



European Network of
Transmission System Operators
for Electricity

CAPACITY DOCUMENT UML MODEL AND SCHEMA

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VERSION 1.0

2

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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.

62

63 1 Objective

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

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

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

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

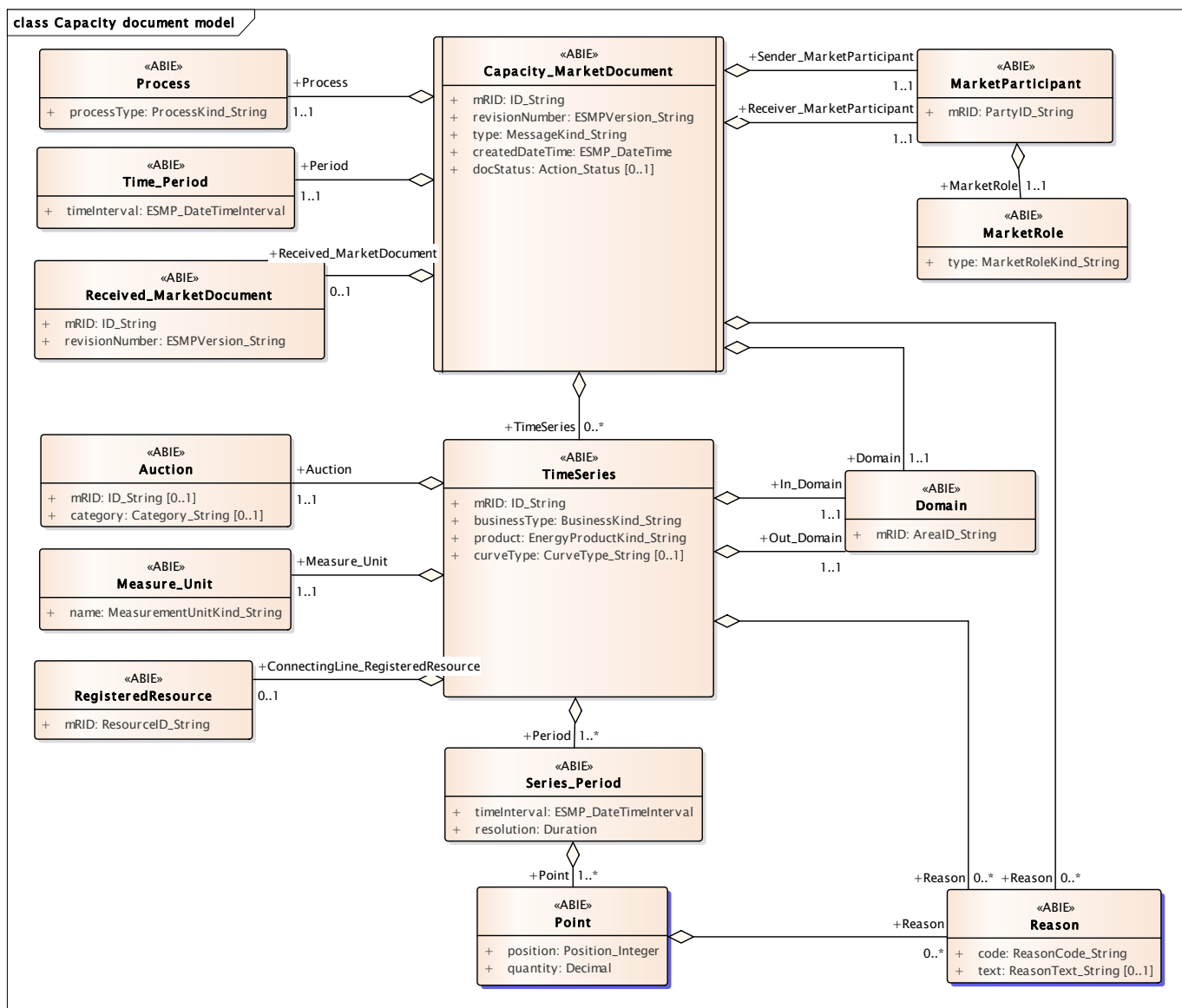
- 73 • Description of the business process;
- 74 • Use case of the business process;
- 75 • Sequence diagrams of the business process;
- 76 • List of the schema (XSD) to be used in the business process and versions of the
77 schema;
- 78 • For each schema, dependency tables providing the necessary information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

81 **2 Capacity_MarketDocument**

82 **2.1 Capacity contextual model**

83 **2.1.1 Overview of the model**

84 Figure 1 shows the model.



85

86

Figure 1 - Capacity contextual model

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
Capacity_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Domain	TC57CIM::IEC62325::MarketManagement::Domain
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant

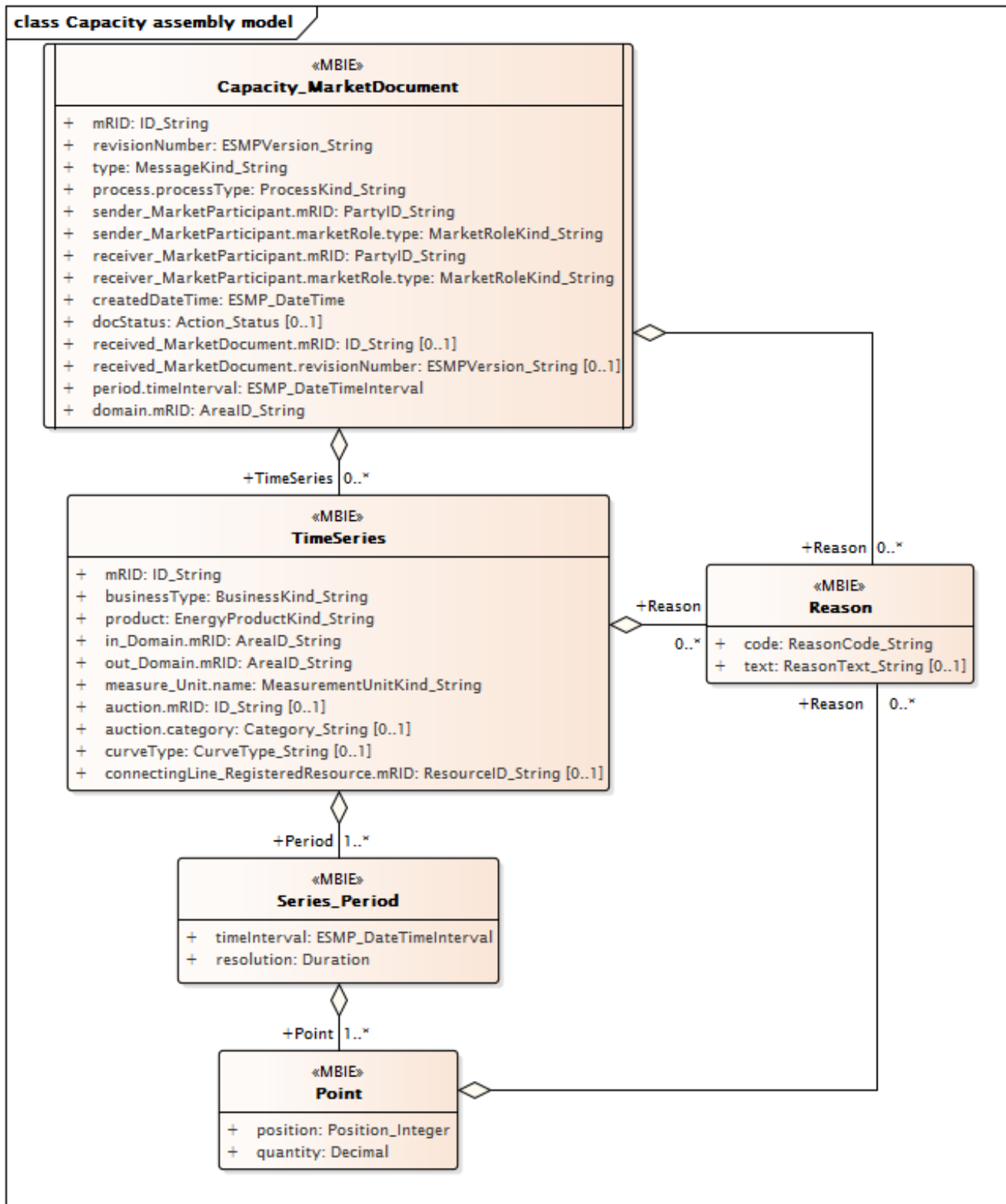
Name	Complete IsBasedOn Path
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Received_MarketDocument	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

91

92 **2.2 Capacity assembly model**

93 **2.2.1 Overview of the model**

94 Figure 2 shows the model.



95

96

Figure 2 - Capacity assembly model

97 **2.2.2 IsBasedOn relationships from the European style market profile**

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

100 **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

101

102 **2.2.3 Detailed Capacity assembly model**

103 **2.2.3.1 Capacity_MarketDocument root class**

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

106 The Capacity_MaketDocument enables the exchange of information related to transmission
107 capacity. These exchanges could be related to capacity determination or capacity allocation.
108 The values exchanged could be related to NTC, ATC, AAC, released AAC, offered capacity or
109 general capacity information.

110 Table 3 shows all attributes of Capacity_MarketDocument.

111 **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.

112

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

114 **Table 4 - Association ends of Capacity assembly model::Capacity_MarketDocument**
115 **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.[]

116

117 2.2.3.2 Point

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

119 Table 5 shows all attributes of Point.

120 **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.

121

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

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

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

124

125 **2.2.3.3 Reason**

126 The motivation of an act.

127 Table 7 shows all attributes of Reason.

128 **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.

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 8 shows all attributes of Series_Period.

133 **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.

134

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

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

137

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	Association Based On: Capacity contextual model::Point.Point[1..*] ----- Capacity 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 10 shows all attributes of TimeSeries.

142

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]	measure_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]	auction.mRID ID_String	The unique identification of the auction. --- The identification of a set of specifications created by the auction operator.
7	[0..1]	auction.category Category_String	The product category of an auction. --- The identification of a set of specifications created by the auction operator.
8	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.
9	[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.

143

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

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

Order	mult.	Class name / Role	Description
10	[1..*]	Series_Period Period	Association Based On: Capacity contextual model::Series_Period.Period[1..*] ----- Capacity contextual model::TimeSeries.[]
11	[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.[]

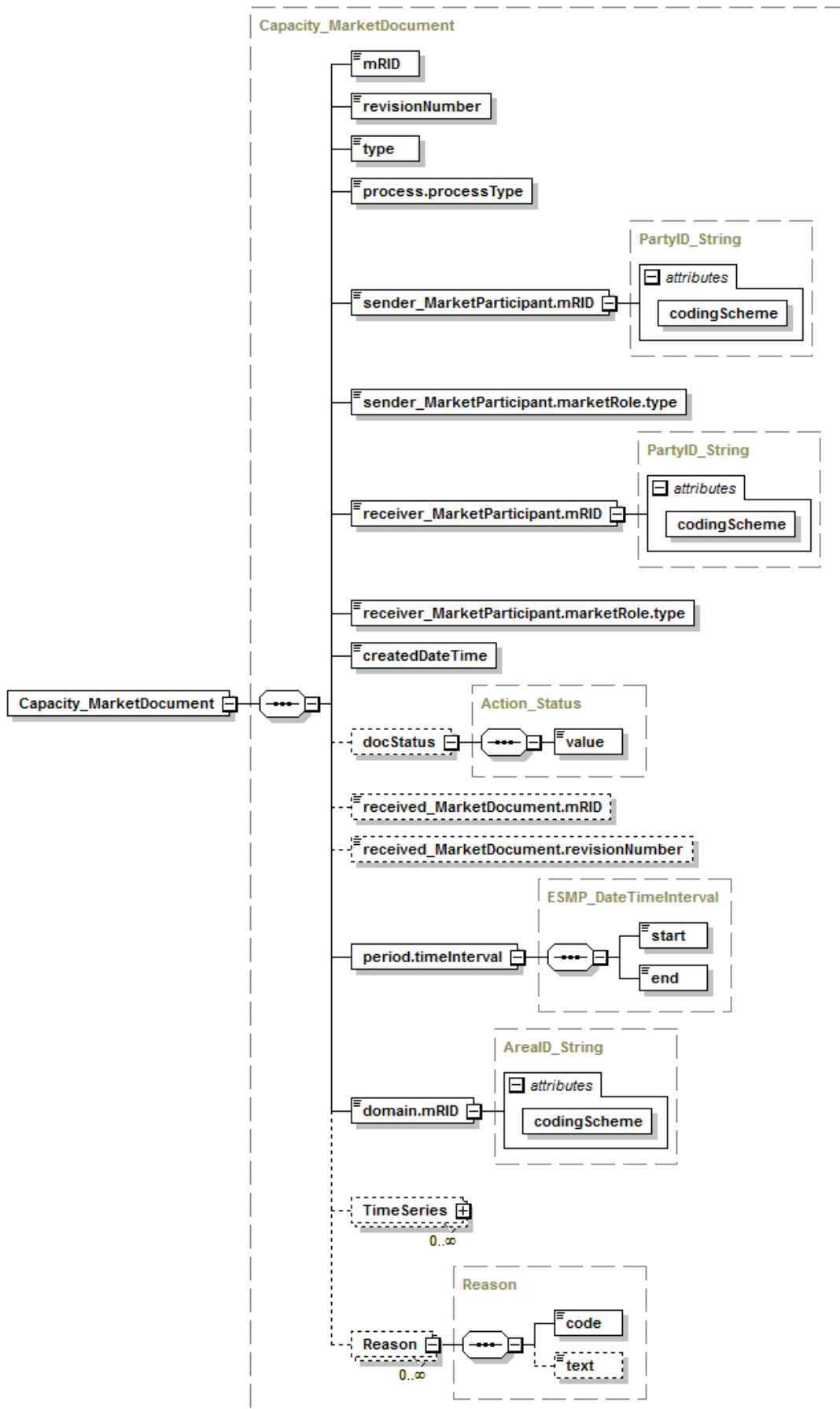
146

147 2.2.4 Datatypes

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

- 149 • Action_Status compound

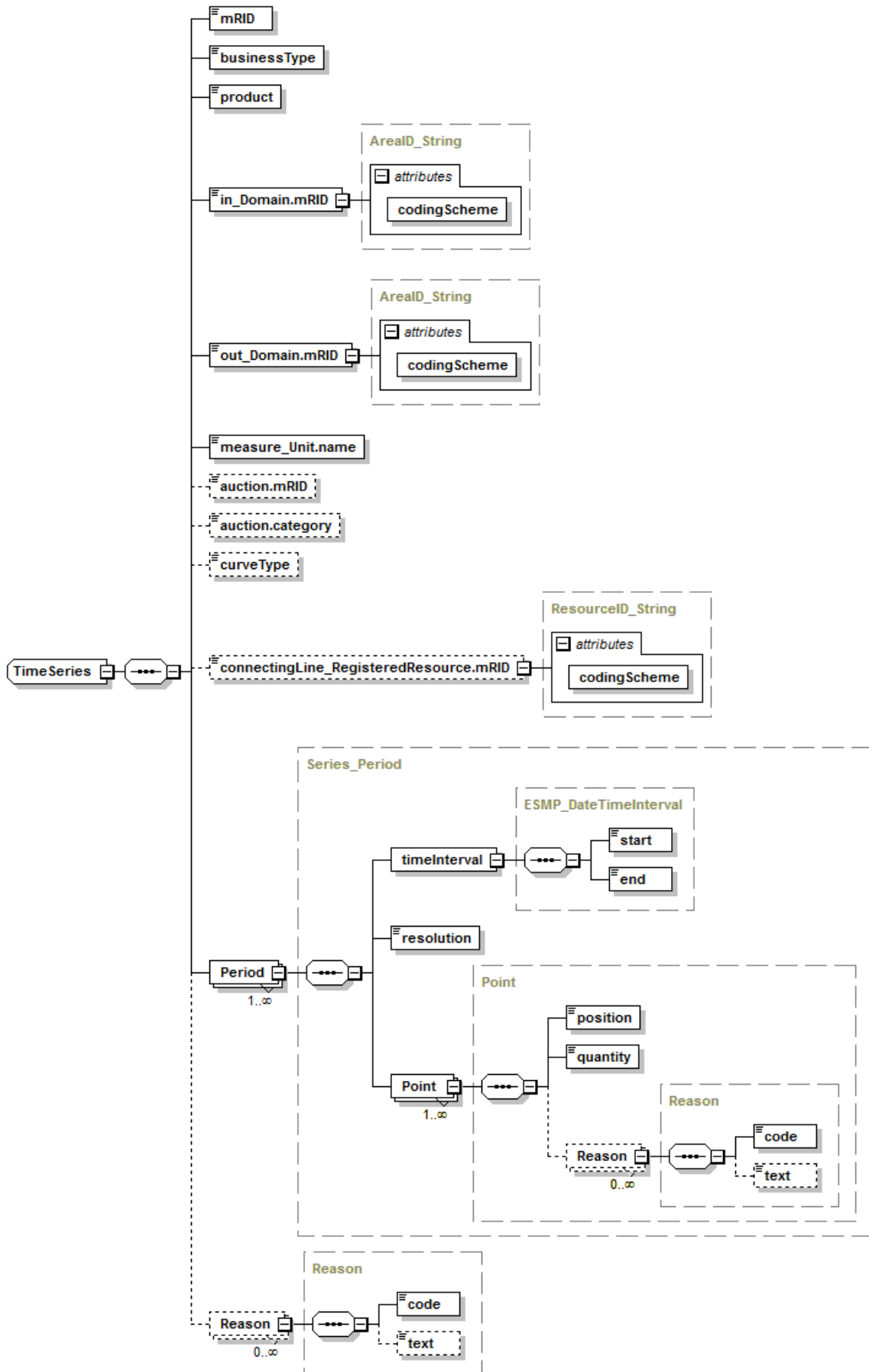
- 150 • ESMP_DateTimeInterval compound
- 151 • AreaID_String datatype, codelist CodingSchemeTypeList
- 152 • BusinessKind_String datatype, codelist BusinessTypeList
- 153 • Category_String datatype, codelist CategoryTypeList
- 154 • CurveType_String datatype, codelist CurveTypeList
- 155 • EnergyProductKind_String datatype, codelist EnergyProductTypeList
- 156 • ESMP_DateTime datatype
- 157 • ESMPVersion_String datatype
- 158 • ID_String datatype
- 159 • MarketRoleKind_String datatype, codelist RoleTypeList
- 160 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 161 • MessageKind_String datatype, codelist MessageTypeList
- 162 • PartyID_String datatype, codelist CodingSchemeTypeList
- 163 • Position_Integer datatype
- 164 • ProcessKind_String datatype, codelist ProcessTypeList
- 165 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 166 • ReasonText_String datatype
- 167 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 168 • Status_String datatype, codelist StatusTypeList
- 169 • YMDHM_DateTime datatype
- 170 **2.3 Capacity_MarketDocument XML schema**
- 171 **2.3.1 Capacity_MarketDocument XML schema structure**
- 172 Figure 3 to Figure 4 provide the structure of the schema.



173

174

Figure 3 - Capacity_MarketDocument schema structure 1/2



175

176

Figure 4 - Capacity_MarketDocument schema structure 2/2

177 **2.3.2 Capacity_MarketDocument XML schema**

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

179 urn:iec62325.351:tc57wg16:451-3:capacitydocument:8:0

```

180 <?xml version="1.0" encoding="utf-8"?>
181 <xs:schema xmlns:cl="urn:entsoe.eu:wgedi:codelists"
182 xmlns:sawSDL="http://www.w3.org/ns/sawSDL" xmlns="urn:iec62325.351:tc57wg16:451-
183 3:capacitydocument:8:0" xmlns:cimp="http://www.iec.ch/cimprofile"
184 attributeFormDefault="unqualified" elementFormDefault="qualified"
185 targetNamespace="urn:iec62325.351:tc57wg16:451-3:capacitydocument:8:0"
186 xmlns:xs="http://www.w3.org/2001/XMLSchema">
187   <xs:import schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd"
188 namespace="urn:entsoe.eu:wgedi:codelists" />
189   <xs:element name="Capacity_MarketDocument" type="Capacity_MarketDocument" />
190   <xs:simpleType name="ID_String" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
191 schema-cim16#String">
192     <xs:restriction base="xs:string">
193       <xs:maxLength value="35" />
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="cl:MessageTypeList" />
205   </xs:simpleType>
206   <xs:simpleType name="ProcessKind_String"
207 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
208     <xs:restriction base="cl:ProcessTypeList" />
209   </xs:simpleType>
210   <xs:simpleType name="PartyID_String-base"
211 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
212     <xs:restriction base="xs:string">
213       <xs:maxLength value="16" />
214     </xs:restriction>
215   </xs:simpleType>
216   <xs:complexType name="PartyID_String"
217 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
218     <xs:simpleContent>
219       <xs:extension base="PartyID_String-base">
220         <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
221 use="required" />
222       </xs:extension>
223     </xs:simpleContent>
224   </xs:complexType>
225   <xs:simpleType name="MarketRoleKind_String"
226 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
227     <xs:restriction base="cl:RoleTypeList" />
228   </xs:simpleType>
229   <xs:simpleType name="ESMP_DateTime"
230 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
231     <xs:restriction base="xs:dateTime">
232       <xs:pattern value="((( [0-9]{4} ) [ - ] ( 0 [13578] | 1 [02] ) [ - ] ( 0 [1-9] | [12] [0-
233 9] | 3 [01] ) ) | ( [0-9]{4} ) [ - ] ( ( 0 [469] ) | ( 11 ) ) [ - ] ( 0 [1-9] | [12] [0-9] | 30 ) ) T ( ( [01] [0-9] | 2 [0-
234 3] ) : [0-5] [0-9] : [0-5] [0-
235 9] ) Z ) | ( ( [13579] [26] [02468] [048] | [13579] [01345789] ( 0 ) [48] | [13579] [01345789] [2468] [048]
236 | [02468] [048] [02468] [048] | [02468] [1235679] ( 0 ) [48] | [02468] [1235679] [2468] [048] | [0-
237 9] [0-9] [13579] [26] ) [ - ] ( 02 ) [ - ] ( 0 [1-9] | 1 [0-9] | 2 [0-9] ) ) T ( ( [01] [0-9] | 2 [0-3] ) : [0-5] [0-
238 9] : [0-5] [0-
239 9] ) Z ) | ( ( [13579] [26] [02468] [1235679] | [13579] [01345789] ( 0 ) [01235679] | [13579] [01345789] [
240 2468] [1235679] | [02468] [048] [02468] [1235679] | [02468] [1235679] ( 0 ) [01235679] | [02468] [123
241 5679] [2468] [1235679] | [0-9] [0-9] [13579] [01345789] ) [ - ] ( 02 ) [ - ] ( 0 [1-9] | 1 [0-9] | 2 [0-
242 8] ) ) T ( ( [01] [0-9] | 2 [0-3] ) : [0-5] [0-9] : [0-5] [0-9] ) Z " />

```



```

243     </xs:restriction>
244 </xs:simpleType>
245 <xs:simpleType name="AreaID_String-base"
246 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
247   <xs:restriction base="xs:string">
248     <xs:maxLength value="18" />
249   </xs:restriction>
250 </xs:simpleType>
251 <xs:complexType name="AreaID_String"
252 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
253   <xs:simpleContent>
254     <xs:extension base="AreaID_String-base">
255       <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
256 use="required" />
257     </xs:extension>
258   </xs:simpleContent>
259 </xs:complexType>
260 <xs:simpleType name="Status_String"
261 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
262   <xs:restriction base="cl:StatusTypeList" />
263 </xs:simpleType>
264 <xs:complexType name="Action_Status"
265 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status">
266   <xs:sequence>
267     <xs:element minOccurs="1" maxOccurs="1" name="value" type="Status_String"
268 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status.value">
269     </xs:element>
270   </xs:sequence>
271 </xs:complexType>
272 <xs:simpleType name="YMDHM_DateTime"
273 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
274   <xs:restriction base="xs:string">
275     <xs:pattern value="((( [0-9]{4} ) [ \- ] ( 0 [13578] | 1 [02] ) [ \- ] ( 0 [1-9] | [12] [0-
276 9] | 3 [01] ) | ( [0-9]{4} ) [ \- ] ( ( 0 [469] ) | ( 11 ) [ \- ] ( 0 [1-9] | [12] [0-9] | 30 ) ) T ( ( [01] [0-9] | 2 [0-
277 3] ) : [0-5] [0-
278 9] ) Z ) | ( ( [13579] [26] [02468] [048] | [13579] [01345789] ( 0 ) [48] | [13579] [01345789] [2468] [048]
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281 9] ) Z ) | ( ( [13579] [26] [02468] [1235679] | [13579] [01345789] ( 0 ) [01235679] | [13579] [01345789] [
282 2468] [1235679] | [02468] [048] [02468] [1235679] | [02468] [1235679] ( 0 ) [01235679] | [02468] [123
283 5679] [2468] [1235679] | [0-9] [0-9] [13579] [01345789] ) [ \- ] ( 02 ) [ \- ] ( 0 [1-9] | 1 [0-9] | 2 [0-
284 8] ) T ( ( [01] [0-9] | 2 [0-3] ) : [0-5] [0-9] ) Z ) " />
285   </xs:restriction>
286 </xs:simpleType>
287 <xs:complexType name="ESMP_DateTimeInterval"
288 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
289   <xs:sequence>
290     <xs:element minOccurs="1" maxOccurs="1" name="start" type="YMDHM_DateTime"
291 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
292 cim16#DateTimeInterval.start">
293     </xs:element>
294     <xs:element minOccurs="1" maxOccurs="1" name="end" type="YMDHM_DateTime"
295 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
296 cim16#DateTimeInterval.end">
297     </xs:element>
298   </xs:sequence>
299 </xs:complexType>
300 <xs:complexType name="Capacity_MarketDocument"
301 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
302   <xs:sequence>
303     <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
304 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
305 cim16#IdentifiedObject.mRID">
306     </xs:element>
307     <xs:element minOccurs="1" maxOccurs="1" name="revisionNumber"
308 type="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
309 cim16#Document.revisionNumber">
310     </xs:element>

```

```

311     <xs:element minOccurs="1" maxOccurs="1" name="type" type="MessageKind_String"
312 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type">
313     </xs:element>
314     <xs:element minOccurs="1" maxOccurs="1" name="process.processType"
315 type="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
316 cim16#Process.processType">
317     </xs:element>
318     <xs:element minOccurs="1" maxOccurs="1" name="sender_MarketParticipant.mRID"
319 type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
320 cim16#IdentifiedObject.mRID">
321     </xs:element>
322     <xs:element minOccurs="1" maxOccurs="1"
323 name="sender_MarketParticipant.marketRole.type" type="MarketRoleKind_String"
324 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
325     </xs:element>
326     <xs:element minOccurs="1" maxOccurs="1" name="receiver_MarketParticipant.mRID"
327 type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
328 cim16#IdentifiedObject.mRID">
329     </xs:element>
330     <xs:element minOccurs="1" maxOccurs="1"
331 name="receiver_MarketParticipant.marketRole.type" type="MarketRoleKind_String"
332 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
333     </xs:element>
334     <xs:element minOccurs="1" maxOccurs="1" name="createdDateTime"
335 type="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
336 cim16#Document.createdDateTime">
337     </xs:element>
338     <xs:element minOccurs="0" maxOccurs="1" name="docStatus" type="Action_Status"
339 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.docStatus">
340     </xs:element>
341     <xs:element minOccurs="0" maxOccurs="1" name="received_MarketDocument.mRID"
342 type="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
343 cim16#IdentifiedObject.mRID">
344     </xs:element>
345     <xs:element minOccurs="0" maxOccurs="1"
346 name="received_MarketDocument.revisionNumber" type="ESMPVersion_String"
347 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
348 cim16#Document.revisionNumber">
349     </xs:element>
350     <xs:element minOccurs="1" maxOccurs="1" name="period.timeInterval"
351 type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
352 schema-cim16#Period.timeInterval">
353     </xs:element>
354     <xs:element minOccurs="1" maxOccurs="1" name="domain.mRID" type="AreaID_String"
355 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
356 cim16#IdentifiedObject.mRID">
357     </xs:element>
358     <xs:element minOccurs="0" maxOccurs="unbounded" name="TimeSeries"
359 type="TimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
360 cim16#MarketDocument.TimeSeries">
361     </xs:element>
362     <xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason"
363 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
364 cim16#MarketDocument.Reason">
365     </xs:element>
366   </xs:sequence>
367 </xs:complexType>
368 <xs:simpleType name="Position_Integer"
369 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
370   <xs:restriction base="xs:integer">
371     <xs:maxInclusive value="999999" />
372     <xs:minInclusive value="1" />
373   </xs:restriction>
374 </xs:simpleType>
375 <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
376 schema-cim16#Point">
377   <xs:sequence>
378     <xs:element minOccurs="1" maxOccurs="1" name="position" type="Position_Integer"
379 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position">

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380         </xs:element>
381         <xs:element minOccurs="1" maxOccurs="1" name="quantity" type="xs:decimal"
382 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity">
383         </xs:element>
384         <xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason"
385 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.Reason">
386         </xs:element>
387     </xs:sequence>
388 </xs:complexType>
389 <xs:simpleType name="ReasonCode_String"
390 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
391     <xs:restriction base="cl:ReasonCodeTypeList" />
392 </xs:simpleType>
393 <xs:simpleType name="ReasonText_String"
394 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
395     <xs:restriction base="xs:string">
396         <xs:maxLength value="512" />
397     </xs:restriction>
398 </xs:simpleType>
399 <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
400 schema-cim16#Reason">
401     <xs:sequence>
402         <xs:element minOccurs="1" maxOccurs="1" name="code" type="ReasonCode_String"
403 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code">
404         </xs:element>
405         <xs:element minOccurs="0" maxOccurs="1" name="text" type="ReasonText_String"
406 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text">
407         </xs:element>
408     </xs:sequence>
409 </xs:complexType>
410 <xs:complexType name="Series_Period"
411 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
412     <xs:sequence>
413         <xs:element minOccurs="1" maxOccurs="1" name="timeInterval"
414 type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
415 schema-cim16#Period.timeInterval">
416         </xs:element>
417         <xs:element minOccurs="1" maxOccurs="1" name="resolution" type="xs:duration"
418 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution">
419         </xs:element>
420         <xs:element minOccurs="1" maxOccurs="unbounded" name="Point" type="Point"
421 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point">
422         </xs:element>
423     </xs:sequence>
424 </xs:complexType>
425 <xs:simpleType name="BusinessKind_String"
426 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
427     <xs:restriction base="cl:BusinessTypeList" />
428 </xs:simpleType>
429 <xs:simpleType name="EnergyProductKind_String"
430 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
431     <xs:restriction base="cl:EnergyProductTypeList" />
432 </xs:simpleType>
433 <xs:simpleType name="MeasurementUnitKind_String"
434 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
435     <xs:restriction base="cl:UnitOfMeasureTypeList" />
436 </xs:simpleType>
437 <xs:simpleType name="Category_String"
438 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
439     <xs:restriction base="cl:CategoryTypeList" />
440 </xs:simpleType>
441 <xs:simpleType name="CurveType_String"
442 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
443     <xs:restriction base="cl:CurveTypeList" />
444 </xs:simpleType>
445 <xs:simpleType name="ResourceID_String-base"
446 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
447     <xs:restriction base="xs:string">
448         <xs:maxLength value="60" />

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449     </xs:restriction>
450 </xs:simpleType>
451 <xs:complexType name="ResourceID_String"
452 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
453 <xs:simpleContent>
454 <xs:extension base="ResourceID_String-base">
455 <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
456 use="required" />
457 </xs:extension>
458 </xs:simpleContent>
459 </xs:complexType>
460 <xs:complexType name="TimeSeries"
461 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
462 <xs:sequence>
463 <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
464 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
465 cim16#IdentifiedObject.mRID">
466 </xs:element>
467 <xs:element minOccurs="1" maxOccurs="1" name="businessType"
468 type="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
469 cim16#TimeSeries.businessType">
470 </xs:element>
471 <xs:element minOccurs="1" maxOccurs="1" name="product"
472 type="EnergyProductKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
473 schema-cim16#TimeSeries.product">
474 </xs:element>
475 <xs:element minOccurs="1" maxOccurs="1" name="in_Domain.mRID"
476 type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
477 cim16#IdentifiedObject.mRID">
478 </xs:element>
479 <xs:element minOccurs="1" maxOccurs="1" name="out_Domain.mRID"
480 type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
481 cim16#IdentifiedObject.mRID">
482 </xs:element>
483 <xs:element minOccurs="1" maxOccurs="1" name="measure_Unit.name"
484 type="MeasurementUnitKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
485 schema-cim16#Unit.name">
486 </xs:element>
487 <xs:element minOccurs="0" maxOccurs="1" name="auction.mRID" type="ID_String"
488 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
489 cim16#IdentifiedObject.mRID">
490 </xs:element>
491 <xs:element minOccurs="0" maxOccurs="1" name="auction.category"
492 type="Category_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
493 cim16#Auction.category">
494 </xs:element>
495 <xs:element minOccurs="0" maxOccurs="1" name="curveType"
496 type="CurveType_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
497 cim16#TimeSeries.curveType">
498 </xs:element>
499 <xs:element minOccurs="0" maxOccurs="1"
500 name="connectingLine_RegisteredResource.mRID" type="ResourceID_String"
501 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
502 cim16#IdentifiedObject.mRID">
503 </xs:element>
504 <xs:element minOccurs="1" maxOccurs="unbounded" name="Period"
505 type="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
506 cim16#TimeSeries.Period">
507 </xs:element>
508 <xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason"
509 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.Reason">
510 </xs:element>
511 </xs:sequence>
512 </xs:complexType>
513 </xs:schema>

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