



European Network of  
Transmission System Operators  
for Electricity

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

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2021-09-15  
APPROVED DOCUMENT  
VERSION 1.2

2

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## Revision History

Version	Release	Date	Comments
0	1	2019-01-14	First draft of the document.
1	0	2019-02-12	Approved by MC.
1	1	2020-11-04	Updates in Planed Resource Schedule Document version 6.1: • A reason class is linked to Timeseries with 0..* cardinality • A MktPSRType class is linked to Timeseries with 0..1 cardinality. Approved by MC.
1	2	2021-09-15	Updates in planned resource schedule document XSD v6.2: An optional curveType attribute was added to Timeseries class.  Approved by MC.

69

70 **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.

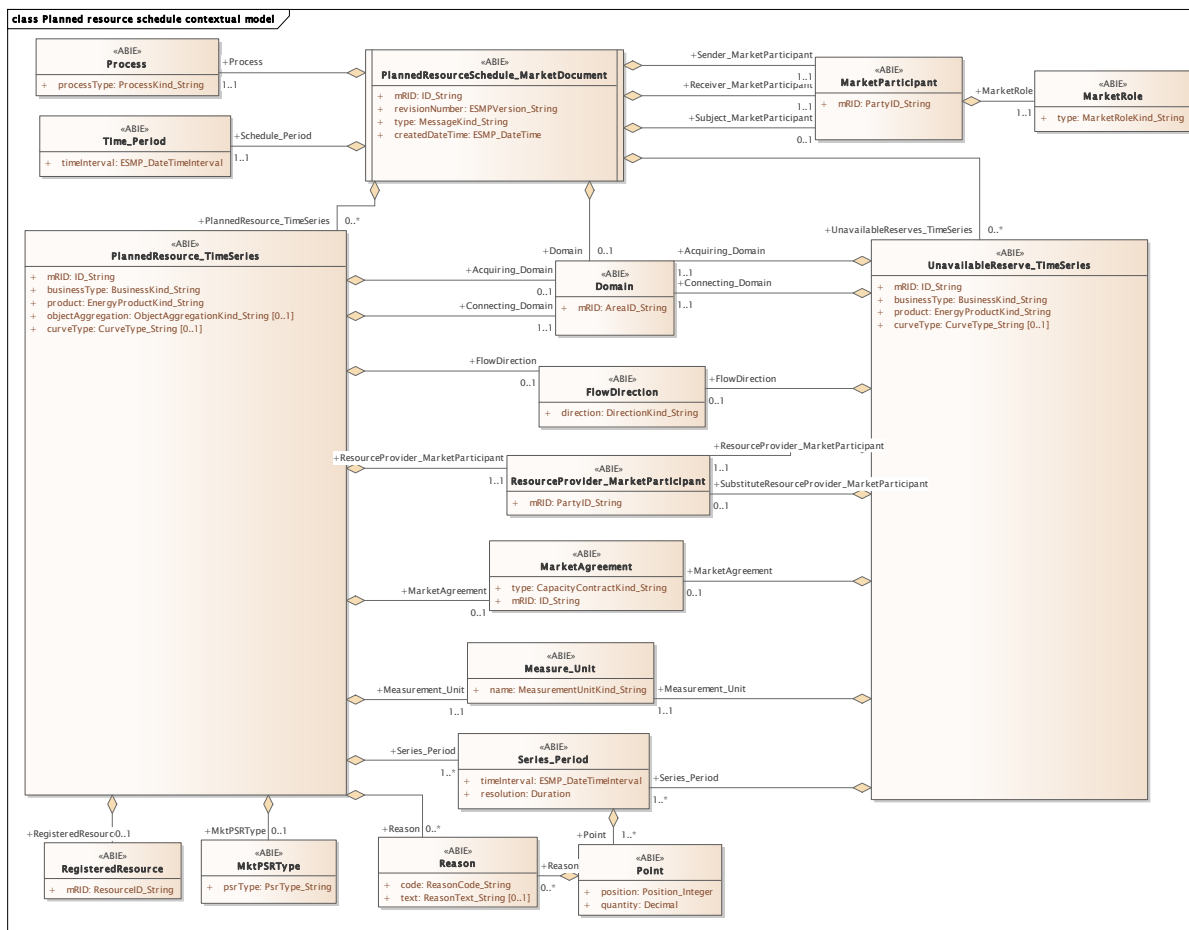
87

88 **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
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
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

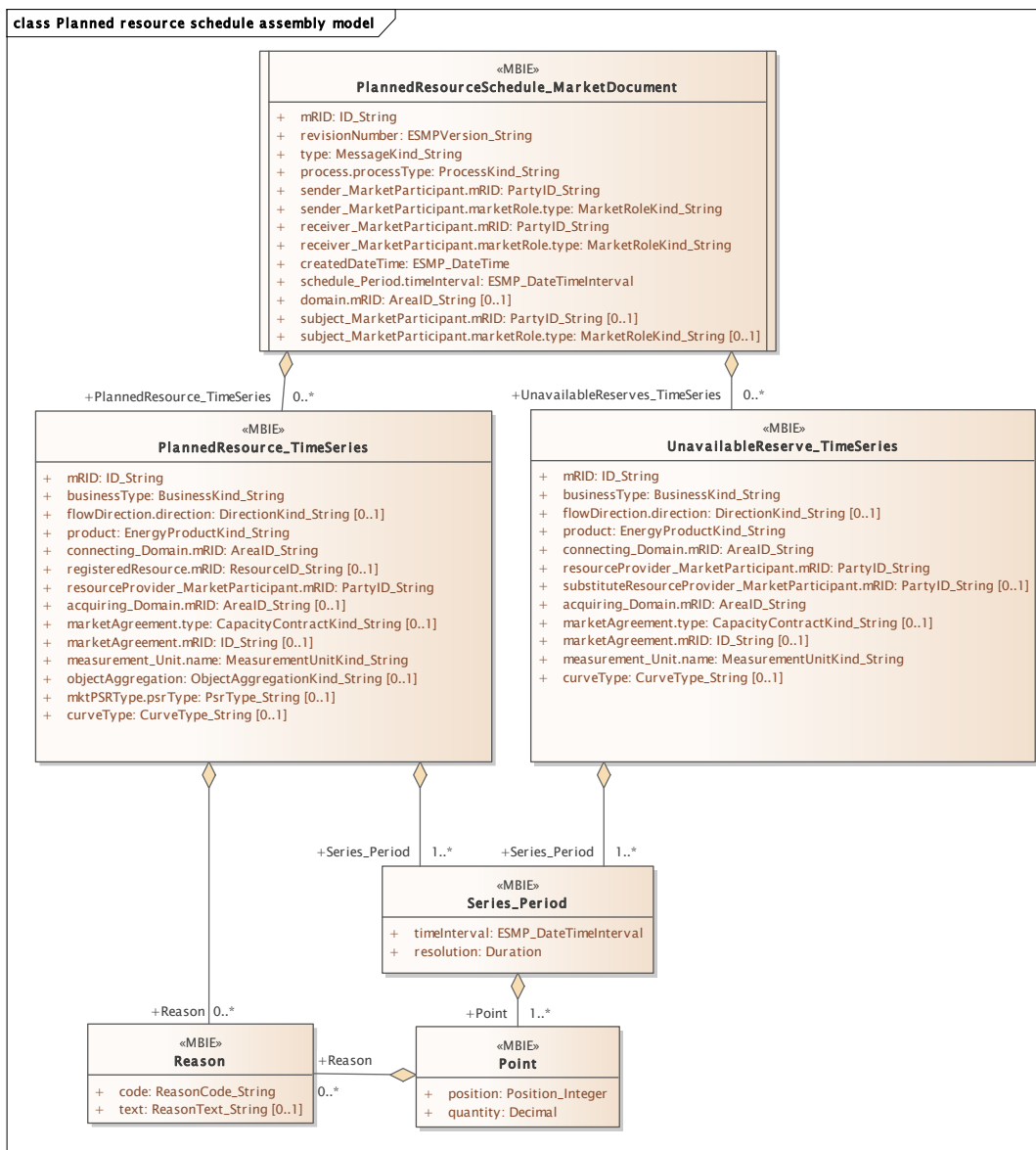


102

103 2.2 Planned resource schedule assembly model

104 2.2.1 Overview of the model

105 Figure 2 shows the model.



106

107

Figure 2 - Planned resource schedule assembly model

108

109

110 **2.2.2 IsBasedOn relationships from the European style market profile**

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

113 **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

114

115 **2.2.3 Detailed Planned resource schedule assembly model**

116 **2.2.3.1 PlannedResourceSchedule\_MarketDocument root class**

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

119 Table 3 shows all attributes of PlannedResourceSchedule\_MarketDocument.

120 **Table 3 - Attributes of Planned resource schedule assembly  
121 model::PlannedResourceSchedule\_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. --- 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.

122

123 Table 4 shows all association ends of PlannedResourceSchedule\_MarketDocument with other  
124 classes.

125 **Table 4 - Association ends of Planned resource schedule assembly**  
126 **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..*]

127

### 128 2.2.3.2 PlannedResource\_TimeSeries

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

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. --- The identification of a resource associated with a TimeSeries.
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.
12	[0..1]	mktPSRType.psrType PsrType_String	The coded type of a power system resource. --- The identification of the type of resource associated with a TimeSeries.
13	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

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
14	[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::PlannedResource_TimeSeries.[] ----- Planned resource schedule contextual model::Series_Period.Series_Period[1..*]
15	[0..*]	Reason Reason	The reason information associated with a TimeSeries providing motivation information. Association Based On: Planned resource schedule contextual model::Reason.Reason[0..*] ----- Planned resource schedule contextual model::PlannedResource_TimeSeries.[]

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  
159

**Table 11 - Association ends of Planned resource schedule assembly  
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.
11	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

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
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..*]

170

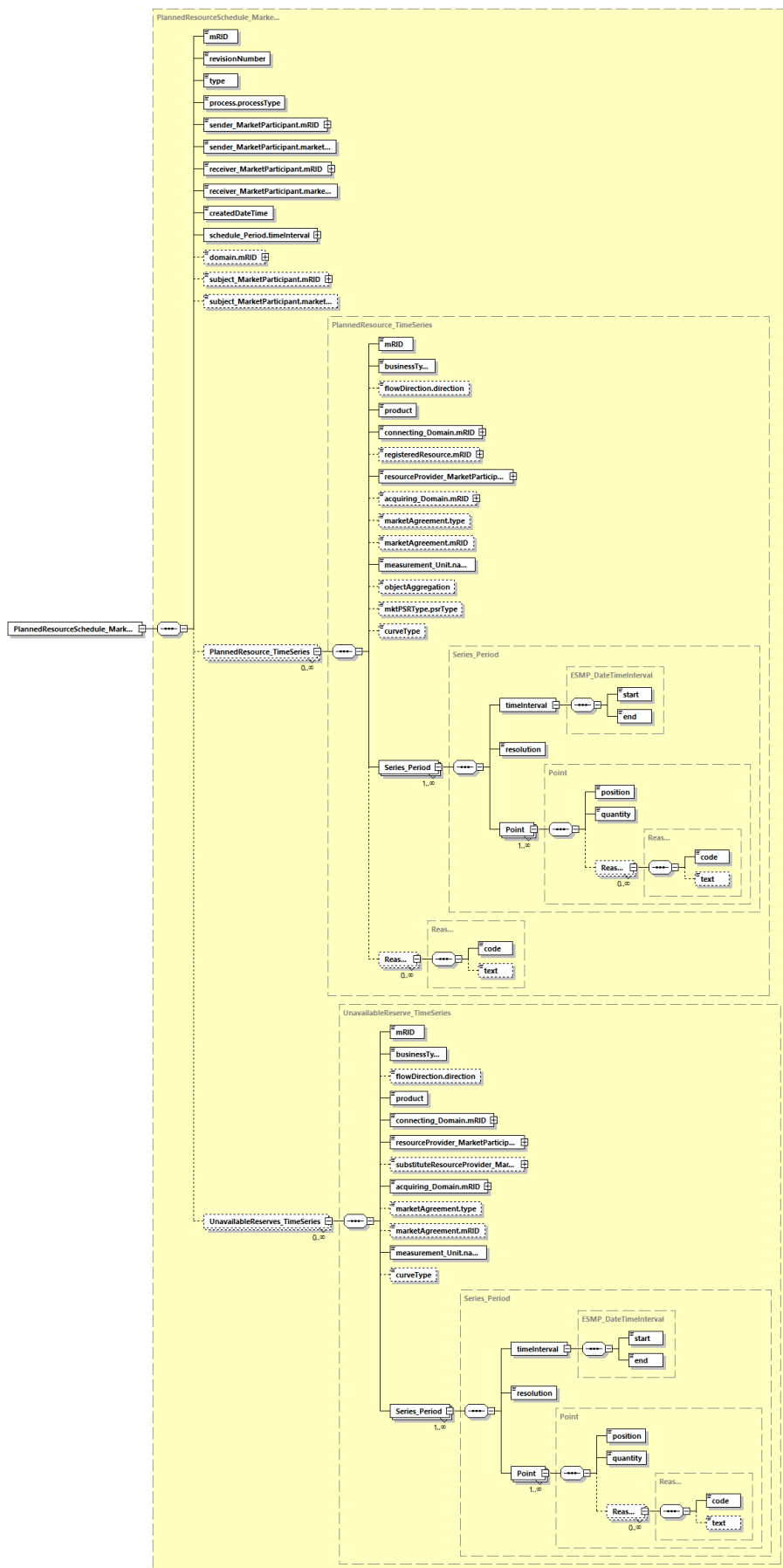
#### 171 2.2.4 Datatypes

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 • CurveType\_String datatype, codelist CurveTypeList
- 178 • DirectionKind\_String datatype, codelist DirectionTypeList
- 179 • EnergyProductKind\_String datatype, codelist EnergyProductTypeList
- 180 • ESMP\_DateTime datatype
- 181 • ESMPVersion\_String datatype
- 182 • ID\_String datatype
- 183 • MarketRoleKind\_String datatype, codelist RoleTypeList
- 184 • MeasurementUnitKind\_String datatype, codelist UnitOfMeasureTypeList
- 185 • MessageKind\_String datatype, codelist MessageTypeList
- 186 • ObjectAggregationKind\_String datatype, codelist ObjectAggregationTypeList
- 187 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 188 • Position\_Integer datatype
- 189 • ProcessKind\_String datatype, codelist ProcessTypeList
- 190 • PsrType\_String datatype, codelist AssetTypeList
- 191 • ReasonCode\_String datatype, codelist ReasonCodeTypeList
- 192 • ReasonText\_String datatype
- 193 • ResourceID\_String datatype, codelist CodingSchemeTypeList
- 194 • YMDHM\_DateTime datatype

195

196 2.2.5 PlannedResourceSchedule\_MarketDocument XML schema structure



Generated by XMLSpy www.altova.com

Figure 3 - PlannedResourceSchedule\_MarketDocument schema structure  
 – Page 16 of 23 –



## 199 2.2.6 PlannedResourceSchedule\_MarketDocument XML schema

200

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

202 urn:iec62325.351:tc57wg16:451-7:plannedresourcescheduledocument:6:2

```
203 <?xml version="1.0" encoding="utf-8"?>
204 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
205 xmlns="urn:iec62325.351:tc57wg16:451-7:plannedresourcescheduledocument:6:2"
206 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
207 xmlns:cimp="http://www.iec.ch/cimprofile"
208 xmlns:xs="http://www.w3.org/2001/XMLSchema"
209 targetNamespace="urn:iec62325.351:tc57wg16:451-
210 7:plannedresourcescheduledocument:6:2" elementFormDefault="qualified"
211 attributeFormDefault="unqualified">
212   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
213 entsoe-eu-wgedi-codelists.xsd"/>
214   <xs:element name="PlannedResourceSchedule_MarketDocument"
215 type="PlannedResourceSchedule_MarketDocument"/>
216   <xs:simpleType name="ID_String"
217 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
218     <xs:restriction base="xs:string">
219       <xs:maxLength value="60"/>
220     </xs:restriction>
221   </xs:simpleType>
222   <xs:simpleType name="BusinessKind_String"
223 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
224     <xs:restriction base="ecl:BusinessTypeList"/>
225   </xs:simpleType>
226   <xs:simpleType name="DirectionKind_String"
227 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
228     <xs:restriction base="ecl:DirectionTypeList"/>
229   </xs:simpleType>
230   <xs:simpleType name="EnergyProductKind_String"
231 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
232     <xs:restriction base="ecl:EnergyProductTypeList"/>
233   </xs:simpleType>
234   <xs:simpleType name="AreaID_String-base"
235 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
236     <xs:restriction base="xs:string">
237       <xs:maxLength value="18"/>
238     </xs:restriction>
239   </xs:simpleType>
240   <xs:complexType name="AreaID_String"
241 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
242     <xs:simpleContent>
243       <xs:extension base="AreaID_String-base">
244         <xs:attribute name="codingScheme"
245 type="ecl:CodingSchemeTypeList" use="required"/>
246       </xs:extension>
247     </xs:simpleContent>
248   </xs:complexType>
249   <xs:simpleType name="ResourceID_String-base"
250 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
251     <xs:restriction base="xs:string">
252       <xs:maxLength value="60"/>
253     </xs:restriction>
254   </xs:simpleType>
```

```
255     <xs:complexType name="ResourceID_String"
256 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
257     <xs:simpleContent>
258         <xs:extension base="ResourceID_String-base">
259             <xs:attribute name="codingScheme"
260 type="ecl:CodingSchemeTypeList" use="required"/>
261         </xs:extension>
262     </xs:simpleContent>
263 </xs:complexType>
264 <xs:simpleType name="PartyID_String-base"
265 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
266     <xs:restriction base="xs:string">
267         <xs:maxLength value="16"/>
268     </xs:restriction>
269 </xs:simpleType>
270 <xs:complexType name="PartyID_String"
271 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
272     <xs:simpleContent>
273         <xs:extension base="PartyID_String-base">
274             <xs:attribute name="codingScheme"
275 type="ecl:CodingSchemeTypeList" use="required"/>
276         </xs:extension>
277     </xs:simpleContent>
278 </xs:complexType>
279 <xs:simpleType name="CapacityContractKind_String"
280 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
281     <xs:restriction base="ecl:ContractTypeList"/>
282 </xs:simpleType>
283 <xs:simpleType name="MeasurementUnitKind_String"
284 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
285     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
286 </xs:simpleType>
287 <xs:simpleType name="ObjectAggregationKind_String"
288 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
289     <xs:restriction base="ecl:ObjectAggregationTypeList"/>
290 </xs:simpleType>
291 <xs:simpleType name="PsrType_String"
292 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
293     <xs:restriction base="ecl:AssetTypeList"/>
294 </xs:simpleType>
295 <xs:simpleType name="CurveType_String"
296 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
297     <xs:restriction base="ecl:CurveTypeList"/>
298 </xs:simpleType>
299 <xs:complexType name="PlannedResource_TimeSeries"
300 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
301     <xs:sequence>
302         <xs:element name="mRID" type="ID_String" minOccurs="1"
303 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
304 cim16#IdentifiedObject.mRID"/>
305         <xs:element name="businessType" type="BusinessKind_String"
306 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
307 schema-cim16#TimeSeries.businessType"/>
308         <xs:element name="flowDirection.direction"
309 type="DirectionKind_String" minOccurs="0" maxOccurs="1"
310 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
311 cim16#FlowDirection.direction"/>
312         <xs:element name="product" type="EnergyProductKind_String"
313 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
314 schema-cim16#TimeSeries.product"/>
```

```
315         <xs:element name="connecting_Domain.mRID" type="AreaID_String"
316 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
317 schema-cim16#IdentifiedObject.mRID"/>
318         <xs:element name="registeredResource.mRID"
319 type="ResourceID_String" minOccurs="0" maxOccurs="1"
320 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
321 cim16#IdentifiedObject.mRID"/>
322         <xs:element name="resourceProvider_MarketParticipant.mRID"
323 type="PartyID_String" minOccurs="1" maxOccurs="1"
324 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
325 cim16#IdentifiedObject.mRID"/>
326         <xs:element name="acquiring_Domain.mRID" type="AreaID_String"
327 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
328 schema-cim16#IdentifiedObject.mRID"/>
329         <xs:element name="marketAgreement.type"
330 type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
331 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
332         <xs:element name="marketAgreement.mRID" type="ID_String"
333 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
334 schema-cim16#IdentifiedObject.mRID"/>
335         <xs:element name="measurement_Unit.name"
336 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
337 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
338         <xs:element name="objectAggregation"
339 type="ObjectAggregationKind_String" minOccurs="0" maxOccurs="1"
340 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
341 cim16#TimeSeries.objectAggregation"/>
342         <xs:element name="mktPSRType.psrType" type="PsrType_String"
343 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
344 schema-cim16#MktPSRType.psrType"/>
345         <xs:element name="curveType" type="CurveType_String"
346 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
347 schema-cim16#TimeSeries.curveType"/>
348         <xs:element name="Series_Period" type="Series_Period"
349 minOccurs="1" maxOccurs="unbounded"
350 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
351 cim16#TimeSeries.Series_Period"/>
352         <xs:element name="Reason" type="Reason" minOccurs="0"
353 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
354 cim16#TimeSeries.Reason"/>
355     </xs:sequence>
356 </xs:complexType>
357 <xs:simpleType name="ESMPVersion_String"
358 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
359     <xs:restriction base="xs:string">
360         <xs:pattern value="[1-9]([0-9]){0,2}"/>
361     </xs:restriction>
362 </xs:simpleType>
363 <xs:simpleType name="MessageKind_String"
364 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
365     <xs:restriction base="ecl:MessageTypeList"/>
366 </xs:simpleType>
367 <xs:simpleType name="ProcessKind_String"
368 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
369     <xs:restriction base="ecl:ProcessTypeList"/>
370 </xs:simpleType>
371 <xs:simpleType name="MarketRoleKind_String"
372 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
373     <xs:restriction base="ecl:RoleTypeList"/>
374 </xs:simpleType>
```

```

375     <xs:simpleType name="ESMP_DateTime"
376 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
377     <xs:restriction base="xs:dateTime">
378         <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
379 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
380 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
381 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][0
382 48]|02468)[048][02468][048]|02468)[1235679](0)[48]|02468)[1235679][2468][048]|[
383 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
384 5][0-9]:[0-5][0-
385 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[0134578
386 9][2468][1235679]|02468)[048][02468][1235679]|02468)[1235679](0)[01235679]|0246
387 8)[1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
388 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
389     </xs:restriction>
390 </xs:simpleType>
391 <xs:simpleType name="YMDHM_DateTime"
392 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
393 <xs:restriction base="xs:string">
394     <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
395 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
396 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
397 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][0
398 48]|02468)[048][02468][048]|02468)[1235679](0)[48]|02468)[1235679][2468][048]|[
399 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
400 5][0-
401 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[0134578
402 9][2468][1235679]|02468)[048][02468][1235679]|02468)[1235679](0)[01235679]|0246
403 8)[1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
404 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
405 </xs:restriction>
406 </xs:simpleType>
407 <xs:complexType name="ESMP_DateTimeInterval"
408 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
409 <xs:sequence>
410     <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
411 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
412 cim16#DateTimeInterval.start"/>
413     <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
414 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
415 cim16#DateTimeInterval.end"/>
416 </xs:sequence>
417 </xs:complexType>
418 <xs:complexType name="PlannedResourceSchedule_MarketDocument"
419 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
420 <xs:sequence>
421     <xs:element name="mRID" type="ID_String" minOccurs="1"
422 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
423 cim16#IdentifiedObject.mRID"/>
424     <xs:element name="revisionNumber" type="ESMPVersion_String"
425 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
426 schema-cim16#Document.revisionNumber"/>
427     <xs:element name="type" type="MessageKind_String" minOccurs="1"
428 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
429 cim16#Document.type"/>
430     <xs:element name="process.processType"
431 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
432 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
433 cim16#Process.processType"/>
    
```

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434         <xs:element name="sender_MarketParticipant.mRID"
435 type="PartyID_String" minOccurs="1" maxOccurs="1"
436 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
437 cim16#IdentifiedObject.mRID"/>
438         <xs:element name="sender_MarketParticipant.marketRole.type"
439 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
440 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
441         <xs:element name="receiver_MarketParticipant.mRID"
442 type="PartyID_String" minOccurs="1" maxOccurs="1"
443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
444 cim16#IdentifiedObject.mRID"/>
445         <xs:element name="receiver_MarketParticipant.marketRole.type"
446 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
447 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
448         <xs:element name="createdDateTime" type="ESMP_DateTime"
449 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
450 schema-cim16#Document.createdDateTime"/>
451         <xs:element name="schedule_Period.timeInterval"
452 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
453 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
454 cim16#Period.timeInterval"/>
455         <xs:element name="domain.mRID" type="AreaID_String"
456 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
457 schema-cim16#IdentifiedObject.mRID"/>
458         <xs:element name="subject_MarketParticipant.mRID"
459 type="PartyID_String" minOccurs="0" maxOccurs="1"
460 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
461 cim16#IdentifiedObject.mRID"/>
462         <xs:element name="subject_MarketParticipant.marketRole.type"
463 type="MarketRoleKind_String" minOccurs="0" maxOccurs="1"
464 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
465         <xs:element name="PlannedResource_TimeSeries"
466 type="PlannedResource_TimeSeries" minOccurs="0" maxOccurs="unbounded"
467 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
468 cim16#MarketDocument.PlannedResource_TimeSeries"/>
469         <xs:element name="UnavailableReserves_TimeSeries"
470 type="UnavailableReserve_TimeSeries" minOccurs="0" maxOccurs="unbounded"
471 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
472 cim16#MarketDocument.UnavailableReserves_TimeSeries"/>
473     </xs:sequence>
474 </xs:complexType>
475 <xs:simpleType name="Position_Integer"
476 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
477     <xs:restriction base="xs:integer">
478         <xs:maxInclusive value="999999"/>
479         <xs:minInclusive value="1"/>
480     </xs:restriction>
481 </xs:simpleType>
482 <xs:complexType name="Point"
483 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
484     <xs:sequence>
485         <xs:element name="position" type="Position_Integer"
486 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
487 schema-cim16#Point.position"/>
488         <xs:element name="quantity" type="xs:decimal" minOccurs="1"
489 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
490 cim16#Point.quantity"/>
491         <xs:element name="Reason" type="Reason" minOccurs="0"
492 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
493 cim16#Point.Reason"/>
```

```
494         </xs:sequence>
495     </xs:complexType>
496     <xs:simpleType name="ReasonCode_String"
497 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
498         <xs:restriction base="ecl:ReasonCodeTypeList"/>
499     </xs:simpleType>
500     <xs:simpleType name="ReasonText_String"
501 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
502         <xs:restriction base="xs:string">
503             <xs:maxLength value="512"/>
504         </xs:restriction>
505     </xs:simpleType>
506     <xs:complexType name="Reason"
507 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
508         <xs:sequence>
509             <xs:element name="code" type="ReasonCode_String" minOccurs="1"
510 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
511 cim16#Reason.code"/>
512             <xs:element name="text" type="ReasonText_String" minOccurs="0"
513 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
514 cim16#Reason.text"/>
515         </xs:sequence>
516     </xs:complexType>
517     <xs:complexType name="Series_Period"
518 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
519         <xs:sequence>
520             <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
521 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
522 schema-cim16#Period.timeInterval"/>
523             <xs:element name="resolution" type="xs:duration" minOccurs="1"
524 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
525 cim16#Period.resolution"/>
526             <xs:element name="Point" type="Point" minOccurs="1"
527 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
528 cim16#Period.Point"/>
529         </xs:sequence>
530     </xs:complexType>
531     <xs:complexType name="UnavailableReserve_TimeSeries"
532 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
533         <xs:sequence>
534             <xs:element name="mRID" type="ID_String" minOccurs="1"
535 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
536 cim16#IdentifiedObject.mRID"/>
537             <xs:element name="businessType" type="BusinessKind_String"
538 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
539 schema-cim16#TimeSeries.businessType"/>
540             <xs:element name="flowDirection.direction"
541 type="DirectionKind_String" minOccurs="0" maxOccurs="1"
542 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
543 cim16#FlowDirection.direction"/>
544             <xs:element name="product" type="EnergyProductKind_String"
545 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
546 schema-cim16#TimeSeries.product"/>
547             <xs:element name="connecting_Domain.mRID" type="AreaID_String"
548 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
549 schema-cim16#IdentifiedObject.mRID"/>
550             <xs:element name="resourceProvider_MarketParticipant.mRID"
551 type="PartyID_String" minOccurs="1" maxOccurs="1"
552 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
553 cim16#IdentifiedObject.mRID"/>
```

```
554         <xs:element
555     name="substituteResourceProvider_MarketParticipant.mRID" type="PartyID_String"
556     minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
557     schema-cim16#IdentifiedObject.mRID"/>
558         <xs:element name="acquiring_Domain.mRID" type="AreaID_String"
559     minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
560     schema-cim16#IdentifiedObject.mRID"/>
561         <xs:element name="marketAgreement.type"
562     type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
563     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
564         <xs:element name="marketAgreement.mRID" type="ID_String"
565     minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
566     schema-cim16#IdentifiedObject.mRID"/>
567         <xs:element name="measurement_Unit.name"
568     type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
569     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
570         <xs:element name="curveType" type="CurveType_String"
571     minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
572     schema-cim16#TimeSeries.curveType"/>
573         <xs:element name="Series_Period" type="Series_Period"
574     minOccurs="1" maxOccurs="unbounded"
575     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
576     cim16#TimeSeries.Series_Period"/>
577     </xs:sequence>
578 </xs:complexType>
579 </xs:schema>
580
```