



European Network of
Transmission System Operators
for Electricity

CAPACITY DOCUMENT UML MODEL AND SCHEMA

2021-11-09
APPROVED DOCUMENT
VERSION 1.1

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Revision History

Version	Release	Date	Comments
0	0	2016-12-05	First drafting of the document based on maintenance request from WG EDI.
1	0	2017-01-10	Version to be submitted to Market Committee following WG EDI meeting in January 2017.
1	1	2021-11-09	<p>Updates in schema 'iec62325.351:tc57wg16:451-3:capacitydocument:8:1.xsd':</p> <ul style="list-style-type: none"> • An optional secondaryQuantity attribute was added into the Point class of Capacity document. • An optional secondary measurement unit was added at Timeseries level. • Measure_Unit was renamed to Measurement_Unit to align the end name with the ESMP one. <p>Approved by MC.</p>

61

62 **Objective**

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

65 The schema of the Capacity_MarketDocument could be used in various business processes
66 related to the transmission capacity. This document could be used to exchange information on
67 net transmission capacity, available transmission capacity, etc.

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

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

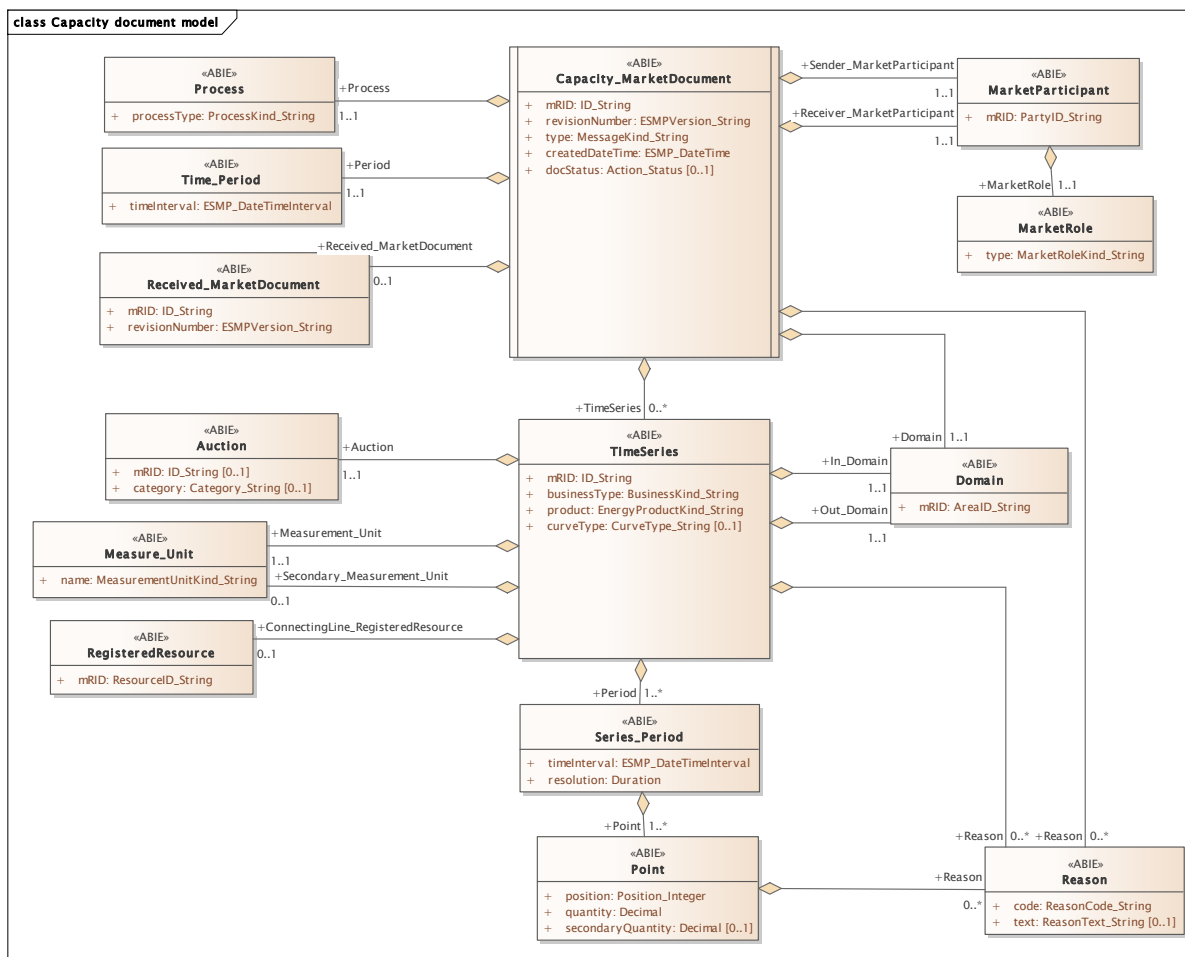
- 72 • Description of the business process;
- 73 • Use case of the business process;
- 74 • Sequence diagrams of the business process;
- 75 • List of the schema (XSD) to be used in the business process and versions of the
76 schema;
- 77 • For each schema, dependency tables providing the necessary information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

80 **Capacity_MarketDocument**

81 **2.1 Capacity contextual model**

82 **2.1.1 Overview of the model**

83 Figure 1 shows the model.



84

85

86

Figure 1 - Capacity contextual model

87

88 **2.1.2 IsBasedOn relationships from the European style market profile**

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

91

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Auction	TC57CIM::IEC62325::MarketManagement::Auction
Capacity_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
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
Received_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

92

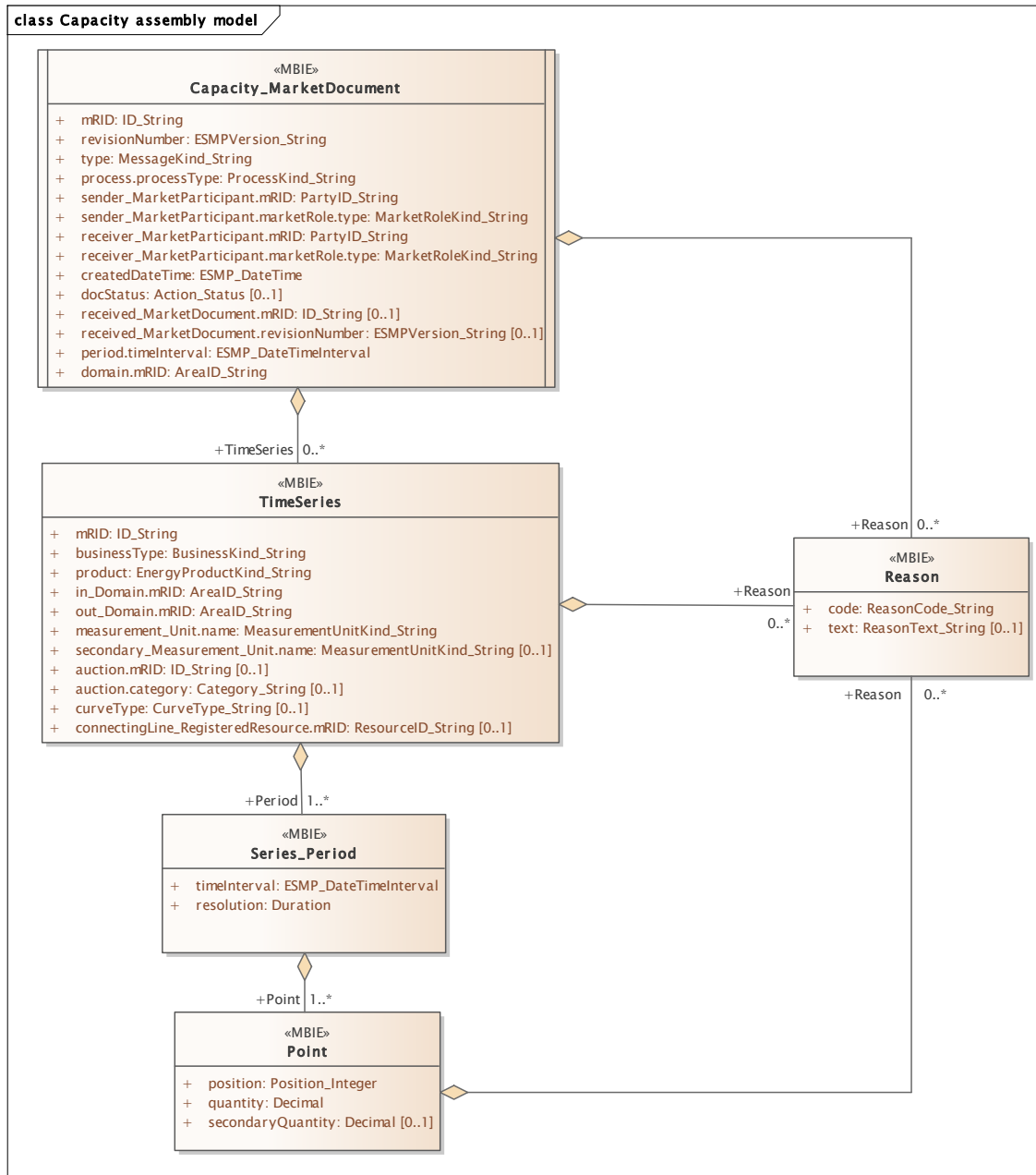
93

94

95 **2.2 Capacity assembly model**

96 **2.2.1 Overview of the model**

97 Figure 2 shows the model.



98

99

Figure 2 - Capacity assembly model

100

101
102 **2.2.2 IsBasedOn relationships from the European style market profile**
103 Table 2 shows the traceability dependency of the classes used in this package towards the
104 upper level.

105 **Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Capacity_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

106
107 **2.2.3 Detailed Capacity assembly model**
108 **2.2.3.1 Capacity_MarketDocument root class**
109 An electronic document containing the information necessary to satisfy the requirements of a
110 given business process.
111 The Capacity_MaketDocument enables the exchange of information related to transmission
112 capacity. These exchanges could be related to capacity determination or capacity allocation.
113 The values exchanged could be related to NTC, ATC, AAC, released AAC, offered capacity or
114 general capacity information.
115 Table 3 shows all attributes of Capacity_MarketDocument.

116 **Table 3 - Attributes of Capacity assembly model::Capacity_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	[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	[0..1]	docStatus Action_Status	The identification of the condition or position of the document with regard to its standing.

Order	mult.	Attribute name / Attribute type	Description
10	[0..1]	received_MarketDocument.mRID ID_String	The unique identification of the document being exchanged within a business process flow. --- The identification of the received document. The identification of an electronic document that is related to an electronic document header
11	[0..1]	received_MarketDocument.revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another. --- The identification of the received document. The identification of an electronic document that is related to an electronic document header
12	[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 covered by the document.
13	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the Capacity_MarketDocument.

117

118 Table 4 shows all association ends of Capacity_MarketDocument with other classes.

119 **Table 4 - Association ends of Capacity assembly model::Capacity_MarketDocument**
120 **with other classes**

Order	mult.	Class name / Role	Description
14	[0..*]	TimeSeries TimeSeries	Association Based On: Capacity contextual model::TimeSeries.TimeSeries[0..*] ----- Capacity contextual model::Capacity_MarketDocument.[]
15	[0..*]	Reason Reason	Association Based On: Capacity contextual model::Reason.Reason[0..*] ----- Capacity contextual model::Capacity_MarketDocument.[]

121

122 2.2.3.2 Point

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

124 Table 5 shows all attributes of Point.

125 **Table 5 - Attributes of Capacity 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 principal quantity identified for a point.
2	[0..1]	secondaryQuantity Decimal	The secondary quantity identified for a point.

126

127 Table 6 shows all association ends of Point with other classes.

128 **Table 6 - Association ends of Capacity assembly model::Point with other classes**

Order	mult.	Class name / Role	Description
3	[0..*]	Reason Reason	Association Based On: Capacity contextual model::Reason.Reason[0..*] ----- Capacity contextual model::Point.[]

129

130 **2.2.3.3 Reason**

131 The motivation of an act.

132 Table 7 shows all attributes of Reason.

133 **Table 7 - Attributes of Capacity 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.

134

135 **2.2.3.4 Series_Period**

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

137 Table 8 shows all attributes of Series_Period.

138 **Table 8 - Attributes of Capacity 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.

139

140 Table 9 shows all association ends of Series_Period with other classes.

141 **Table 9 - Association ends of Capacity assembly model::Series_Period with other classes**

142

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

143

144 **2.2.3.5 TimeSeries**

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

146 Table 10 shows all attributes of TimeSeries.

147

Table 10 - Attributes of Capacity assembly model::TimeSeries

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	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]	product EnergyProductKind_String	The identification of the nature of an energy product such as power, energy, reactive power, etc.
3	[1..1]	in_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
4	[1..1]	out_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
5	[1..1]	measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure that is applied to the quantities in which the time series is expressed, e.g. MAW.
6	[0..1]	secondary_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure associated with the quantities in a TimeSeries.
7	[0..1]	auction.mRID ID_String	The unique identification of the auction. --- The identification of a set of specifications created by the auction operator.
8	[0..1]	auction.category Category_String	The product category of an auction. --- The identification of a set of specifications created by the auction operator.
9	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.
10	[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.

148

149 Table 11 shows all association ends of TimeSeries with other classes.

150 **Table 11 - Association ends of Capacity assembly model::TimeSeries with other classes**

Order	mult.	Class name / Role	Description
11	[1..*]	Series_Period Period	Association Based On: Capacity contextual model::Series_Period.Period[1..*] ----- Capacity contextual model::TimeSeries.[]
12	[0..*]	Reason Reason	The reason information associated with a TimeSeries providing motivation information. Association Based On: Capacity contextual model::Reason.Reason[0..*] ----- Capacity contextual model::TimeSeries.[]

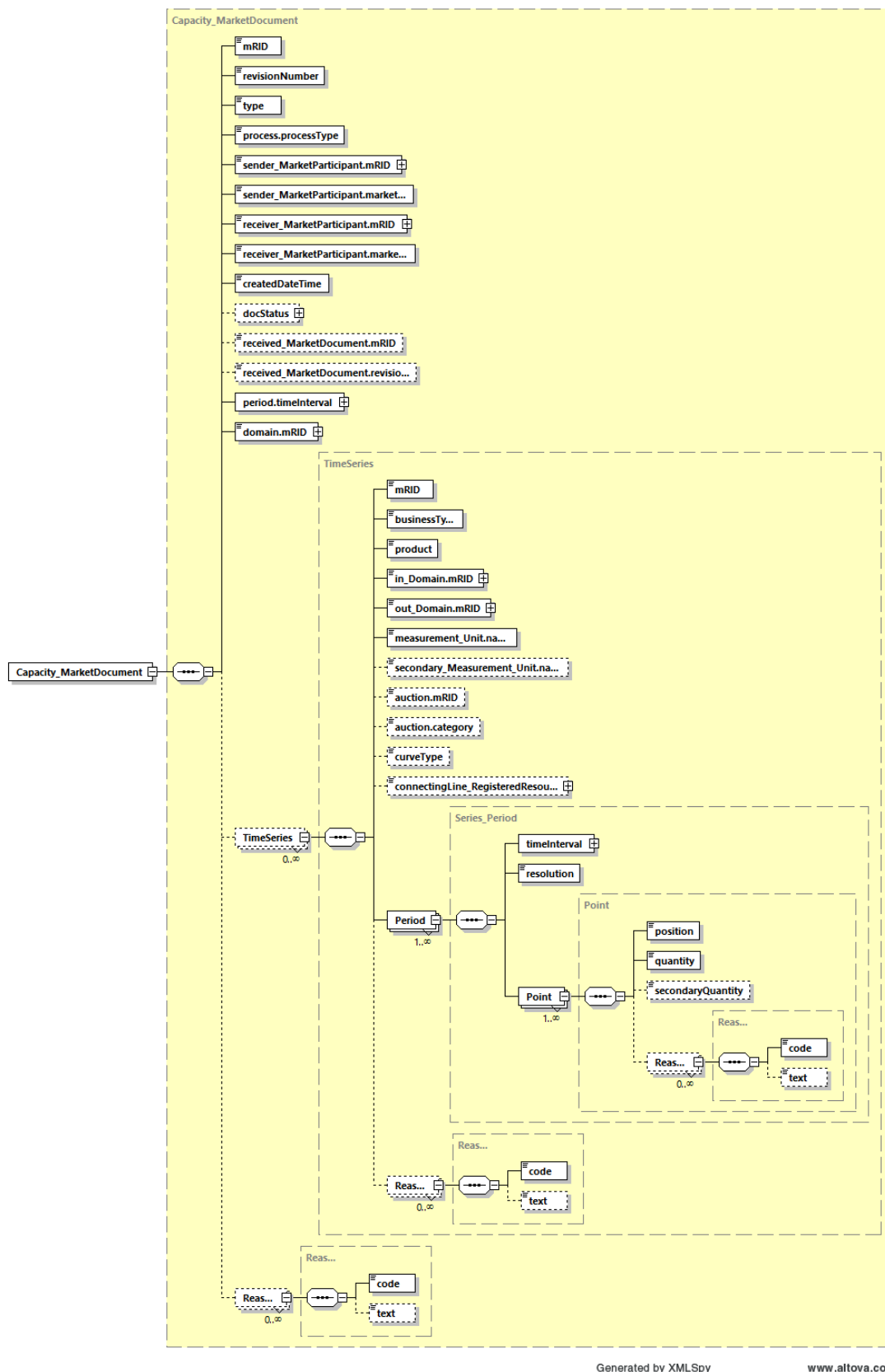
151

152 2.2.4 Datatypes

153 The list of datatypes used for the Capacity assembly model is as follows:

- 154 • Action_Status compound
- 155 • ESMP_DateTimeInterval compound
- 156 • AreaID_String datatype, codelist CodingSchemeTypeList
- 157 • BusinessKind_String datatype, codelist BusinessTypeList
- 158 • Category_String datatype, codelist CategoryTypeList
- 159 • CurveType_String datatype, codelist CurveTypeList
- 160 • EnergyProductKind_String datatype, codelist EnergyProductTypeList
- 161 • ESMP_DateTime datatype
- 162 • ESMPVersion_String datatype
- 163 • ID_String datatype
- 164 • MarketRoleKind_String datatype, codelist RoleTypeList
- 165 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 166 • MessageKind_String datatype, codelist MessageTypeList
- 167 • PartyID_String datatype, codelist CodingSchemeTypeList
- 168 • Position_Integer datatype
- 169 • ProcessKind_String datatype, codelist ProcessTypeList
- 170 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 171 • ReasonText_String datatype
- 172 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 173 • Status_String datatype, codelist StatusTypeList
- 174 • YMDHM_DateTime datatype
- 175

- 176 2.3 Capacity_MarketDocument XML schema
- 177 2.3.1 Capacity_MarketDocument XML schema structure
- 178 Figure 3 provides the structure of the schema.



179

180

Figure 3 - Capacity_MarketDocument schema structure

181 2.3.2 Capacity_MarketDocument XML schema

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

183 urn:iec62325.351:tc57wg16:451-3:capacitydocument:8:1

```

184 <?xml version="1.0" encoding="utf-8"?>
185 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
186 xmlns="urn:iec62325.351:tc57wg16:451-3:capacitydocument:8:1"
187 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
188 xmlns:cimp="http://www.iec.ch/cimprofile"
189 xmlns:xs="http://www.w3.org/2001/XMLSchema"
190 targetNamespace="urn:iec62325.351:tc57wg16:451-3:capacitydocument:8:1"
191 elementFormDefault="qualified" attributeFormDefault="unqualified">
192   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
193 entsoe-eu-wgedi-codelists.xsd"/>
194   <xs:element name="Capacity_MarketDocument" type="Capacity_MarketDocument"/>
195   <xs:simpleType name="ID_String"
196 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
197     <xs:restriction base="xs:string">
198       <xs:maxLength value="60"/>
199     </xs:restriction>
200   </xs:simpleType>
201   <xs:simpleType name="ESMPVersion_String"
202 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
203     <xs:restriction base="xs:string">
204       <xs:pattern value="[1-9]([0-9]){0,2}"/>
205     </xs:restriction>
206   </xs:simpleType>
207   <xs:simpleType name="MessageKind_String"
208 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
209     <xs:restriction base="ecl:MessageTypeList"/>
210   </xs:simpleType>
211   <xs:simpleType name="ProcessKind_String"
212 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
213     <xs:restriction base="ecl:ProcessTypeList"/>
214   </xs:simpleType>
215   <xs:simpleType name="PartyID_String-base"
216 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-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"
222 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
223     <xs:simpleContent>
224       <xs:extension base="PartyID_String-base">
225         <xs:attribute name="codingScheme"
226 type="ecl:CodingSchemeTypeList" use="required"/>
227       </xs:extension>
228     </xs:simpleContent>
229   </xs:complexType>
230   <xs:simpleType name="MarketRoleKind_String"
231 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
232     <xs:restriction base="ecl:RoleTypeList"/>
233   </xs:simpleType>
234   <xs:simpleType name="ESMP_DateTime"
235 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
236     <xs:restriction base="xs:dateTime">
237       <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
238 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
```

```

239 9)|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
240 9))Z)|((([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
241 48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
242 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
243 5][0-9]:[0-5][0-
244 9))Z)|((([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
245 9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
246 8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
247 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
248     </xs:restriction>
249   </xs:simpleType>
250   <xs:simpleType name="AreaID_String-base"
251 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
252     <xs:restriction base="xs:string">
253       <xs:maxLength value="18"/>
254     </xs:restriction>
255   </xs:simpleType>
256   <xs:complexType name="AreaID_String"
257 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
258     <xs:simpleContent>
259       <xs:extension base="AreaID_String-base">
260         <xs:attribute name="codingScheme"
261 type="ecl:CodingSchemeTypeList" use="required"/>
262       </xs:extension>
263     </xs:simpleContent>
264   </xs:complexType>
265   <xs:simpleType name="Status_String"
266 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
267     <xs:restriction base="ecl:StatusTypeList"/>
268   </xs:simpleType>
269   <xs:complexType name="Action_Status"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status">
271     <xs:sequence>
272       <xs:element name="value" type="Status_String" minOccurs="1"
273 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
274 cim16#Status.value"/>
275     </xs:sequence>
276   </xs:complexType>
277   <xs:simpleType name="YMDHM_DateTime"
278 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
279     <xs:restriction base="xs:string">
280       <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
281 9]|12)[0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-
282 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
283 9))Z)|((([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
284 48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
285 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
286 5][0-
287 9))Z)|((([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
288 9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
289 8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
290 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
291     </xs:restriction>
292   </xs:simpleType>
293   <xs:complexType name="ESMP_DateTimeInterval"
294 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
295     <xs:sequence>
296       <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
297 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
298 cim16#DateTimeInterval.start"/>

```



```

299         <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
300 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
301 cim16#DateTimeInterval.end"/>
302     </xs:sequence>
303 </xs:complexType>
304 <xs:complexType name="Capacity_MarketDocument"
305 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
306     <xs:sequence>
307         <xs:element name="mRID" type="ID_String" minOccurs="1"
308 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
309 cim16#IdentifiedObject.mRID"/>
310         <xs:element name="revisionNumber" type="ESMPVersion_String"
311 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
312 schema-cim16#Document.revisionNumber"/>
313         <xs:element name="type" type="MessageKind_String" minOccurs="1"
314 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
315 cim16#Document.type"/>
316         <xs:element name="process.processType"
317 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
318 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
319 cim16#Process.processType"/>
320         <xs:element name="sender_MarketParticipant.mRID"
321 type="PartyID_String" minOccurs="1" maxOccurs="1"
322 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
323 cim16#IdentifiedObject.mRID"/>
324         <xs:element name="sender_MarketParticipant.marketRole.type"
325 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
326 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
327         <xs:element name="receiver_MarketParticipant.mRID"
328 type="PartyID_String" minOccurs="1" maxOccurs="1"
329 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
330 cim16#IdentifiedObject.mRID"/>
331         <xs:element name="receiver_MarketParticipant.marketRole.type"
332 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
333 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
334         <xs:element name="createdDateTime" type="ESMP_DateTime"
335 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
336 schema-cim16#Document.createdDateTime"/>
337         <xs:element name="docStatus" type="Action_Status" minOccurs="0"
338 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
339 cim16#Document.docStatus"/>
340         <xs:element name="received_MarketDocument.mRID"
341 type="ID_String" minOccurs="0" maxOccurs="1"
342 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
343 cim16#IdentifiedObject.mRID"/>
344         <xs:element name="received_MarketDocument.revisionNumber"
345 type="ESMPVersion_String" minOccurs="0" maxOccurs="1"
346 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
347 cim16#Document.revisionNumber"/>
348         <xs:element name="period.timeInterval"
349 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
350 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
351 cim16#Period.timeInterval"/>
352         <xs:element name="domain.mRID" type="AreaID_String"
353 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
354 schema-cim16#IdentifiedObject.mRID"/>
355         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
356 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
357 cim16#MarketDocument.TimeSeries"/>

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358         <xs:element name="Reason" type="Reason" minOccurs="0"
359 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
360 cim16#MarketDocument.Reason"/>
361     </xs:sequence>
362 </xs:complexType>
363 <xs:simpleType name="Position_Integer"
364 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
365     <xs:restriction base="xs:integer">
366         <xs:maxInclusive value="999999"/>
367         <xs:minInclusive value="1"/>
368     </xs:restriction>
369 </xs:simpleType>
370 <xs:complexType name="Point"
371 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
372     <xs:sequence>
373         <xs:element name="position" type="Position_Integer"
374 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
375 schema-cim16#Point.position"/>
376         <xs:element name="quantity" type="xs:decimal" minOccurs="1"
377 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
378 cim16#Point.quantity"/>
379         <xs:element name="secondaryQuantity" type="xs:decimal"
380 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
381 schema-cim16#Point.secondaryQuantity"/>
382         <xs:element name="Reason" type="Reason" minOccurs="0"
383 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
384 cim16#Point.Reason"/>
385     </xs:sequence>
386 </xs:complexType>
387 <xs:simpleType name="ReasonCode_String"
388 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
389     <xs:restriction base="ecl:ReasonCodeTypeList"/>
390 </xs:simpleType>
391 <xs:simpleType name="ReasonText_String"
392 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
393     <xs:restriction base="xs:string">
394         <xs:maxLength value="512"/>
395     </xs:restriction>
396 </xs:simpleType>
397 <xs:complexType name="Reason"
398 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
399     <xs:sequence>
400         <xs:element name="code" type="ReasonCode_String" minOccurs="1"
401 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
402 cim16#Reason.code"/>
403         <xs:element name="text" type="ReasonText_String" minOccurs="0"
404 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
405 cim16#Reason.text"/>
406     </xs:sequence>
407 </xs:complexType>
408 <xs:complexType name="Series_Period"
409 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
410     <xs:sequence>
411         <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
412 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
413 schema-cim16#Period.timeInterval"/>
414         <xs:element name="resolution" type="xs:duration" minOccurs="1"
415 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
416 cim16#Period.resolution"/>

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417         <xs:element name="Point" type="Point" minOccurs="1"
418 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
419 cim16#Period.Point"/>
420     </xs:sequence>
421 </xs:complexType>
422 <xs:simpleType name="BusinessKind_String"
423 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
424     <xs:restriction base="ecl:BusinessTypeList"/>
425 </xs:simpleType>
426 <xs:simpleType name="EnergyProductKind_String"
427 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
428     <xs:restriction base="ecl:EnergyProductTypeList"/>
429 </xs:simpleType>
430 <xs:simpleType name="MeasurementUnitKind_String"
431 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
432     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
433 </xs:simpleType>
434 <xs:simpleType name="Category_String"
435 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
436     <xs:restriction base="ecl:CategoryTypeList"/>
437 </xs:simpleType>
438 <xs:simpleType name="CurveType_String"
439 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
440     <xs:restriction base="ecl:CurveTypeList"/>
441 </xs:simpleType>
442 <xs:simpleType name="ResourceID_String-base"
443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
444     <xs:restriction base="xs:string">
445         <xs:maxLength value="60"/>
446     </xs:restriction>
447 </xs:simpleType>
448 <xs:complexType name="ResourceID_String"
449 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
450     <xs:simpleContent>
451         <xs:extension base="ResourceID_String-base">
452             <xs:attribute name="codingScheme"
453 type="ecl:CodingSchemeTypeList" use="required"/>
454         </xs:extension>
455     </xs:simpleContent>
456 </xs:complexType>
457 <xs:complexType name="TimeSeries"
458 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
459     <xs:sequence>
460         <xs:element name="mRID" type="ID_String" minOccurs="1"
461 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
462 cim16#IdentifiedObject.mRID"/>
463         <xs:element name="businessType" type="BusinessKind_String"
464 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
465 schema-cim16#TimeSeries.businessType"/>
466         <xs:element name="product" type="EnergyProductKind_String"
467 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
468 schema-cim16#TimeSeries.product"/>
469         <xs:element name="in_Domain.mRID" type="AreaID_String"
470 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
471 schema-cim16#IdentifiedObject.mRID"/>
472         <xs:element name="out_Domain.mRID" type="AreaID_String"
473 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
474 schema-cim16#IdentifiedObject.mRID"/>

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475         <xs:element name="measurement_Unit.name"
476 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
477 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
478         <xs:element name="secondary_Measurement_Unit.name"
479 type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
480 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
481         <xs:element name="auction.mRID" type="ID_String" minOccurs="0"
482 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
483 cim16#IdentifiedObject.mRID"/>
484         <xs:element name="auction.category" type="Category_String"
485 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
486 schema-cim16#Auction.category"/>
487         <xs:element name="curveType" type="CurveType_String"
488 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
489 schema-cim16#TimeSeries.curveType"/>
490         <xs:element name="connectingLine_RegisteredResource.mRID"
491 type="ResourceID_String" minOccurs="0" maxOccurs="1"
492 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
493 cim16#IdentifiedObject.mRID"/>
494         <xs:element name="Period" type="Series_Period" minOccurs="1"
495 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
496 cim16#TimeSeries.Period"/>
497         <xs:element name="Reason" type="Reason" minOccurs="0"
498 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
499 cim16#TimeSeries.Reason"/>
500     </xs:sequence>
501 </xs:complexType>
502 </xs:schema>
503

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