



European Network of
Transmission System Operators
for Electricity

**PLANNED RESOURCE SCHEDULE
DOCUMENT
UML MODEL AND SCHEMA**

2019-02-12
APPROVED DOCUMENT
VERSION 1.0

2

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50		

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68

Revision History

Version	Release	Date	Comments
0	1	2019-01-14	First draft of the document.
1	0	2019-02-12	Approved by MC.

69

70 1 Objective

71 The purpose of this document is to provide the contextual and assembly UML models and the
72 schema of the PlannedResourceSchedule_MarketDocument.

73 The schema of the PlannedResourceSchedule_MarketDocument could be used in various
74 business processes.

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

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

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

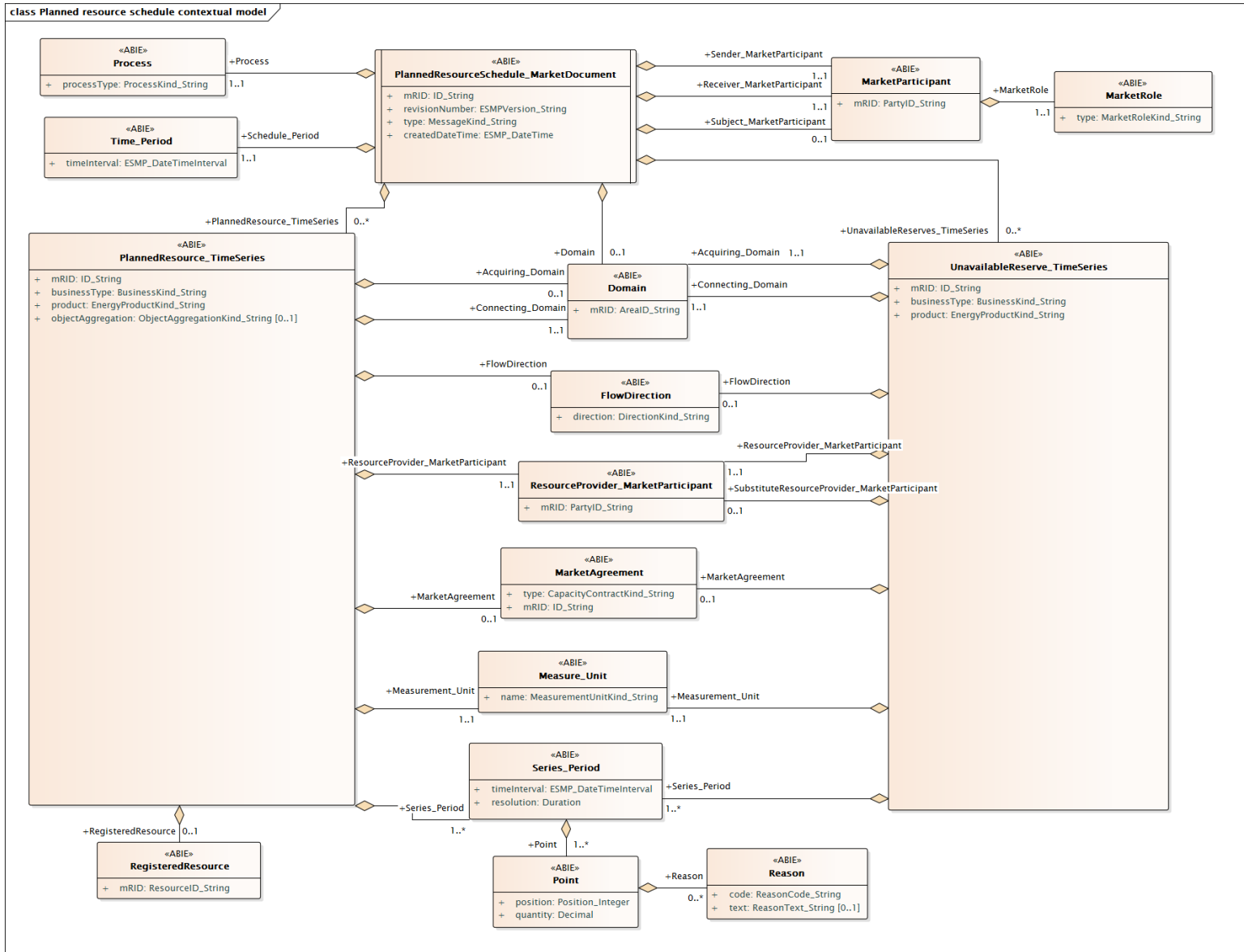
87

88 **2 PlannedResourceSchedule_MarketDocument**

89 **2.1 Planned resource schedule contextual model**

90 **2.1.1 Overview of the model**

91 Figure 1 shows the model.



92

93

Figure 1 - Planned resource schedule contextual model

94

95

96 **2.1.2 IsBasedOn relationships from the European style market profile**

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

99

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Domain	TC57CIM::IEC62325::MarketManagement::Domain
FlowDirection	TC57CIM::IEC62325::MarketManagement::FlowDirection
MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
PlannedResource_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
PlannedResourceSchedule_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
Reason	TC57CIM::IEC62325::MarketManagement::Reason
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
ResourceProvider_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
UnavailableReserve_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

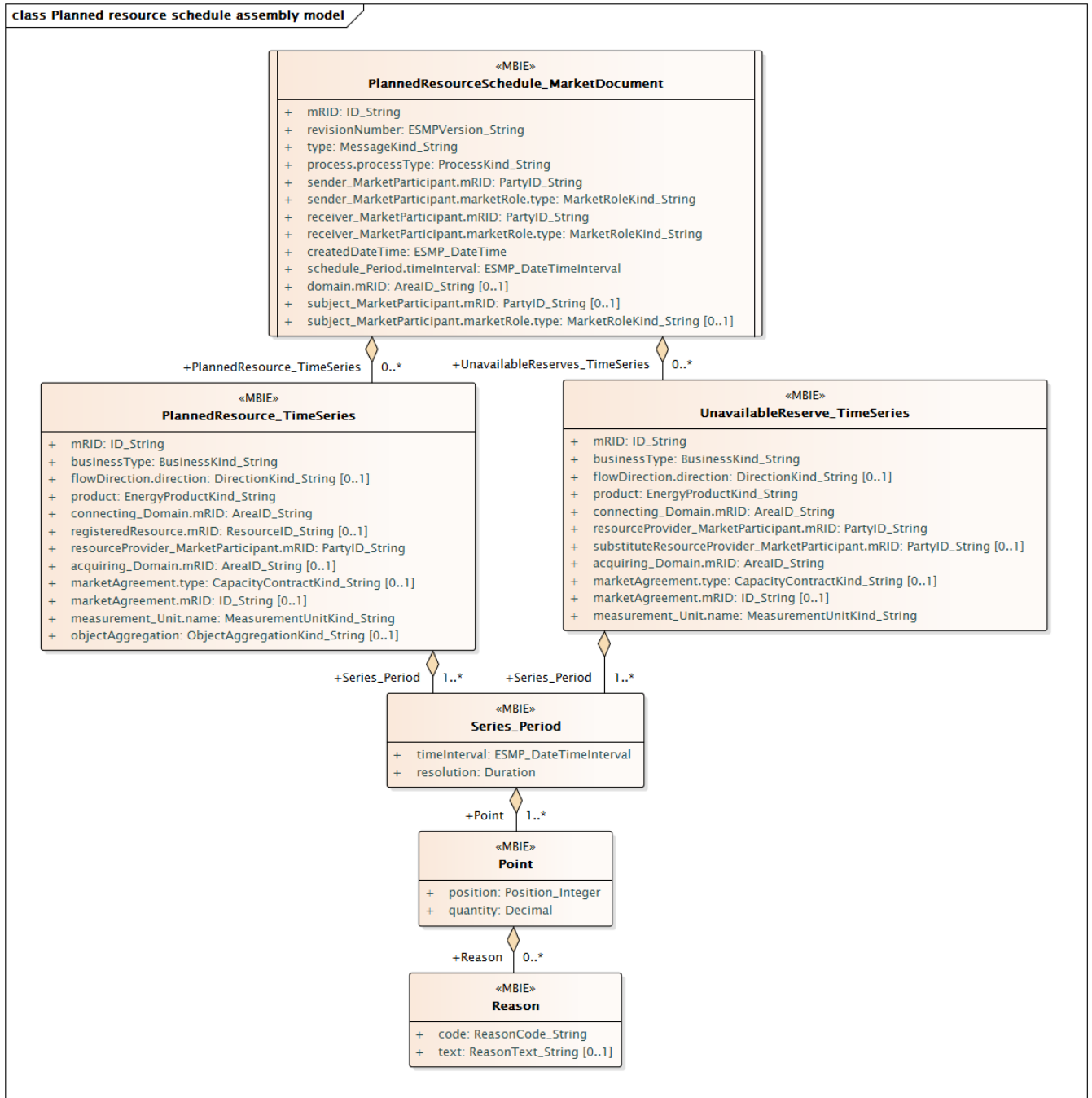
100

101

102 2.2 **Planned resource schedule assembly model**

103 **2.2.1 Overview of the model**

104 Figure 2 shows the model.



105

106

Figure 2 - Planned resource schedule assembly model

107

108

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

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

112

Table 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
PlannedResource_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
PlannedResourceSchedule_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
UnavailableReserve_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

113

114 **2.2.3 Detailed Planned resource schedule assembly model**

115 **2.2.3.1 PlannedResourceSchedule_MarketDocument root class**

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

118 Table 3 shows all attributes of PlannedResourceSchedule_MarketDocument.

119

**Table 3 - Attributes of Planned resource schedule assembly
model::PlannedResourceSchedule_MarketDocument**

120

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. --- The process dealt with in the document.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document owner.
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document owner. --- The role associated with a MarketParticipant.
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document recipient.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document recipient. --- The role associated with a MarketParticipant.
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	schedule_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval.

Order	mult.	Attribute name / Attribute type	Description
10	[0..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The Domain associated with an electronic document header.
11	[0..1]	subject_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The party that is the subject of the documents time series.
12	[0..1]	subject_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The party that is the subject of the documents time series. --- The role associated with a MarketParticipant.

121

122 Table 4 shows all association ends of PlannedResourceSchedule_MarketDocument with other
123 classes.

124 **Table 4 - Association ends of Planned resource schedule assembly**
125 **model::PlannedResourceSchedule_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
13	[0..*]	PlannedResource_TimeSeries PlannedResource_TimeSeries	The planned resource schedule time series. MXM to be detailed. Association Based On: Planned resource schedule contextual model::PlannedResourceSchedule_MarketDocument.[] ----- Planned resource schedule contextual model::PlannedResource_TimeSeries.PlannedResource_TimeSeries[0..*]
14	[0..*]	UnavailableReserve_TimeSeries UnavailableReserves_TimeSeries	The time series that is associated with an electronic document. mxm TO BE DETAILED Association Based On: Planned resource schedule contextual model::PlannedResourceSchedule_MarketDocument.[] ----- Planned resource schedule contextual model::UnavailableReserve_TimeSeries.UnavailableReserves_TimeSeries[0..*]

126

127 2.2.3.2 PlannedResource_TimeSeries

128 A set of time-ordered quantities being exchanged in relation to a product. MXM TO BE
129 COMPLETED

130 Table 5 shows all attributes of PlannedResource_TimeSeries.

131 **Table 5 - Attributes of Planned resource schedule assembly**
132 **model::PlannedResource_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	[0..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow. --- The flow direction associated with a TimeSeries.
3	[1..1]	product EnergyProductKind_String	The identification of the nature of an energy product such as power, energy, reactive power, etc.

Order	mult.	Attribute name / Attribute type	Description
4	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
5	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource.
6	[1..1]	resourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries.
7	[0..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
8	[0..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract. --- The identification of an agreement associated with a TimeSeries.
9	[0..1]	marketAgreement.mRID ID_String	The unique identification of the agreement. --- The identification of an agreement associated with a TimeSeries.
10	[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 associated with the quantities in a TimeSeries.
11	[0..1]	objectAggregation ObjectAggregationKind_String	The identification of the domain that is the common denominator used to aggregate a time series.

133

134 Table 6 shows all association ends of PlannedResource_TimeSeries with other classes.

135 **Table 6 - Association ends of Planned resource schedule assembly**
136 **model::PlannedResource_TimeSeries with other classes**

Order	mult.	Class name / Role	Description
12	[1..*]	Series_Period Series_Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Planned resource schedule contextual model::UnavailableReserve_TimeSeries.[] ----- Planned resource schedule contextual model::Series_Period.Series_Period[1..*]

137

138 2.2.3.3 Point

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

140 Table 7 shows all attributes of Point.

141 **Table 7 - Attributes of Planned resource schedule 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.

142

143 Table 8 shows all association ends of Point with other classes.

144 **Table 8 - Association ends of Planned resource schedule assembly model::Point with**
145 **other classes**

Order	mult.	Class name / Role	Description
4	[0..*]	Reason Reason	The Reason information associated with a Point providing motivation information. Association Based On: Planned resource schedule contextual model::Point.[] ----- Planned resource schedule contextual model::Reason.Reason[0..*]

146

147 **2.2.3.4 Reason**

148 The motivation of an act.

149 Table 9 shows all attributes of Reason.

150 **Table 9 - Attributes of Planned resource schedule 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.

151

152 **2.2.3.5 Series_Period**

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

154 Table 10 shows all attributes of Series_Period.

155 **Table 10 - Attributes of Planned resource schedule 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.

156

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

158 **Table 11 - Association ends of Planned resource schedule assembly**
159 **model::Series_Period with other classes**

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	The Point information associated with a given Series_Period.within a TimeSeries. Association Based On: Planned resource schedule contextual model::Series_Period.[] ----- Planned resource schedule contextual model::Point.Point[1..*]

160

161 **2.2.3.6 UnavailableReserve_TimeSeries**

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

163 Table 12 shows all attributes of UnavailableReserve_TimeSeries.

164 **Table 12 - Attributes of Planned resource schedule assembly**
165 **model::UnavailableReserve_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	[0..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow. --- The flow direction associated with a TimeSeries.
3	[1..1]	product EnergyProductKind_String	The identification of the nature of an energy product such as power, energy, reactive power, etc.
4	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
5	[1..1]	resourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries.
6	[0..1]	substituteResourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries.
7	[1..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
8	[0..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract. --- The identification of an agreement associated with a TimeSeries.
9	[0..1]	marketAgreement.mRID ID_String	The unique identification of the agreement. --- The identification of an agreement associated with a TimeSeries.
10	[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 associated with the quantities in a TimeSeries.

166

167 Table 13 shows all association ends of UnavailableReserve_TimeSeries with other classes.

168 **Table 13 - Association ends of Planned resource schedule assembly**
169 **model::UnavailableReserve_TimeSeries with other classes**

Order	mult.	Class name / Role	Description
11	[1..*]	Series_Period Series_Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Planned resource schedule contextual model::UnavailableReserve_TimeSeries.[] ----- Planned resource schedule contextual model::Series_Period.Series_Period[1..*]

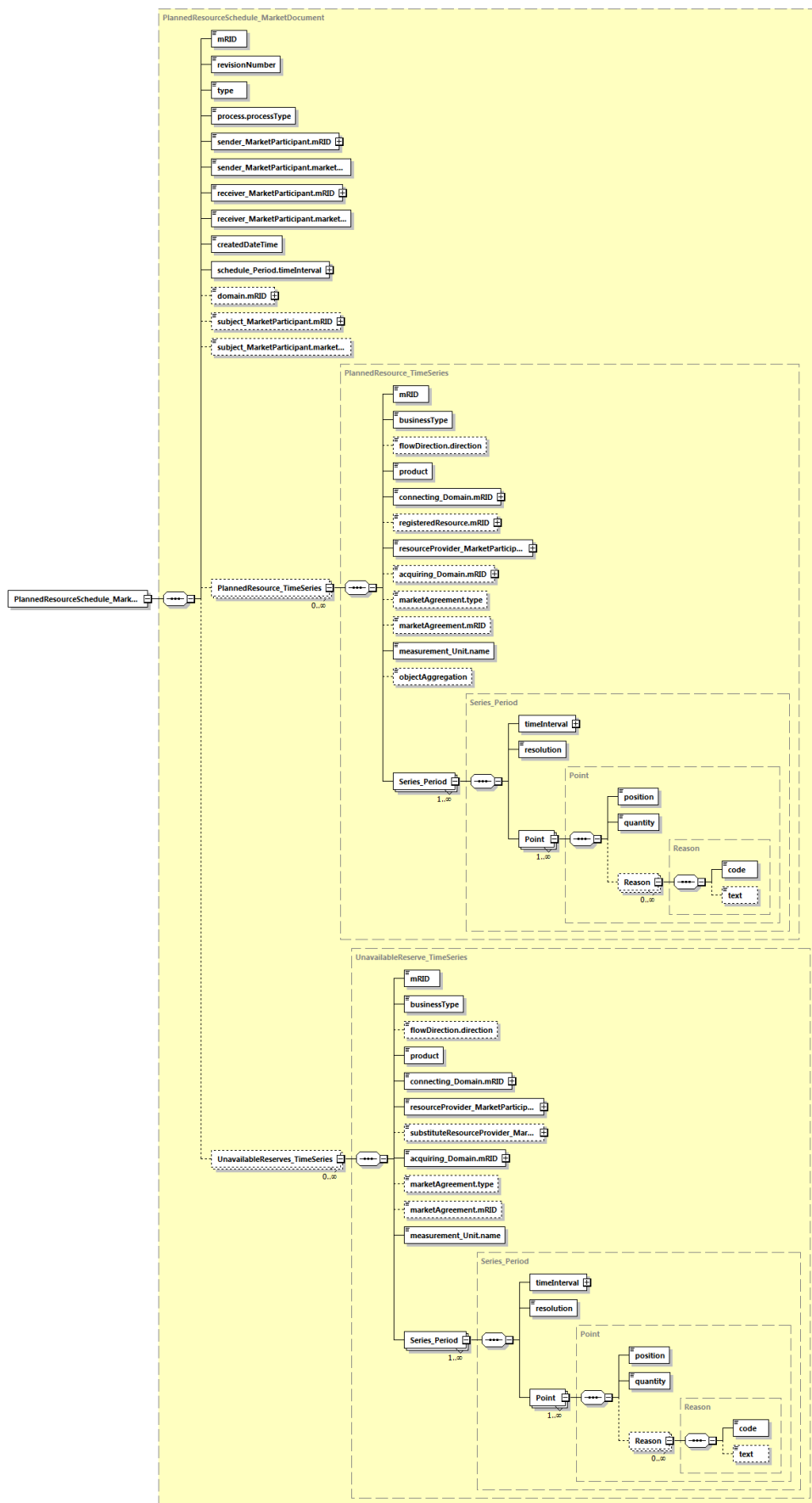
170

171 2.2.4 Datatypes

172 The list of datatypes used for the Planned resource schedule assembly model is as follows:

- 173 • ESMP_DateTimeInterval compound
- 174 • AreaID_String datatype, codelist CodingSchemeTypeList
- 175 • BusinessKind_String datatype, codelist BusinessTypeList
- 176 • CapacityContractKind_String datatype, codelist ContractTypeList
- 177 • DirectionKind_String datatype, codelist DirectionTypeList
- 178 • EnergyProductKind_String datatype, codelist EnergyProductTypeList
- 179 • ESMP_DateTime datatype
- 180 • ESMPVersion_String datatype
- 181 • ID_String datatype
- 182 • MarketRoleKind_String datatype, codelist RoleTypeList
- 183 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 184 • MessageKind_String datatype, codelist MessageTypeList
- 185 • ObjectAggregationKind_String datatype, codelist ObjectAggregationTypeList
- 186 • PartyID_String datatype, codelist CodingSchemeTypeList
- 187 • Position_Integer datatype
- 188 • ProcessKind_String datatype, codelist ProcessTypeList
- 189 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 190 • ReasonText_String datatype
- 191 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 192 • YMDHM_DateTime datatype
- 193

194 2.2.5 PlannedResourceSchedule_MarketDocument XML schema structure



195
 196

Figure 3 - PlannedResourceSchedule_MarketDocument schema structure

197 2.2.6 PlannedResourceSchedule_MarketDocument XML schema

198

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

200 urn:iec62325.351:tc57wg16:451-7:plannedresourcescheduledocument:6:0

```
201 <?xml version="1.0" encoding="utf-8"?>
202 <xs:schema xmlns:cl="urn:entsoe.eu:wgedi:codelists" xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
203 xmlns="urn:iec62325.351:tc57wg16:451-7:plannedresourcescheduledocument:6:0"
204 xmlns:cimp="http://www.iec.ch/cimprofile" xmlns:xs="http://www.w3.org/2001/XMLSchema"
205 targetNamespace="urn:iec62325.351:tc57wg16:451-7:plannedresourcescheduledocument:6:0"
206 elementFormDefault="qualified" attributeFormDefault="unqualified">
207   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-
208 codelists.xsd"/>
209   <xs:element name="PlannedResourceSchedule_MarketDocument"
210 type="PlannedResourceSchedule_MarketDocument"/>
211   <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
212 cim16#String">
213     <xs:restriction base="xs:string">
214       <xs:maxLength value="35"/>
215     </xs:restriction>
216   </xs:simpleType>
217   <xs:simpleType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
218 schema-cim16#String">
219     <xs:restriction base="cl:BusinessTypeList"/>
220   </xs:simpleType>
221   <xs:simpleType name="DirectionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
222 schema-cim16#String">
223     <xs:restriction base="cl:DirectionTypeList"/>
224   </xs:simpleType>
225   <xs:simpleType name="EnergyProductKind_String"
226 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
227     <xs:restriction base="cl:EnergyProductTypeList"/>
228   </xs:simpleType>
229   <xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
230 schema-cim16#String">
231     <xs:restriction base="xs:string">
232       <xs:maxLength value="18"/>
233     </xs:restriction>
234   </xs:simpleType>
235   <xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
236 cim16#String">
237     <xs:simpleContent>
238       <xs:extension base="AreaID_String-base">
239         <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
240 use="required"/>
241       </xs:extension>
242     </xs:simpleContent>
243   </xs:complexType>
244   <xs:simpleType name="ResourceID_String-base"
245 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
246     <xs:restriction base="xs:string">
247       <xs:maxLength value="18"/>
248     </xs:restriction>
249   </xs:simpleType>
250   <xs:complexType name="ResourceID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
251 schema-cim16#String">
252     <xs:simpleContent>
253       <xs:extension base="ResourceID_String-base">
254         <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
255 use="required"/>
256       </xs:extension>
257     </xs:simpleContent>
258   </xs:complexType>
259   <xs:simpleType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
260 schema-cim16#String">
261     <xs:restriction base="xs:string">
262       <xs:maxLength value="16"/>
263     </xs:restriction>
264   </xs:simpleType>
265   <xs:complexType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
266 schema-cim16#String">
267     <xs:simpleContent>
```

```

268         <xs:extension base="PartyID_String-base">
269             <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
use="required"/>
270         </xs:extension>
271     </xs:simpleContent>
272 </xs:complexType>
273 <xs:simpleType name="CapacityContractKind_String"
sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
274     <xs:restriction base="cl:ContractTypeList"/>
275 </xs:simpleType>
276 <xs:simpleType name="MeasurementUnitKind_String"
sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
277     <xs:restriction base="cl:UnitOfMeasureTypeList"/>
278 </xs:simpleType>
279 <xs:simpleType name="ObjectAggregationKind_String"
sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
280     <xs:restriction base="cl:ObjectAggregationTypeList"/>
281 </xs:simpleType>
282 <xs:simpleType name="ObjectAggregationKind_String"
sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
283     <xs:restriction base="cl:ObjectAggregationTypeList"/>
284 </xs:simpleType>
285 <xs:complexType name="PlannedResource_TimeSeries"
sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
286     <xs:sequence>
287         <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
288         <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
289 cim16#TimeSeries.businessType"/>
290         <xs:element name="flowDirection.direction" type="DirectionKind_String"
minOccurs="0" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
291 cim16#FlowDirection.direction"/>
292         <xs:element name="product" type="EnergyProductKind_String" minOccurs="1"
maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.product"/>
293         <xs:element name="connecting_Domain.mRID" type="AreaID_String" minOccurs="1"
maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
294         <xs:element name="registeredResource.mRID" type="ResourceID_String"
minOccurs="0" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
295 cim16#IdentifiedObject.mRID"/>
296         <xs:element name="resourceProvider_MarketParticipant.mRID"
type="PartyID_String" minOccurs="1" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
297 schema-cim16#IdentifiedObject.mRID"/>
298         <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="0"
maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
299         <xs:element name="marketAgreement.type" type="CapacityContractKind_String"
minOccurs="0" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
300 cim16#Document.type"/>
301         <xs:element name="marketAgreement.mRID" type="ID_String" minOccurs="0"
maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
302         <xs:element name="measurement_Unit.name" type="MeasurementUnitKind_String"
minOccurs="1" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
303 cim16#Unit.name"/>
304         <xs:element name="objectAggregation" type="ObjectAggregationKind_String"
minOccurs="0" maxOccurs="1" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
305 cim16#TimeSeries.objectAggregation"/>
306         <xs:element name="Series_Period" type="Series_Period" minOccurs="1"
maxOccurs="unbounded" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
307 cim16#TimeSeries.Series_Period"/>
308     </xs:sequence>
309 </xs:complexType>
310 <xs:simpleType name="ESMPVersion_String" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
311 schema-cim16#String">
312     <xs:restriction base="xs:string">
313         <xs:pattern value="[1-9]{0,2}"/>
314     </xs:restriction>
315 </xs:simpleType>
316 <xs:simpleType name="MessageKind_String" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
317 schema-cim16#String">
318     <xs:restriction base="cl:MessageTypeList"/>
319 </xs:simpleType>
320 <xs:simpleType name="ProcessKind_String" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
321 schema-cim16#String">
322     <xs:restriction base="cl:ProcessTypeList"/>
323 </xs:simpleType>
324 <xs:simpleType name="MarketRoleKind_String" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
325 schema-cim16#String">
326     <xs:restriction base="cl:RoleTypeList"/>
327 </xs:simpleType>

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343         <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
344         cim16#DateTime">
345             <xs:restriction base="xs:dateTime">
346                 <xs:pattern value="((([0-9]{4})[-](0[13578]|1[02])[-](0[1-9]|[12][0-
347         9]|[3][01])|([0-9]{4})[-]((0[469])|(11))[-](0[1-9]|[12][0-9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-
348         5][0-
349         9])Z)|((([13579][26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][048]|02468][048][0246
350         8][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[-](02)[-](0[1-
351         9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
352         9])Z)|((([13579][26][02468][1235679]|13579][01345789](0)[01235679]|13579][01345789][2468][1235679]|02
353         468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
354         9][13579][01345789])[-](02)[-](0[1-9]|1[0-9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
355             </xs:restriction>
356         </xs:simpleType>
357         <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
358         cim16#DateTime">
359             <xs:restriction base="xs:string">
360                 <xs:pattern value="((([0-9]{4})[-](0[13578]|1[02])[-](0[1-9]|[12][0-
361         9]|[3][01])|([0-9]{4})[-]((0[469])|(11))[-](0[1-9]|[12][0-9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
362         9])Z)|((([13579][26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][048]|02468][048][0246
363         8][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[-](02)[-](0[1-
364         9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-5][0-
365         9])Z)|((([13579][26][02468][1235679]|13579][01345789](0)[01235679]|13579][01345789][2468][1235679]|02
366         468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
367         9][13579][01345789])[-](02)[-](0[1-9]|1[0-9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
368             </xs:restriction>
369         </xs:simpleType>
370         <xs:complexType name="ESMP_DateTimeInterval">
371             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
372                 <xs:sequence>
373                     <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
374             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start"/>
375                     <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
376             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end"/>
377                 </xs:sequence>
378             </xs:complexType>
379         <xs:complexType name="PlannedResourceSchedule_MarketDocument">
380             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
381                 <xs:sequence>
382                     <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
383             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
384                     <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1"
385             maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
386             cim16#Document.revisionNumber"/>
387                     <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1"
388             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
389                     <xs:element name="process.processType" type="ProcessKind_String" minOccurs="1"
390             maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Process.processType"/>
391                     <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String"
392             minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
393             cim16#IdentifiedObject.mRID"/>
394                     <xs:element name="sender_MarketParticipant.marketRole.type"
395             type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
396             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
397                     <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String"
398             minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
399             cim16#IdentifiedObject.mRID"/>
400                     <xs:element name="receiver_MarketParticipant.marketRole.type"
401             type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
402             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
403                     <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1"
404             maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
405             cim16#Document.createdDateTime"/>
406                     <xs:element name="schedule_Period.timeInterval" type="ESMP_DateTimeInterval"
407             minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
408             cim16#Period.timeInterval"/>
409                     <xs:element name="domain.mRID" type="AreaID_String" minOccurs="0"
410             maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
411                     <xs:element name="subject_MarketParticipant.mRID" type="PartyID_String"
412             minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
413             cim16#IdentifiedObject.mRID"/>
414                     <xs:element name="subject_MarketParticipant.marketRole.type"
415             type="MarketRoleKind_String" minOccurs="0" maxOccurs="1"
416             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>

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417         <xs:element name="PlannedResource_TimeSeries"
418 type="PlannedResource_TimeSeries" minOccurs="0" maxOccurs="unbounded"
419 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
420 cim16#MarketDocument.PlannedResource_TimeSeries"/>
421         <xs:element name="UnavailableReserves_TimeSeries"
422 type="UnavailableReserve_TimeSeries" minOccurs="0" maxOccurs="unbounded"
423 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
424 cim16#MarketDocument.UnavailableReserves_TimeSeries"/>
425     </xs:sequence>
426 </xs:complexType>
427 <xs:simpleType name="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
428 schema-cim16#Integer">
429     <xs:restriction base="xs:integer">
430         <xs:maxInclusive value="999999"/>
431         <xs:minInclusive value="1"/>
432     </xs:restriction>
433 </xs:simpleType>
434 <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
435 cim16#Point">
436     <xs:sequence>
437         <xs:element name="position" type="Position_Integer" minOccurs="1"
438 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
439         <xs:element name="quantity" type="xs:decimal" minOccurs="1" maxOccurs="1"
440 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
441         <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
442 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.Reason"/>
443     </xs:sequence>
444 </xs:complexType>
445 <xs:simpleType name="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
446 schema-cim16#String">
447     <xs:restriction base="cl:ReasonCodeTypeList"/>
448 </xs:simpleType>
449 <xs:simpleType name="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
450 schema-cim16#String">
451     <xs:restriction base="xs:string">
452         <xs:maxLength value="512"/>
453     </xs:restriction>
454 </xs:simpleType>
455 <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
456 cim16#Reason">
457     <xs:sequence>
458         <xs:element name="code" type="ReasonCode_String" minOccurs="1" maxOccurs="1"
459 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
460         <xs:element name="text" type="ReasonText_String" minOccurs="0" maxOccurs="1"
461 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
462     </xs:sequence>
463 </xs:complexType>
464 <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
465 cim16#Period">
466     <xs:sequence>
467         <xs:element name="timeInterval" type="ESMP_DateTimeInterval" minOccurs="1"
468 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
469         <xs:element name="resolution" type="xs:duration" minOccurs="1" maxOccurs="1"
470 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution"/>
471         <xs:element name="Point" type="Point" minOccurs="1" maxOccurs="unbounded"
472 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
473     </xs:sequence>
474 </xs:complexType>
475 <xs:complexType name="UnavailableReserve_TimeSeries"
476 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
477     <xs:sequence>
478         <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
479 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
480         <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
481 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
482 cim16#TimeSeries.businessType"/>
483         <xs:element name="flowDirection.direction" type="DirectionKind_String"
484 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
485 cim16#FlowDirection.direction"/>
486         <xs:element name="product" type="EnergyProductKind_String" minOccurs="1"
487 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.product"/>
488         <xs:element name="connecting_Domain.mRID" type="AreaID_String" minOccurs="1"
489 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>

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490         <xs:element name="resourceProvider_MarketParticipant.mRID"  
491 type="PartyID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
492 schema-cim16#IdentifiedObject.mRID"/>  
493         <xs:element name="substituteResourceProvider_MarketParticipant.mRID"  
494 type="PartyID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
495 schema-cim16#IdentifiedObject.mRID"/>  
496         <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="1"  
497 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>  
498         <xs:element name="marketAgreement.type" type="CapacityContractKind_String"  
499 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
500 cim16#Document.type"/>  
501         <xs:element name="marketAgreement.mRID" type="ID_String" minOccurs="0"  
502 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>  
503         <xs:element name="measurement_Unit.name" type="MeasurementUnitKind_String"  
504 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
505 cim16#Unit.name"/>  
506         <xs:element name="Series_Period" type="Series_Period" minOccurs="1"  
507 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
508 cim16#TimeSeries.Series_Period"/>  
509     </xs:sequence>  
510 </xs:complexType>  
511 </xs:schema>
```