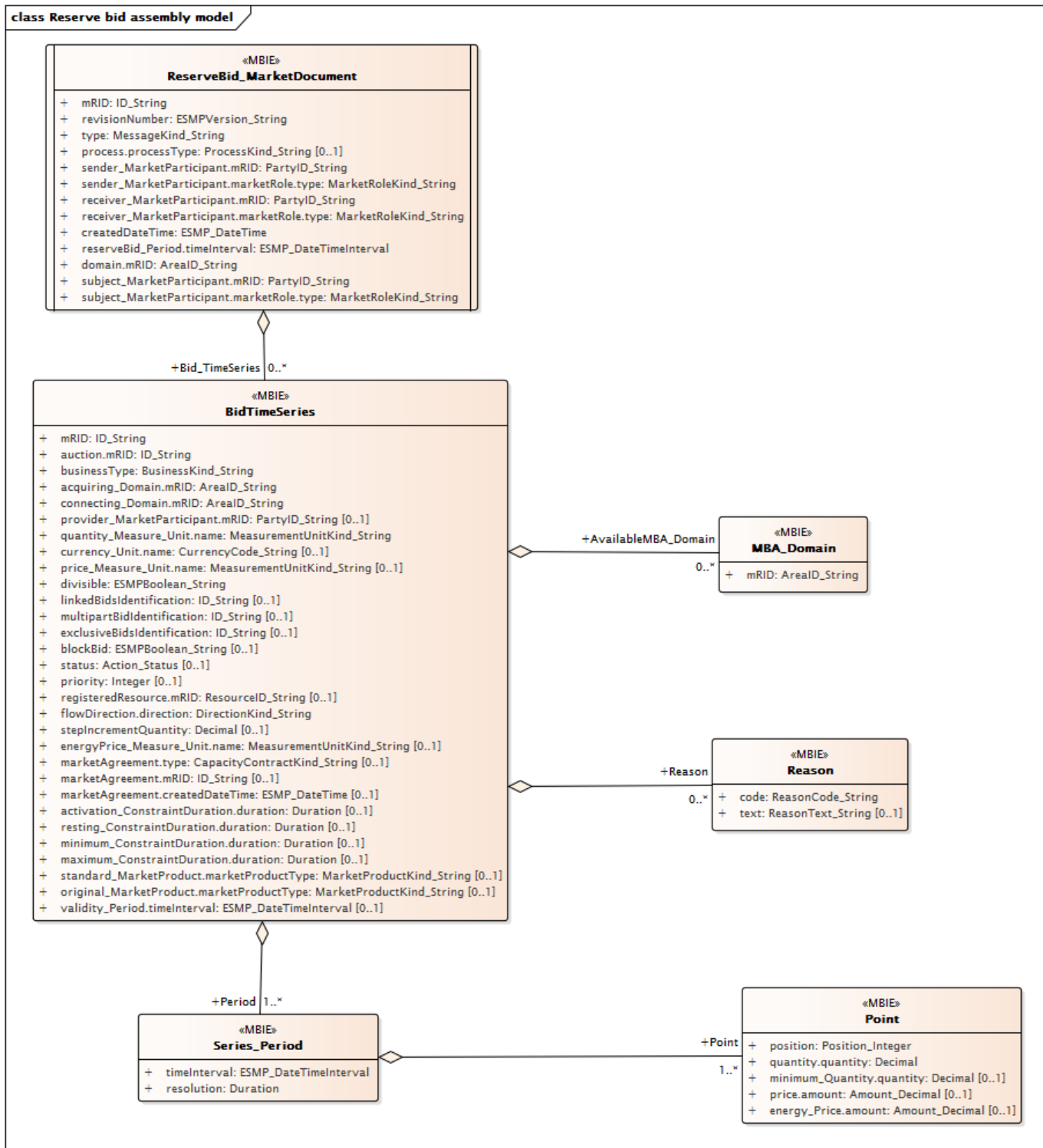
| Name | Complete IsBasedOn Path |
|----------------------------|--|
| Auction | TC57CIM::IEC62325::MarketManagement::Auction |
| BidTimeSeries | TC57CIM::IEC62325::MarketManagement::BidTimeSeries |
| ConstraintDuration | TC57CIM::IEC62325::MarketManagement::ConstraintDuration |
| Currency_Unit | TC57CIM::IEC62325::MarketManagement::Unit |
| Domain | TC57CIM::IEC62325::MarketManagement::Domain |
| FlowDirection | TC57CIM::IEC62325::MarketManagement::FlowDirection |
| MarketAgreement | TC57CIM::IEC62325::MarketManagement::MarketAgreement |
| MarketParticipant | TC57CIM::IEC62325::MarketCommon::MarketParticipant |
| MarketProduct | TC57CIM::IEC62325::MarketOperations::MarketPlan::MarketProduct |
| MarketRole | TC57CIM::IEC62325::MarketCommon::MarketRole |
| MBA_Domain | TC57CIM::IEC62325::MarketManagement::Domain |
| Measure_Unit | TC57CIM::IEC62325::MarketManagement::Unit |
| Point | TC57CIM::IEC62325::MarketManagement::Point |
| Price | TC57CIM::IEC62325::MarketManagement::Price |
| Process | TC57CIM::IEC62325::MarketManagement::Process |
| Provider_MarketParticipant | TC57CIM::IEC62325::MarketCommon::MarketParticipant |
| Quantity | TC57CIM::IEC62325::MarketManagement::Quantity |
| Reason | TC57CIM::IEC62325::MarketManagement::Reason |
| RegisteredResource | TC57CIM::IEC62325::MarketCommon::RegisteredResource |
| ReserveBid_MarketDocument | TC57CIM::IEC62325::MarketManagement::MarketDocument |
| Series_Period | TC57CIM::IEC62325::MarketManagement::Period |
| Time_Period | TC57CIM::IEC62325::MarketManagement::Period |

87

88 **2.2 Reserve bid assembly model**

89 **2.2.1 Overview of the model**

90 Figure 2 shows the model.



91

92

Figure 2 - Reserve bid assembly model

93 **2.2.2 IsBasedOn relationships from the European style market profile**

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

96 **Table 2 - IsBasedOn dependency**

| Name | Complete IsBasedOn Path |
|---------------------------|---|
| BidTimeSeries | TC57CIM::IEC62325::MarketManagement::BidTimeSeries |
| MBA_Domain | TC57CIM::IEC62325::MarketManagement::Domain |
| Point | TC57CIM::IEC62325::MarketManagement::Point |
| Reason | TC57CIM::IEC62325::MarketManagement::Reason |
| ReserveBid_MarketDocument | TC57CIM::IEC62325::MarketManagement::MarketDocument |
| Series_Period | TC57CIM::IEC62325::MarketManagement::Period |

97

98 **2.2.3 Detailed Reserve bid assembly model**

99 **2.2.3.1 ReserveBid_MarketDocument root class**

100 A bid document contains a set of bids (a bid is represented by a time series). There may be
101 several bids submitted by the sender for the same bid period and subject party.

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

104 Table 3 shows all attributes of ReserveBid_MarketDocument.

105 **Table 3 - Attributes of Reserve bid assembly model::ReserveBid_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 | [0..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 | [1..1] | receiver_MarketParticipant.mRID PartyID_String | The identification of a party in the energy market. --- Document recipient. |
| 7 | [1..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] | reserveBid_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 covered by the document. |

| Order | mult. | Attribute name / Attribute type | Description |
|-------|--------|--|--|
| 10 | [1..1] | domain.mRID AreaID_String | The unique identification of the domain. --- The domain covered within the bid document, i.e. the border for which auction is done. |
| 11 | [1..1] | subject_MarketParticipant.mRID PartyID_String | The identification of a party in the energy market. --- The party for whom the bid is being submitted. |
| 12 | [1..1] | subject_MarketParticipant.marketRole.type MarketRoleKind_String | The identification of the role played by a market player. --- The party for whom the bid is being submitted. |

106

107 Table 4 shows all association ends of ReserveBid_MarketDocument with other classes.

108 **Table 4 - Association ends of Reserve bid assembly**
109 **model::ReserveBid_MarketDocument with other classes**

| Order | mult. | Class name / Role | Description |
|-------|--------|---------------------------------|---|
| 13 | [0..*] | BidTimeSeries Bid_TimeSeries | The timeseries contains the bids that are submitted to the auction. Association Based On: Reserve bid contextual model::BidTimeSeries.Bid_TimeSeries[0..*] ----- Reserve bid contextual model::ReserveBid_MarketDocument.[] |

110

111 2.2.3.2 BidTimeSeries

112 The formal specification of specific characteristics related to a bid.

113 Table 5 shows all attributes of BidTimeSeries.

114 **Table 5 - Attributes of Reserve bid assembly model::BidTimeSeries**

| Order | mult. | Attribute name / Attribute type | Description |
|-------|--------|--|---|
| 0 | [1..1] | mRID ID_String | A unique identification of the time series. |
| 1 | [1..1] | auction.mRID ID_String | The unique identification of the auction. --- The identification linking the bid to a set of specifications created by the auction operator. |
| 2 | [1..1] | businessType BusinessKind_String | The identification of the nature of the time series. |
| 3 | [1..1] | acquiring_Domain.mRID AreaID_String | The unique identification of the domain. --- The area where the energy is to be put. |
| 4 | [1..1] | connecting_Domain.mRID AreaID_String | The unique identification of the domain. --- The area where the energy is coming from. |
| 5 | [0..1] | provider_MarketParticipant.mRID PartyID_String | The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries, i.e. the provider offering the reserve. |
| 6 | [1..1] | quantity_Measure_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. |
| 7 | [0..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. |

| Order | mult. | Attribute name / Attribute type | Description |
|-------|--------|---|--|
| 8 | [0..1] | price_Measure_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 price in the time series is expressed (MW, MWh, etc.). |
| 9 | [1..1] | divisible ESMPBoolean_String | An indication whether or not each element of the bid may be partially accepted or not. |
| 10 | [0..1] | linkedBidsIdentification ID_String | The unique identification used to identify associated bids with each other. |
| 11 | [0..1] | multipartBidIdentification ID_String | The unique identification associated with a hierarchy of linked tenders. The identification within the set of linked tenders signifies that all tenders within the set with an inferior offer price must be accepted. This identification is defined by the tenderer and must be unique. |
| 12 | [0..1] | exclusiveBidsIdentification ID_String | Unique identification associated with all linked tenders. The identification of a set of tenders that are linked together signifying that only one can be accepted. This identification is defined by the tenderer and must be unique for a given auction. The exclusive bids identification is only provided if a tender is associated with the current tender. Both tenders must be cross linked to be valid. |
| 13 | [0..1] | blockBid ESMPBoolean_String | The indication that the values in the period are considered as a whole. They cannot be changed or subdivided. |
| 14 | [0..1] | status Action_Status | The information about the status of the bid, such as "shared", "restricted", ... |
| 15 | [0..1] | priority Integer | The numeric local priority given to a bid. Lower numeric values will have higher priority. |
| 16 | [0..1] | registeredResource.mRID ResourceID_String | The unique identification of a resource. --- The identification of a resource associated with a TimeSeries. |
| 17 | [1..1] | flowDirection.direction DirectionKind_String | The coded identification of the direction of energy flow. |
| 18 | [0..1] | stepIncrementQuantity Decimal | The minimum increment that can be applied for an increase in an activation request. |
| 19 | [0..1] | energyPrice_Measure_Unit.name MeasurementUnitKind_String | The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). |
| 20 | [0..1] | marketAgreement.type CapacityContractKind_String | The specification of the kind of the agreement, e.g. long term, daily contract. |
| 21 | [0..1] | marketAgreement.mRID ID_String | The unique identification of the agreement. |
| 22 | [0..1] | marketAgreement.createdDateTime ESMP_DateTime | The date and time of the creation of the agreement. |
| 23 | [0..1] | activation_ConstraintDuration.duration Duration | The duration of the constraint. --- The delay before the regulation becomes effective after the activation. |
| 24 | [0..1] | resting_ConstraintDuration.duration Duration | The duration of the constraint. --- The delay to be respected between the end of activation and the start of the next activation. |
| 25 | [0..1] | minimum_ConstraintDuration.duration Duration | The duration of the constraint. --- The minimum duration that a regulation has to be up once the bid is activated. |

| Order | mult. | Attribute name / Attribute type | Description |
|-------|--------|--|---|
| 26 | [0..1] | maximum_ConstraintDuration.duration Duration | The duration of the constraint. --- The maximum duration that a regulation has to be up once the bid is activated. |
| 27 | [0..1] | standard_MarketProduct.marketProductType MarketProductKind_String | The Type of product on a market view |
| 28 | [0..1] | original_MarketProduct.marketProductType MarketProductKind_String | The Type of product on a market view |
| 29 | [0..1] | validity_Period.timeInterval ESMP_DateTimeInterval | The start and end date and time for a given interval. --- The period when the Bid can be activated. |

115

116 Table 6 shows all association ends of BidTimeSeries with other classes.

117 **Table 6 - Association ends of Reserve bid assembly model::BidTimeSeries with other**
118 **classes**

| Order | mult. | Class name / Role | Description |
|-------|--------|-----------------------------------|--|
| 30 | [1..*] | Series_Period Period | Association Based On: Reserve bid contextual model::Series_Period.Period[1..*] ----- Reserve bid contextual model::BidTimeSeries.[] |
| 31 | [0..*] | MBA_Domain AvailableMBA_Domain | Association Based On: Reserve bid contextual model::MBA_Domain.AvailableMBA_Domain[0..*] ----- Reserve bid contextual model::BidTimeSeries.[] |
| 32 | [0..*] | Reason Reason | The reason information associated with a TimeSeries providing motivation information. Association Based On: Reserve bid contextual model::Reason.Reason[0..*] ----- Reserve bid contextual model::BidTimeSeries.[] |

119

120 2.2.3.3 MBA_Domain

121 A domain covering a number of related objects, such as market balance area, grid area, borders
122 etc.

123 Table 7 shows all attributes of MBA_Domain.

124 **Table 7 - Attributes of Reserve bid assembly model::MBA_Domain**

| Order | mult. | Attribute name / Attribute type | Description |
|-------|--------|---------------------------------|--|
| 0 | [1..1] | mRID AreaID_String | The unique identification of the domain. |

125

126 2.2.3.4 Point

127 The quantity that is bid for the interval in question.

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

129 Table 8 shows all attributes of Point.

130

Table 8 - Attributes of Reserve bid 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.quantity Decimal | The quantity value. The association role provides the information about what is expressed. --- Either the maximum quantity (when there is a minimum quantity) or the quantity that can be activated at a given time position. The Quantity information associated with a given Point. |
| 2 | [0..1] | minimum_Quantity.quantity Decimal | The quantity value. The association role provides the information about what is expressed. --- The minimum quantity of energy that can be activated at a given time position. The Quantity information associated with a given Point. |
| 3 | [0..1] | price.amount Amount_Decimal | A number of monetary units specified in a unit of currency. --- The price expressed for each unit of quantity. The price amount is mandatory in the case of capacity auctions and shall not be provided in the case of rule based allocations depending on local market rules (for example "first come first serve"). |
| 4 | [0..1] | energy_Price.amount Amount_Decimal | A number of monetary units specified in a unit of currency. |

131

132 2.2.3.5 Reason

133 The motivation of an act.

134 Table 9 shows all attributes of Reason.

135

Table 9 - Attributes of Reserve bid 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. |

136

137 2.2.3.6 Series_Period

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

139 Table 10 shows all attributes of Series_Period.

140

Table 10 - Attributes of Reserve bid 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. |

141

142 Table 11 shows all association ends of Series_Period with other classes.

143 **Table 11 - Association ends of Reserve bid assembly model::Series_Period with other**
144 **classes**

| Order | mult. | Class name / Role | Description |
|-------|--------|-------------------|---|
| 2 | [1..*] | Point Point | Association Based On: Reserve bid contextual model::Point.Point[1..*] ----- Reserve bid contextual model::Series_Period.[] |

145

146 **2.2.4 Datatypes**

147 The list of datatypes used for the Reserve bid assembly model is as follows:

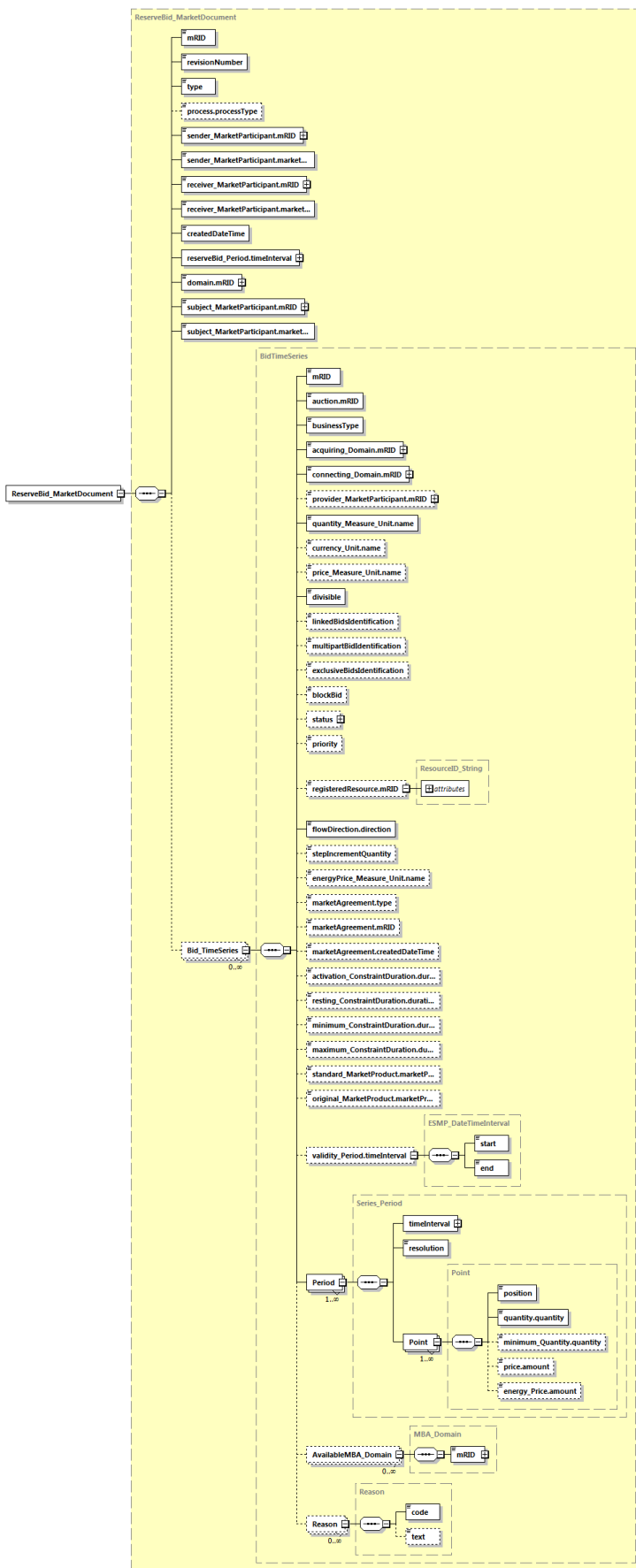
- 148 • Action_Status compound
- 149 • ESMP_DateTimeInterval compound
- 150 • Amount_Decimal datatype
- 151 • AreaID_String datatype, codelist CodingSchemeTypeList
- 152 • BusinessKind_String datatype, codelist BusinessTypeList
- 153 • CapacityContractKind_String datatype, codelist ContractTypeList
- 154 • CurrencyCode_String datatype, codelist CurrencyTypeList
- 155 • DirectionKind_String datatype, codelist DirectionTypeList
- 156 • ESMP_DateTime datatype
- 157 • ESMPBoolean_String datatype, codelist IndicatorTypeList
- 158 • ESMPVersion_String datatype
- 159 • ID_String datatype
- 160 • MarketProductKind_String datatype, codelist MarketProductTypeList
- 161 • MarketRoleKind_String datatype, codelist RoleTypeList
- 162 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 163 • MessageKind_String datatype, codelist MessageTypeList
- 164 • PartyID_String datatype, codelist CodingSchemeTypeList
- 165 • Position_Integer datatype
- 166 • ProcessKind_String datatype, codelist ProcessTypeList
- 167 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 168 • ReasonText_String datatype
- 169 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 170 • Status_String datatype, codelist StatusTypeList
- 171 • YMDHM_DateTime datatype

172

173

174

175 2.2.5 ReserveBid_MarketDocument XML schema structure



176
 177

Figure 3 - ReserveBid_MarketDocument XML schema structure

178 2.2.6 ReserveBid_MarketDocument XML schema

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

```

180 urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:1
181 <?xml version="1.0" encoding="utf-8"?>
182 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists" xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
183 xmlns="urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:1"
184 xmlns:cimp="http://www.iec.ch/cimprofile" xmlns:xs="http://www.w3.org/2001/XMLSchema"
185 targetNamespace="urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:1" elementFormDefault="qualified"
186 attributeFormDefault="unqualified">
187   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-
188 codelists.xsd"/>
189   <xs:element name="ReserveBid_MarketDocument" type="ReserveBid_MarketDocument"/>
190   <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
191 cim16#String">
192     <xs:restriction base="xs:string">
193       <xs:maxLength value="35"/>
194     </xs:restriction>
195   </xs:simpleType>
196   <xs:simpleType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
197 schema-cim16#String">
198     <xs:restriction base="ecl:BusinessTypeList"/>
199   </xs:simpleType>
200   <xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
201 schema-cim16#String">
202     <xs:restriction base="xs:string">
203       <xs:maxLength value="18"/>
204     </xs:restriction>
205   </xs:simpleType>
206   <xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
207 cim16#String">
208     <xs:simpleContent>
209       <xs:extension base="AreaID_String-base">
210         <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
211 use="required"/>
212       </xs:extension>
213     </xs:simpleContent>
214   </xs:complexType>
215   <xs:simpleType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
216 schema-cim16#String">
217     <xs:restriction base="xs:string">
218       <xs:maxLength value="16"/>
219     </xs:restriction>
220   </xs:simpleType>
221   <xs:complexType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
222 schema-cim16#String">
223     <xs:simpleContent>
224       <xs:extension base="PartyID_String-base">
225         <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
226 use="required"/>
227       </xs:extension>
228     </xs:simpleContent>
229   </xs:complexType>
230   <xs:simpleType name="MeasurementUnitKind_String"
231 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
232     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
233   </xs:simpleType>
234   <xs:simpleType name="CurrencyCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
235 schema-cim16#String">
236     <xs:restriction base="ecl:CurrencyTypeList"/>
237   </xs:simpleType>
238   <xs:simpleType name="ESMPBoolean_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
239 schema-cim16#String">
240     <xs:restriction base="ecl:IndicatorTypeList"/>
241   </xs:simpleType>
242   <xs:simpleType name="ResourceID_String-base"
243 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
244     <xs:restriction base="xs:string">
245       <xs:maxLength value="60"/>
246     </xs:restriction>
247   </xs:simpleType>
248   <xs:complexType name="ResourceID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
249 schema-cim16#String">
250     <xs:simpleContent>

```



```

251         <xs:extension base="ResourceID_String-base">
252             <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
253 use="required"/>
254         </xs:extension>
255     </xs:simpleContent>
256 </xs:complexType>
257 <xs:simpleType name="DirectionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
258 schema-cim16#String">
259     <xs:restriction base="ecl:DirectionTypeList"/>
260 </xs:simpleType>
261 <xs:simpleType name="CapacityContractKind_String"
262 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
263     <xs:restriction base="ecl:ContractTypeList"/>
264 </xs:simpleType>
265 <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
266 cim16#DateTime">
267     <xs:restriction base="xs:dateTime">
268         <xs:pattern value="(((0-9){4}[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
269 9]|3[01])|((0-9){4}[\-](0[469])|(11))[\-](0[1-9]|12)[0-9]|30))T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-
270 5][0-
271 9])Z|(((13579)[26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][048]|02468][048][0246
272 8][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[\-](02)[\-](0[1-
273 9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
274 9])Z|(((13579)[26][02468][1235679]|13579][01345789](0)[01235679]|13579][01345789][2468][1235679]|02
275 468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
276 9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-8])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z"/>
277     </xs:restriction>
278 </xs:simpleType>
279 <xs:simpleType name="MarketProductKind_String"
280 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketProductKind_String">
281     <xs:restriction base="ecl:MarketProductTypeList"/>
282 </xs:simpleType>
283 <xs:simpleType name="Status_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
284 cim16#String">
285     <xs:restriction base="ecl:StatusTypeList"/>
286 </xs:simpleType>
287 <xs:complexType name="Action_Status" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
288 cim16#Status">
289     <xs:sequence>
290         <xs:element name="value" type="Status_String" minOccurs="1" maxOccurs="1"
291 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status.value"/>
292     </xs:sequence>
293 </xs:complexType>
294 <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
295 cim16#DateTime">
296     <xs:restriction base="xs:string">
297         <xs:pattern value="(((0-9){4}[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
298 9]|3[01])|((0-9){4}[\-](0[469])|(11))[\-](0[1-9]|12)[0-9]|30))T((01)[0-9]|2[0-3]):[0-5][0-
299 9])Z|(((13579)[26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][048]|02468][048][0246
300 8][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[\-](02)[\-](0[1-
301 9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-5][0-
302 9])Z|(((13579)[26][02468][1235679]|13579][01345789](0)[01235679]|13579][01345789][2468][1235679]|02
303 468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
304 9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-8])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z"/>
305     </xs:restriction>
306 </xs:simpleType>
307 <xs:complexType name="ESMP_DateTimeInterval"
308 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
309     <xs:sequence>
310         <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
311 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start"/>
312         <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
313 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end"/>
314     </xs:sequence>
315 </xs:complexType>
316 <xs:complexType name="BidTimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
317 cim16#BidTimeSeries">
318     <xs:sequence>
319         <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
320 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
321         <xs:element name="auction.mRID" type="ID_String" minOccurs="1" maxOccurs="1"
322 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
323         <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
324 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
325 cim16#TimeSeries.businessType"/>

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326         <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="1"
327 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
328         <xs:element name="connecting_Domain.mRID" type="AreaID_String" minOccurs="1"
329 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
330         <xs:element name="provider_MarketParticipant.mRID" type="PartyID_String"
331 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
332 cim16#IdentifiedObject.mRID"/>
333         <xs:element name="quantity_Measure_Unit.name"
334 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
335 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
336         <xs:element name="currency_Unit.name" type="CurrencyCode_String" minOccurs="0"
337 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
338         <xs:element name="price_Measure_Unit.name" type="MeasurementUnitKind_String"
339 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
340 cim16#Unit.name"/>
341         <xs:element name="divisible" type="ESMPBoolean_String" minOccurs="1"
342 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
343 cim16#BidTimeSeries.divisible"/>
344         <xs:element name="linkedBidsIdentification" type="ID_String" minOccurs="0"
345 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
346 cim16#BidTimeSeries.linkedBidsIdentification"/>
347         <xs:element name="multipartBidIdentification" type="ID_String" minOccurs="0"
348 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
349 cim16#BidTimeSeries.multipartBidIdentification"/>
350         <xs:element name="exclusiveBidsIdentification" type="ID_String" minOccurs="0"
351 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
352 cim16#BidTimeSeries.exclusiveBidsIdentification"/>
353         <xs:element name="blockBid" type="ESMPBoolean_String" minOccurs="0"
354 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.blockBid"/>
355         <xs:element name="status" type="Action_Status" minOccurs="0" maxOccurs="1"
356 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.status"/>
357         <xs:element name="priority" type="xs:integer" minOccurs="0" maxOccurs="1"
358 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.priority"/>
359         <xs:element name="registeredResource.mRID" type="ResourceID_String"
360 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
361 cim16#IdentifiedObject.mRID"/>
362         <xs:element name="flowDirection.direction" type="DirectionKind_String"
363 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
364 cim16#FlowDirection.direction"/>
365         <xs:element name="stepIncrementQuantity" type="xs:decimal" minOccurs="0"
366 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
367 cim16#BidTimeSeries.stepIncrementQuantity"/>
368         <xs:element name="energyPrice_Measure_Unit.name"
369 type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
370 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
371         <xs:element name="marketAgreement.type" type="CapacityContractKind_String"
372 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
373 cim16#Document.type"/>
374         <xs:element name="marketAgreement.mRID" type="ID_String" minOccurs="0"
375 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
376         <xs:element name="marketAgreement.createdDateTime" type="ESMP_DateTime"
377 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
378 cim16#Document.createdDateTime"/>
379         <xs:element name="activation_ConstraintDuration.duration" type="xs:duration"
380 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
381 cim16#ConstraintDuration.duration"/>
382         <xs:element name="resting_ConstraintDuration.duration" type="xs:duration"
383 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
384 cim16#ConstraintDuration.duration"/>
385         <xs:element name="minimum_ConstraintDuration.duration" type="xs:duration"
386 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
387 cim16#ConstraintDuration.duration"/>
388         <xs:element name="maximum_ConstraintDuration.duration" type="xs:duration"
389 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
390 cim16#ConstraintDuration.duration"/>
391         <xs:element name="standard_MarketProduct.marketProductType"
392 type="MarketProductKind_String" minOccurs="0" maxOccurs="1"
393 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketProduct.marketProductType"/>
394         <xs:element name="original_MarketProduct.marketProductType"
395 type="MarketProductKind_String" minOccurs="0" maxOccurs="1"
396 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketProduct.marketProductType"/>
397         <xs:element name="validity_Period.timeInterval" type="ESMP_DateTimeInterval"
398 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
399 cim16#Period.timeInterval"/>

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400         <xs:element name="Period" type="Series_Period" minOccurs="1"
401 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
402 cim16#BidTimeSeries.Period"/>
403         <xs:element name="AvailableMBA_Domain" type="MBA_Domain" minOccurs="0"
404 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
405 cim16#BidTimeSeries.AvailableMBA_Domain"/>
406         <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
407 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.Reason"/>
408     </xs:sequence>
409 </xs:complexType>
410 <xs:complexType name="MBA_Domain" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
411 cim16#Domain">
412     <xs:sequence>
413         <xs:element name="mRID" type="AreaID_String" minOccurs="1" maxOccurs="1"
414 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
415     </xs:sequence>
416 </xs:complexType>
417 <xs:simpleType name="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
418 schema-cim16#Integer">
419     <xs:restriction base="xs:integer">
420         <xs:maxInclusive value="999999"/>
421         <xs:minInclusive value="1"/>
422     </xs:restriction>
423 </xs:simpleType>
424 <xs:simpleType name="Amount_Decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
425 cim16#Decimal">
426     <xs:restriction base="xs:decimal">
427         <xs:totalDigits value="17"/>
428     </xs:restriction>
429 </xs:simpleType>
430 <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
431 cim16#Point">
432     <xs:sequence>
433         <xs:element name="position" type="Position_Integer" minOccurs="1"
434 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
435         <xs:element name="quantity" type="xs:decimal" minOccurs="1"
436 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity.quantity"/>
437         <xs:element name="minimum_Quantity.quantity" type="xs:decimal" minOccurs="0"
438 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity.quantity"/>
439         <xs:element name="price.amount" type="Amount_Decimal" minOccurs="0"
440 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
441         <xs:element name="energy_Price.amount" type="Amount_Decimal" minOccurs="0"
442 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
443     </xs:sequence>
444 </xs:complexType>
445 <xs:simpleType name="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
446 schema-cim16#String">
447     <xs:restriction base="ecl:ReasonCodeTypeList"/>
448 </xs:simpleType>
449 <xs:simpleType name="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
450 schema-cim16#String">
451     <xs:restriction base="xs:string">
452         <xs:maxLength value="512"/>
453     </xs:restriction>
454 </xs:simpleType>
455 <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
456 cim16#Reason">
457     <xs:sequence>
458         <xs:element name="code" type="ReasonCode_String" minOccurs="1" maxOccurs="1"
459 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
460         <xs:element name="text" type="ReasonText_String" minOccurs="0" maxOccurs="1"
461 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
462     </xs:sequence>
463 </xs:complexType>
464 <xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
465 schema-cim16#String">
466     <xs:restriction base="xs:string">
467         <xs:pattern value="[1-9]([0-9]){0,2}"/>
468     </xs:restriction>
469 </xs:simpleType>
470 <xs:simpleType name="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
471 schema-cim16#String">
472     <xs:restriction base="ecl:MessageTypeList"/>
473 </xs:simpleType>

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474         <xs:simpleType name="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
475 schema-cim16#String">
476             <xs:restriction base="ecl:ProcessTypeList"/>
477         </xs:simpleType>
478         <xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
479 schema-cim16#String">
480             <xs:restriction base="ecl:RoleTypeList"/>
481         </xs:simpleType>
482         <xs:complexType name="ReserveBid_MarketDocument"
483 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
484             <xs:sequence>
485                 <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
486 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
487                 <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1"
488 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
489 cim16#Document.revisionNumber"/>
490                 <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1"
491 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
492                 <xs:element name="process.processType" type="ProcessKind_String" minOccurs="0"
493 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Process.processType"/>
494                 <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String"
495 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
496 cim16#IdentifiedObject.mRID"/>
497                 <xs:element name="sender_MarketParticipant.marketRole.type"
498 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
499 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
500                 <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String"
501 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
502 cim16#IdentifiedObject.mRID"/>
503                 <xs:element name="receiver_MarketParticipant.marketRole.type"
504 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
505 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
506                 <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1"
507 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
508 cim16#Document.createdDateTime"/>
509                 <xs:element name="reserveBid_Period.timeInterval" type="ESMP_DateTimeInterval"
510 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
511 cim16#Period.timeInterval"/>
512                 <xs:element name="domain.mRID" type="AreaID_String" minOccurs="1"
513 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
514                 <xs:element name="subject_MarketParticipant.mRID" type="PartyID_String"
515 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
516 cim16#IdentifiedObject.mRID"/>
517                 <xs:element name="subject_MarketParticipant.marketRole.type"
518 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
519 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
520                 <xs:element name="Bid_TimeSeries" type="BidTimeSeries" minOccurs="0"
521 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
522 cim16#MarketDocument.Bid_TimeSeries"/>
523             </xs:sequence>
524         </xs:complexType>
525         <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
526 cim16#Period">
527             <xs:sequence>
528                 <xs:element name="timeInterval" type="ESMP_DateTimeInterval" minOccurs="1"
529 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
530                 <xs:element name="resolution" type="xs:duration" minOccurs="1" maxOccurs="1"
531 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution"/>
532                 <xs:element name="Point" type="Point" minOccurs="1" maxOccurs="unbounded"
533 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
534             </xs:sequence>
535         </xs:complexType>
536 </xs:schema>

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