



European Network of
Transmission System Operators
for Electricity

**IMPLICIT AUCTION RESULT
DOCUMENT
UML MODEL AND SCHEMA**

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	<p>Updates in implicit auction document XSD v7.1</p> <ul style="list-style-type: none"> Quantity_Measure_Unit.name & Price_Measure_Unit.name attributes were renamed to Quantity_Measurement_Unit.name & Price_Measurement_Unit.name to be compliant with the ESMP. mRID of Document, Series and Timeseries (ID_String type) was enlarged from 35 to 60 characters. <p>Approved by MC.</p>

60

61 **Objective**

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

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

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

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

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

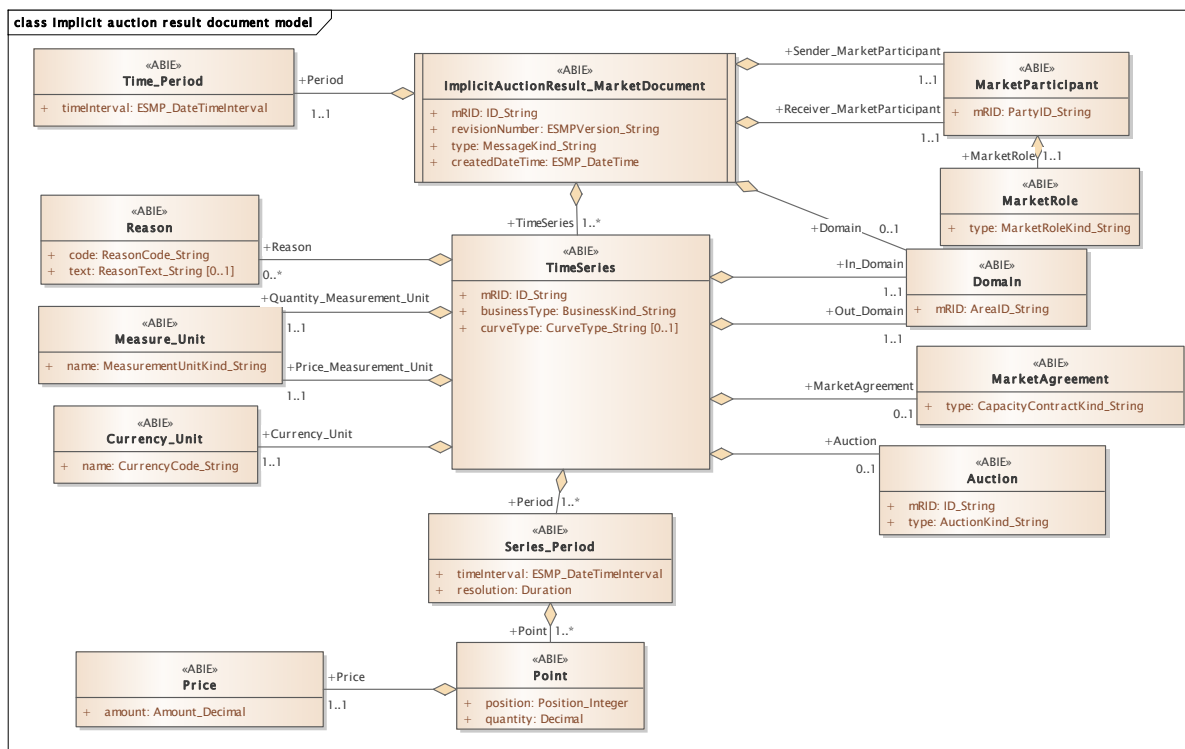
78

79 **ImplicitAuctionResult_MarketDocument**

80 **2.1 Implicit auction result contextual model**

81 **2.1.1 Overview of the model**

82 Figure 1 shows the model.



83

84

Figure 1 - Implicit auction result contextual model

85

86

87 **2.1.2 IsBasedOn relationships from the European style market profile**

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

90

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Auction	TC57CIM::IEC62325::MarketManagement::Auction
Currency_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Domain	TC57CIM::IEC62325::MarketManagement::Domain
ImplicitAuctionResult_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Point	TC57CIM::IEC62325::MarketManagement::Point
Price	TC57CIM::IEC62325::MarketManagement::Price
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

91

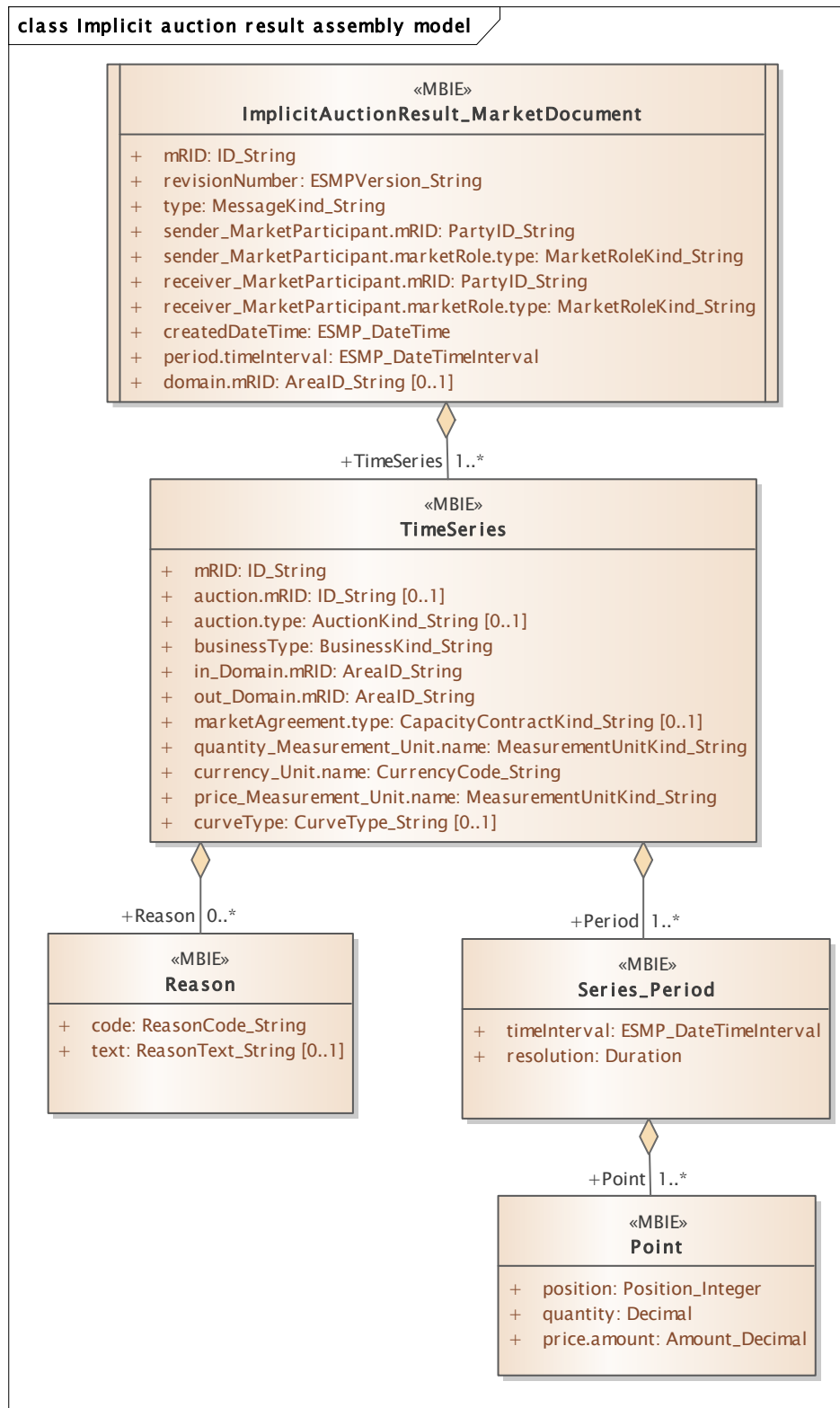
92

93

94 **2.2 Implicit auction result assembly model**

95 **2.2.1 Overview of the model**

96 Figure 2 shows the model.



97

98

Figure 2 - Implicit auction result assembly model

99 **2.2.2 IsBasedOn relationships from the European style market profile**

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

102 **Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
ImplicitAuctionResult_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

103

104 **2.2.3 Detailed Implicit auction result assembly model**

105 **2.2.3.1 ImplicitAuctionResult_MarketDocument root class**

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

108 An implicit auction result document is issued by the market operator at the end of a specific
109 auctioning cycle or by the System Operator once the NTC values have been agreed. It could
110 be yearly, monthly or daily auctions in addition to intraday auctions.

111 Table 3 shows all attributes of ImplicitAuctionResult_MarketDocument.

112 **Table 3 - Attributes of Implicit auction result assembly
113 model::ImplicitAuctionResult_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]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document owner.
4	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document owner.
5	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.
6	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient.
7	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
8	[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 implicit auction result document is covering.
9	[0..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the implicit auction result document.

114

115 Table 4 shows all association ends of ImplicitAuctionResult_MarketDocument with other
116 classes.

117 **Table 4 - Association ends of Implicit auction result assembly**
118 **model::ImplicitAuctionResult_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
10	[1..*]	TimeSeries TimeSeries	Association Based On: Implicit auction result contextual model::TimeSeries.TimeSeries[1..*] ----- Implicit auction result contextual model::ImplicitAuctionResult_MarketDocument.[]

119

120 2.2.3.2 Point

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

122 Table 5 shows all attributes of Point.

123 **Table 5 - Attributes of Implicit auction result 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	This information defines the quantity auctioned for the interval in question and that is expressed in the measurement unit quantity. The principal quantity identified for a point.
2	[1..1]	price.amount Amount_Decimal	A number of monetary units specified in a unit of currency. --- This information defines the price expressed in the unit of measurement of price per unit of quantity in compliance with the pricing scheme based on local market rules. For market prices the price provided is always the InArea price A price may be negative in cases where it is providing the difference between in and out area market prices. Price differential calculated with the following formula: InArea - OutArea.

124

125 2.2.3.3 Reason

126 The motivation of an act.

127 Table 6 shows all attributes of Reason.

128 **Table 6 - Attributes of Implicit auction result 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.

129

130 2.2.3.4 Series_Period

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

132 Table 7 shows all attributes of Series_Period.

133 **Table 7 - Attributes of Implicit auction result 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.

134

135 Table 8 shows all association ends of Series_Period with other classes.

136 **Table 8 - Association ends of Implicit auction result assembly model::Series_Period**
137 **with other classes**

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

138

139 2.2.3.5 TimeSeries

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

141 Table 9 shows all attributes of TimeSeries.

142 **Table 9 - Attributes of Implicit auction result assembly model::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[0..1]	auction.mRID ID_String	The unique identification of the auction. --- A unique identification of the set of specifications that clearly defines the allocation process to which the time series is addressed.
2	[0..1]	auction.type AuctionKind_String	The kind of the auction (e.g. implicit, explicit, ...). --- A unique identification of the set of specifications that clearly defines the allocation process to which the time series is addressed.
3	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
4	[1..1]	in_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
5	[1..1]	out_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
6	[0..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 was allocated and handled, e.g.: daily auction, weekly auction, monthly auction, yearly auction, Long term contract, etc. The significance of this type is dependent on the in area and out area specific coded working methods.

Order	mult.	Attribute name / Attribute type	Description
7	[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.
8	[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.
9	[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 price in the time series is expressed per unit of currency (MW per unit, MWh per unit, etc.).
10	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

143

144 Table 10 shows all association ends of TimeSeries with other classes.

145 **Table 10 - Association ends of Implicit auction result assembly model::TimeSeries with**
146 **other classes**

Order	mult.	Class name / Role	Description
11	[1..*]	Series_Period Period	Association Based On: Implicit auction result contextual model::Series_Period.Period[1..*] ----- Implicit auction result contextual model::TimeSeries.[]
12	[0..*]	Reason Reason	Association Based On: Implicit auction result contextual model::Reason.Reason[0..*] ----- Implicit auction result contextual model::TimeSeries.[]

147

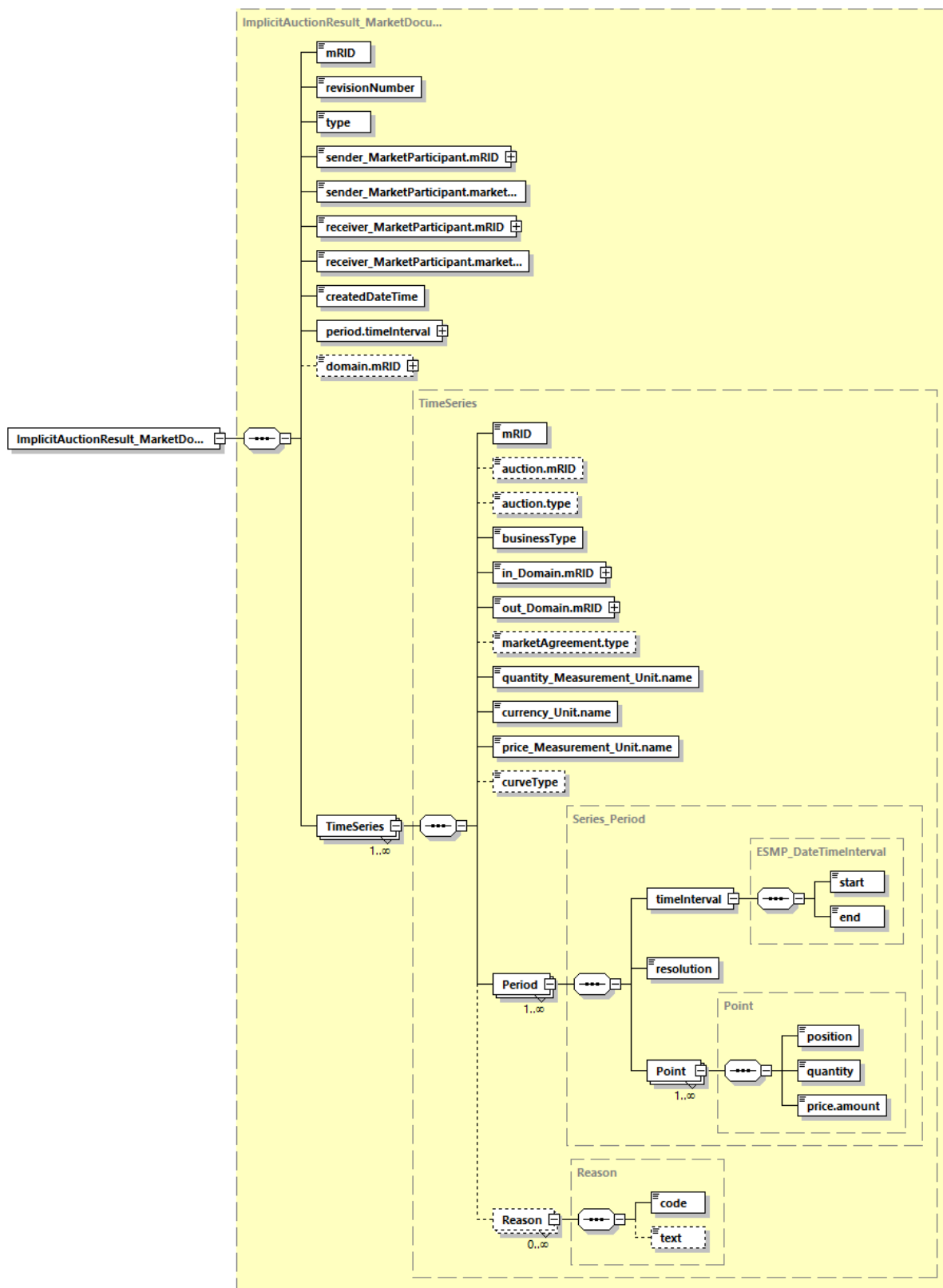
148 2.2.4 Datatypes

149 The list of datatypes used for the Implicit auction result assembly model is as follows:

- 150 • ESMP_DateTimeInterval compound
- 151 • Amount_Decimal datatype
- 152 • AreaID_String datatype, codelist CodingSchemeTypeList
- 153 • AuctionKind_String datatype, codelist AuctionTypeList
- 154 • BusinessKind_String datatype, codelist BusinessTypeList
- 155 • CapacityContractKind_String datatype, codelist ContractTypeList
- 156 • CurrencyCode_String datatype, codelist CurrencyTypeList
- 157 • CurveType_String datatype, codelist CurveTypeList
- 158 • ESMP_DateTime datatype
- 159 • ESMPVersion_String datatype
- 160 • ID_String datatype
- 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 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 167 • ReasonText_String datatype
- 168 • YMDHM_DateTime datatype
- 169

170 2.2.5 ImplicitAuctionResult_MarketDocument XML schema structure

171



172
173

Generated by XMLSpy www.altova.com

Figure 3 - ImplicitAuctionResult_MarketDocument XML schema structure

174 2.2.6 ImplicitAuctionResult_MarketDocument XML schema

175

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

177 urn:iec62325.351:tc57wg16:451-3:implicitauctiondocument:7:1

```

178 <?xml version="1.0" encoding="utf-8"?>
179 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
180 xmlns="urn:iec62325.351:tc57wg16:451-3:implicitauctiondocument:7:1"
181 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
182 xmlns:cimp="http://www.iec.ch/cimprofile"
183 xmlns:xs="http://www.w3.org/2001/XMLSchema"
184 targetNamespace="urn:iec62325.351:tc57wg16:451-3:implicitauctiondocument:7:1"
185 elementFormDefault="qualified" attributeFormDefault="unqualified">
186   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
187 entsoe-eu-wgedi-codelists.xsd"/>
188   <xs:element name="ImplicitAuctionResult_MarketDocument"
189 type="ImplicitAuctionResult_MarketDocument"/>
190   <xs:simpleType name="ID_String"
191 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
192     <xs:restriction base="xs:string">
193       <xs:maxLength value="60"/>
194     </xs:restriction>
195   </xs:simpleType>
196   <xs:simpleType name="ESMPVersion_String"
197 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
198     <xs:restriction base="xs:string">
199       <xs:pattern value="[1-9]([0-9]){0,2}"/>
200     </xs:restriction>
201   </xs:simpleType>
202   <xs:simpleType name="MessageKind_String"
203 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
204     <xs:restriction base="ecl:MessageTypeList"/>
205   </xs:simpleType>
206   <xs:simpleType name="PartyID_String-base"
207 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
208     <xs:restriction base="xs:string">
209       <xs:maxLength value="16"/>
210     </xs:restriction>
211   </xs:simpleType>
212   <xs:complexType name="PartyID_String"
213 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
214     <xs:simpleContent>
215       <xs:extension base="PartyID_String-base">
216         <xs:attribute name="codingScheme"
217 type="ecl:CodingSchemeTypeList" use="required"/>
218       </xs:extension>
219     </xs:simpleContent>
220   </xs:complexType>
221   <xs:simpleType name="MarketRoleKind_String"
222 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
223     <xs:restriction base="ecl:RoleTypeList"/>
224   </xs:simpleType>
225   <xs:simpleType name="ESMP_DateTime"
226 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
227     <xs:restriction base="xs:dateTime">
228       <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
229 9]|[12][0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
230 9]|30))T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
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231 9)Z)|((([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
232 48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
233 0-9][0-9][13579][26])\-(02)\-(0[1-9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-
234 5][0-9]:[0-5][0-
235 9)Z)|((([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
236 9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
237 8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])\-(02)\-(0[1-9]|1[0-
238 9]|2[0-8])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
239     </xs:restriction>
240   </xs:simpleType>
241   <xs:simpleType name="AreaID_String-base"
242 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
243     <xs:restriction base="xs:string">
244       <xs:maxLength value="18"/>
245     </xs:restriction>
246   </xs:simpleType>
247   <xs:complexType name="AreaID_String"
248 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
249     <xs:simpleContent>
250       <xs:extension base="AreaID_String-base">
251         <xs:attribute name="codingScheme"
252 type="ecl:CodingSchemeTypeList" use="required"/>
253       </xs:extension>
254     </xs:simpleContent>
255   </xs:complexType>
256   <xs:simpleType name="YMDHM_DateTime"
257 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
258     <xs:restriction base="xs:string">
259       <xs:pattern value="((([0-9]{4})\-(0[13578]|1[02])\-(0[1-
260 9]|12)[0-9]|3[01])|([0-9]{4})\-(0[469]|(11))\-(0[1-9]|12)[0-
261 9]|30))T((01)[0-9]|2[0-3]):[0-5][0-
262 9)Z)|((([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
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264 0-9][0-9][13579][26])\-(02)\-(0[1-9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-
265 5][0-
266 9)Z)|((([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
267 9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
268 8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])\-(02)\-(0[1-9]|1[0-
269 9]|2[0-8])T((01)[0-9]|2[0-3]):[0-5][0-9])Z)"/>
270     </xs:restriction>
271   </xs:simpleType>
272   <xs:complexType name="ESMP_DateTimeInterval"
273 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
274     <xs:sequence>
275       <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
276 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
277 cim16#DateTimeInterval.start"/>
278       <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
279 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
280 cim16#DateTimeInterval.end"/>
281     </xs:sequence>
282   </xs:complexType>
283   <xs:complexType name="ImplicitAuctionResult_MarketDocument"
284 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
285     <xs:sequence>
286       <xs:element name="mRID" type="ID_String" minOccurs="1"
287 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
288 cim16#IdentifiedObject.mRID"/>

```

```

289         <xs:element name="revisionNumber" type="ESMPVersion_String"
290 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
291 schema-cim16#Document.revisionNumber"/>
292         <xs:element name="type" type="MessageKind_String" minOccurs="1"
293 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
294 cim16#Document.type"/>
295         <xs:element name="sender_MarketParticipant.mRID"
296 type="PartyID_String" minOccurs="1" maxOccurs="1"
297 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
298 cim16#IdentifiedObject.mRID"/>
299         <xs:element name="sender_MarketParticipant.marketRole.type"
300 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
301 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
302         <xs:element name="receiver_MarketParticipant.mRID"
303 type="PartyID_String" minOccurs="1" maxOccurs="1"
304 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
305 cim16#IdentifiedObject.mRID"/>
306         <xs:element name="receiver_MarketParticipant.marketRole.type"
307 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
308 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
309         <xs:element name="createdDateTime" type="ESMP_DateTime"
310 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
311 schema-cim16#Document.createdDateTime"/>
312         <xs:element name="period.timeInterval"
313 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
314 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
315 cim16#Period.timeInterval"/>
316         <xs:element name="domain.mRID" type="AreaID_String"
317 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
318 schema-cim16#IdentifiedObject.mRID"/>
319         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="1"
320 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
321 cim16#MarketDocument.TimeSeries"/>
322     </xs:sequence>
323 </xs:complexType>
324 <xs:simpleType name="Position_Integer"
325 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
326     <xs:restriction base="xs:integer">
327         <xs:maxInclusive value="999999"/>
328         <xs:minInclusive value="1"/>
329     </xs:restriction>
330 </xs:simpleType>
331 <xs:simpleType name="Amount_Decimal"
332 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Decimal">
333     <xs:restriction base="xs:decimal">
334         <xs:totalDigits value="17"/>
335     </xs:restriction>
336 </xs:simpleType>
337 <xs:complexType name="Point"
338 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
339     <xs:sequence>
340         <xs:element name="position" type="Position_Integer"
341 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
342 schema-cim16#Point.position"/>
343         <xs:element name="quantity" type="xs:decimal" minOccurs="1"
344 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
345 cim16#Point.quantity"/>
346         <xs:element name="price.amount" type="Amount_Decimal"
347 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
348 schema-cim16#Price.amount"/>

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349         </xs:sequence>
350     </xs:complexType>
351     <xs:simpleType name="ReasonCode_String"
352 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
353         <xs:restriction base="ecl:ReasonCodeTypeList"/>
354     </xs:simpleType>
355     <xs:simpleType name="ReasonText_String"
356 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
357         <xs:restriction base="xs:string">
358             <xs:maxLength value="512"/>
359         </xs:restriction>
360     </xs:simpleType>
361     <xs:complexType name="Reason"
362 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
363         <xs:sequence>
364             <xs:element name="code" type="ReasonCode_String" minOccurs="1"
365 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
366 cim16#Reason.code"/>
367             <xs:element name="text" type="ReasonText_String" minOccurs="0"
368 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
369 cim16#Reason.text"/>
370         </xs:sequence>
371     </xs:complexType>
372     <xs:complexType name="Series_Period"
373 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
374         <xs:sequence>
375             <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
376 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
377 schema-cim16#Period.timeInterval"/>
378             <xs:element name="resolution" type="xs:duration" minOccurs="1"
379 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
380 cim16#Period.resolution"/>
381             <xs:element name="Point" type="Point" minOccurs="1"
382 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
383 cim16#Period.Point"/>
384         </xs:sequence>
385     </xs:complexType>
386     <xs:simpleType name="AuctionKind_String"
387 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
388         <xs:restriction base="ecl:AuctionTypeList"/>
389     </xs:simpleType>
390     <xs:simpleType name="BusinessKind_String"
391 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
392         <xs:restriction base="ecl:BusinessTypeList"/>
393     </xs:simpleType>
394     <xs:simpleType name="CapacityContractKind_String"
395 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
396         <xs:restriction base="ecl:ContractTypeList"/>
397     </xs:simpleType>
398     <xs:simpleType name="MeasurementUnitKind_String"
399 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
400         <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
401     </xs:simpleType>
402     <xs:simpleType name="CurrencyCode_String"
403 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
404         <xs:restriction base="ecl:CurrencyTypeList"/>
405     </xs:simpleType>
406     <xs:simpleType name="CurveType_String"
407 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
408         <xs:restriction base="ecl:CurveTypeList"/>

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409         </xs:simpleType>
410         <xs:complexType name="TimeSeries"
411 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
412             <xs:sequence>
413                 <xs:element name="mRID" type="ID_String" minOccurs="1"
414 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
415 cim16#IdentifiedObject.mRID"/>
416                 <xs:element name="auction.mRID" type="ID_String" minOccurs="0"
417 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
418 cim16#IdentifiedObject.mRID"/>
419                 <xs:element name="auction.type" type="AuctionKind_String"
420 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
421 schema-cim16#Auction.type"/>
422                 <xs:element name="businessType" type="BusinessKind_String"
423 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
424 schema-cim16#TimeSeries.businessType"/>
425                 <xs:element name="in_Domain.mRID" type="AreaID_String"
426 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
427 schema-cim16#IdentifiedObject.mRID"/>
428                 <xs:element name="out_Domain.mRID" type="AreaID_String"
429 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
430 schema-cim16#IdentifiedObject.mRID"/>
431                 <xs:element name="marketAgreement.type"
432 type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
433 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
434                 <xs:element name="quantity_Measurement_Unit.name"
435 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
436 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
437                 <xs:element name="currency_Unit.name"
438 type="CurrencyCode_String" minOccurs="1" maxOccurs="1"
439 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
440                 <xs:element name="price_Measurement_Unit.name"
441 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
442 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
443                 <xs:element name="curveType" type="CurveType_String"
444 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
445 schema-cim16#TimeSeries.curveType"/>
446                 <xs:element name="Period" type="Series_Period" minOccurs="1"
447 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
448 cim16#TimeSeries.Period"/>
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:schema>
455

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