



European Network of  
Transmission System Operators  
for Electricity

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# RESOURCE SCHEDULE ANOMALY DOCUMENT UML MODEL AND SCHEMA

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2021-09-15  
APPROVED DOCUMENT  
VERSION 1.1

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	2021-09-15	Updates in resource schedule anomaly report document XSD v6.1: An optional curveType attribute was added to Timeseries class.  Approved by MC.

68

## 69 **Objective**

70 The purpose of this document is to provide the contextual and assembly UML models and the  
71 schema of the ResourceScheduleAnomaly\_MarketDocument.

72 The schema of the ResourceScheduleAnomaly\_MarketDocument could be used in various  
73 business processes.

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

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

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

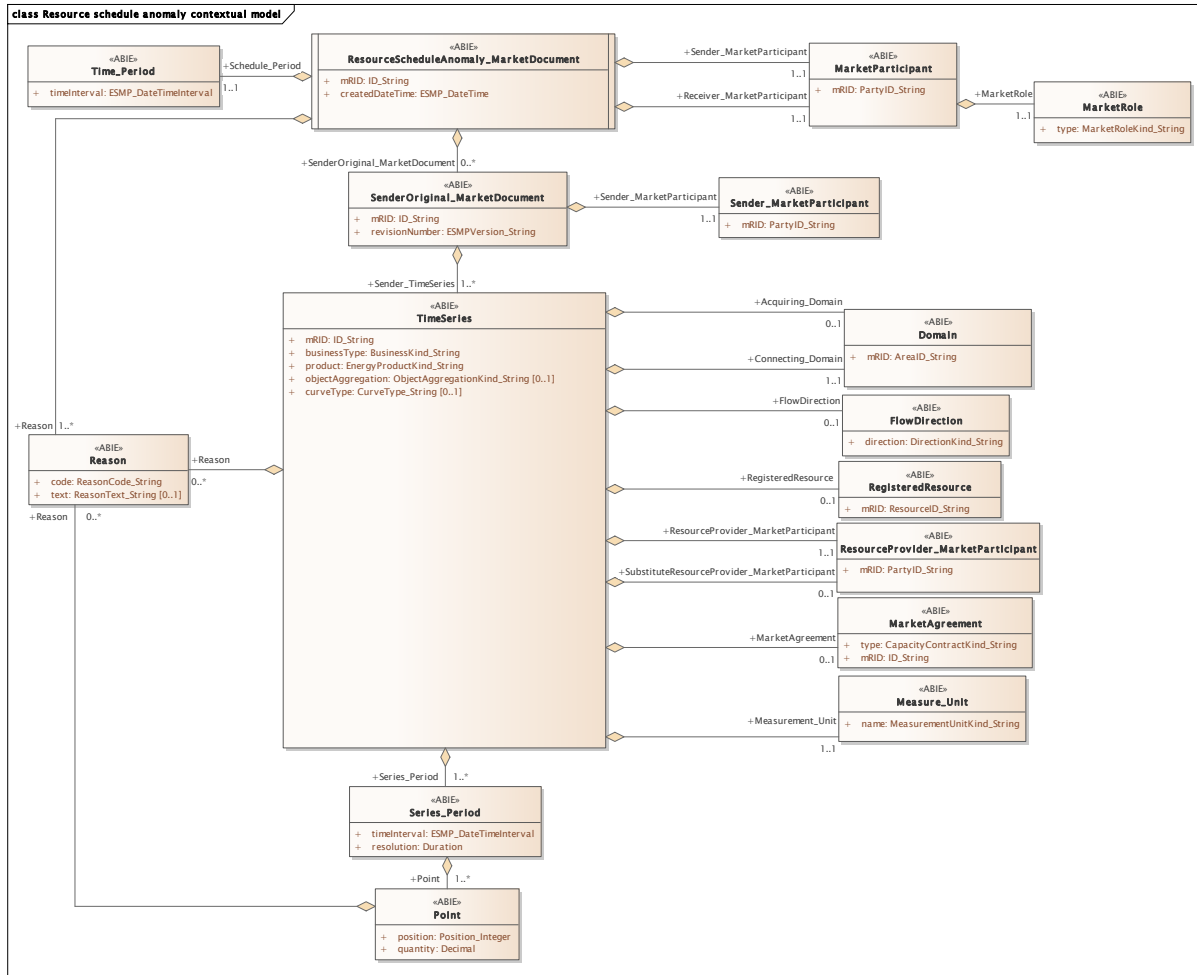
86

87 **ResourceScheduleAnomaly\_MarketDocument**

88 **2.1 Resource schedule anomaly contextual model**

89 **2.1.1 Overview of the model**

90 Figure 1 shows the model.



91

92

93

94

**Figure 1 - Resource schedule anomaly contextual model**

95

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

96

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

97

98

**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
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
ResourceProvider_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
ResourceScheduleAnomaly_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Sender_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
SenderOriginal_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

99

100

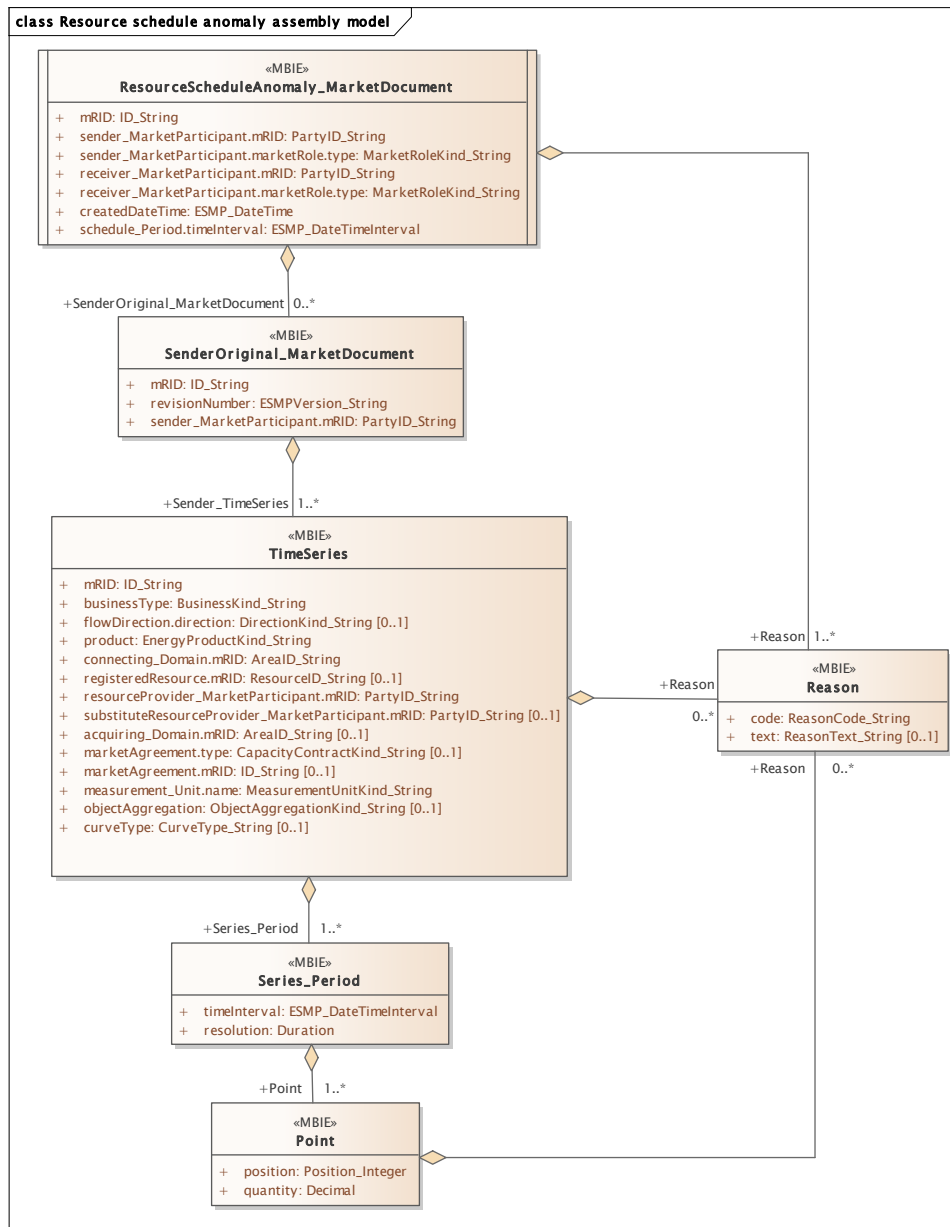


101

102 2.2 Resource schedule anomaly assembly model

103 2.2.1 Overview of the model

104 Figure 2 shows the model.



105

106

107

Figure 2 - Resource schedule anomaly assembly model

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
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
ResourceScheduleAnomaly_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
SenderOriginal_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

113

114 **2.2.3 Detailed Resource schedule anomaly assembly model**

115 **2.2.3.1 ResourceScheduleAnomaly\_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 ResourceScheduleAnomaly\_MarketDocument.

119 **Table 3 - Attributes of Resource schedule anomaly assembly  
120 model::ResourceScheduleAnomaly\_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]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document owner.
2	[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.
3	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document recipient.
4	[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.
5	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
6	[1..1]	schedule_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval.

121

122 Table 4 shows all association ends of ResourceScheduleAnomaly\_MarketDocument with other  
123 classes.

124  
125

**Table 4 - Association ends of Resource schedule anomaly assembly model::ResourceScheduleAnomaly\_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
7	[0..*]	SenderOriginal_MarketDocument SenderOriginal_MarketDocument	Association Based On: Resource schedule anomaly contextual model::SenderOriginal_MarketDocument.SenderOriginal_MarketDocument[0..*] ----- Resource schedule anomaly contextual model::ResourceScheduleAnomaly_MarketDocument.[]
8	[1..*]	Reason Reason	Association Based On: Resource schedule anomaly contextual model::Reason.Reason[1..*] ----- Resource schedule anomaly contextual model::ResourceScheduleAnomaly_MarketDocument.[]

126

### 127 2.2.3.2 Point

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

129 Table 5 shows all attributes of Point.

130 **Table 5 - Attributes of Resource schedule anomaly 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.

131

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

133 **Table 6 - Association ends of Resource schedule anomaly assembly model::Point with**  
134 **other classes**

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

135

### 136 2.2.3.3 Reason

137 The motivation of an act.

138 Table 7 shows all attributes of Reason.

139 **Table 7 - Attributes of Resource schedule anomaly 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.

140

141 **2.2.3.4 SenderOriginal\_MarketDocument**

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

144 Table 8 shows all attributes of SenderOriginal\_MarketDocument.

145 **Table 8 - Attributes of Resource schedule anomaly assembly**  
146 **model::SenderOriginal\_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]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market.

147

148 Table 9 shows all association ends of SenderOriginal\_MarketDocument with other classes.

149 **Table 9 - Association ends of Resource schedule anomaly assembly**  
150 **model::SenderOriginal\_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
3	[1..*]	TimeSeries Sender_TimeSeries	Association Based On: Resource schedule anomaly contextual model::TimeSeries.Sender_TimeSeries[1..*] ----- Resource schedule anomaly contextual model::SenderOriginal_MarketDocument.[]

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 Resource schedule anomaly 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 Resource schedule anomaly 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: Resource schedule anomaly contextual model::Series_Period.[] ----- Resource schedule anomaly contextual model::Point.Point[1..*]

160

### 161 2.2.3.6 TimeSeries

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

163 Table 12 shows all attributes of TimeSeries.

164 **Table 12 - Attributes of Resource schedule anomaly 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	[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	[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.

Order	mult.	Attribute name / Attribute type	Description
7	[0..1]	substituteResourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market.
8	[0..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
9	[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.
10	[0..1]	marketAgreement.mRID ID_String	The unique identification of the agreement. --- The identification of an agreement associated with a TimeSeries.
11	[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.
12	[0..1]	objectAggregation ObjectAggregationKind_String	The identification of the domain that is the common denominator used to aggregate a time series.
13	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

165

166 Table 13 shows all association ends of TimeSeries with other classes.

167 **Table 13 - Association ends of Resource schedule anomaly assembly**  
168 **model::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: Resource schedule anomaly contextual model::TimeSeries.[] ----- Resource schedule anomaly contextual model::Series_Period.Series_Period[1..*]
15	[0..*]	Reason Reason	Association Based On: Resource schedule anomaly contextual model::Reason.Reason[0..*] ----- Resource schedule anomaly contextual model::TimeSeries.[]

169

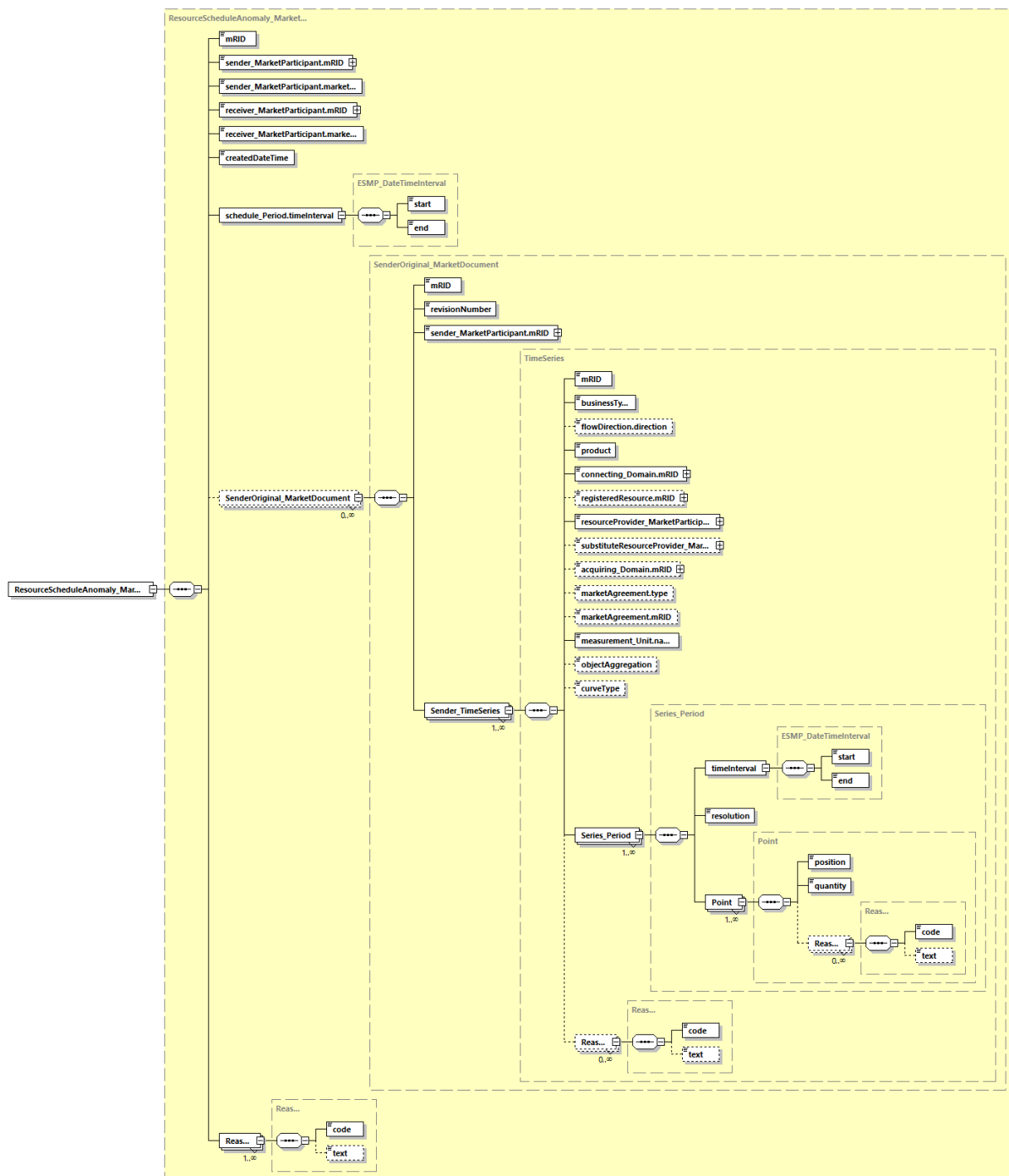
#### 170 2.2.4 Datatypes

171 The list of datatypes used for the Resource schedule anomaly assembly model is as follows:

- 172
- 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
  - 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 • ObjectAggregationKind\_String datatype, codelist ObjectAggregationTypeList
- 185 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 186 • Position\_Integer datatype
- 187 • ReasonCode\_String datatype, codelist ReasonCodeTypeList
- 188 • ReasonText\_String datatype
- 189 • ResourceID\_String datatype, codelist CodingSchemeTypeList
- 190 • YMDHM\_DateTime datatype
- 191 CodingSchemeTypeList
- 192 YMDHM\_DateTime datatype
- 193
- 194

195 2.2.5 ResourceScheduleAnomaly\_MarketDocument XML schema structure



196  
 197

Figure 3 - ResourceScheduleAnomaly\_MarketDocument schema structure

Generated by XMLSpy www.altova.com



## 198 2.2.6 ResourceScheduleAnomaly\_MarketDocument XML schema

199

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

201 urn:iec62325.351:tc57wg16:451-7:resourcescheduleanomalydocument:6:1

```
202 <?xml version="1.0" encoding="utf-8"?>
203 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
204 xmlns="urn:iec62325.351:tc57wg16:451-7:resourcescheduleanomalydocument:6:1"
205 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
206 xmlns:cimp="http://www.iec.ch/cimprofile"
207 xmlns:xs="http://www.w3.org/2001/XMLSchema"
208 targetNamespace="urn:iec62325.351:tc57wg16:451-
209 7:resourcescheduleanomalydocument:6:1" elementFormDefault="qualified"
210 attributeFormDefault="unqualified">
211   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
212 entsoe-eu-wgedi-codelists.xsd"/>
213   <xs:element name="ResourceScheduleAnomaly_MarketDocument"
214 type="ResourceScheduleAnomaly_MarketDocument"/>
215   <xs:simpleType name="Position_Integer"
216 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
217     <xs:restriction base="xs:integer">
218       <xs:maxInclusive value="999999"/>
219       <xs:minInclusive value="1"/>
220     </xs:restriction>
221   </xs:simpleType>
222   <xs:complexType name="Point"
223 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
224     <xs:sequence>
225       <xs:element name="position" type="Position_Integer"
226 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
227 schema-cim16#Point.position"/>
228       <xs:element name="quantity" type="xs:decimal" minOccurs="1"
229 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
230 cim16#Point.quantity"/>
231       <xs:element name="Reason" type="Reason" minOccurs="0"
232 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
233 cim16#Point.Reason"/>
234     </xs:sequence>
235   </xs:complexType>
236   <xs:simpleType name="ReasonCode_String"
237 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
238     <xs:restriction base="ecl:ReasonCodeTypeList"/>
239   </xs:simpleType>
240   <xs:simpleType name="ReasonText_String"
241 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
242     <xs:restriction base="xs:string">
243       <xs:maxLength value="512"/>
244     </xs:restriction>
245   </xs:simpleType>
246   <xs:complexType name="Reason"
247 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
248     <xs:sequence>
```

```
249         <xs:element name="code" type="ReasonCode_String" minOccurs="1"
250 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
251 cim16#Reason.code"/>
252         <xs:element name="text" type="ReasonText_String" minOccurs="0"
253 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
254 cim16#Reason.text"/>
255     </xs:sequence>
256 </xs:complexType>
257 <xs:simpleType name="ID_String"
258 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
259     <xs:restriction base="xs:string">
260         <xs:maxLength value="60"/>
261     </xs:restriction>
262 </xs:simpleType>
263 <xs:simpleType name="PartyID_String-base"
264 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
265     <xs:restriction base="xs:string">
266         <xs:maxLength value="16"/>
267     </xs:restriction>
268 </xs:simpleType>
269 <xs:complexType name="PartyID_String"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
271     <xs:simpleContent>
272         <xs:extension base="PartyID_String-base">
273             <xs:attribute name="codingScheme"
274 type="ecl:CodingSchemeTypeList" use="required"/>
275         </xs:extension>
276     </xs:simpleContent>
277 </xs:complexType>
278 <xs:simpleType name="MarketRoleKind_String"
279 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
280     <xs:restriction base="ecl:RoleTypeList"/>
281 </xs:simpleType>
282 <xs:simpleType name="ESMP_DateTime"
283 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
284     <xs:restriction base="xs:dateTime">
285         <xs:pattern value="(((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
286 9]|[12][0-9]|3[01]))|((([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
287 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
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294 8][1235679][2468][1235679]|0[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
295 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
296     </xs:restriction>
297 </xs:simpleType>
298 <xs:simpleType name="YMDHM_DateTime"
299 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
300     <xs:restriction base="xs:string">
301         <xs:pattern value="(((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
302 9]|[12][0-9]|3[01]))|((([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
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307 5][0-
308 9])Z)|((([13579][26][02468][1235679]|13579][01345789])(0)[01235679]|13579][0134578
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311 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
312     </xs:restriction>
313 </xs:simpleType>
314 <xs:complexType name="ESMP_DateTimeInterval"
315 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
316     <xs:sequence>
317         <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
318 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
319 cim16#DateTimeInterval.start"/>
320         <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
321 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
322 cim16#DateTimeInterval.end"/>
323     </xs:sequence>
324 </xs:complexType>
325 <xs:complexType name="ResourceScheduleAnomaly_MarketDocument"
326 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
327     <xs:sequence>
328         <xs:element name="mRID" type="ID_String" minOccurs="1"
329 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
330 cim16#IdentifiedObject.mRID"/>
331         <xs:element name="sender_MarketParticipant.mRID"
332 type="PartyID_String" minOccurs="1" maxOccurs="1"
333 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
334 cim16#IdentifiedObject.mRID"/>
335         <xs:element name="sender_MarketParticipant.marketRole.type"
336 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
337 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
338         <xs:element name="receiver_MarketParticipant.mRID"
339 type="PartyID_String" minOccurs="1" maxOccurs="1"
340 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
341 cim16#IdentifiedObject.mRID"/>
342         <xs:element name="receiver_MarketParticipant.marketRole.type"
343 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
344 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
345         <xs:element name="createdDateTime" type="ESMP_DateTime"
346 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
347 schema-cim16#Document.createdDateTime"/>
348         <xs:element name="schedule_Period.timeInterval"
349 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
350 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
351 cim16#Period.timeInterval"/>
352         <xs:element name="SenderOriginal_MarketDocument"
353 type="SenderOriginal_MarketDocument" minOccurs="0" maxOccurs="unbounded"
354 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
355 cim16#MarketDocument.SenderOriginal_MarketDocument"/>
356         <xs:element name="Reason" type="Reason" minOccurs="1"
357 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
358 cim16#MarketDocument.Reason"/>
359     </xs:sequence>
360 </xs:complexType>
    
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361     <xs:simpleType name="ESMPVersion_String"
362 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
363     <xs:restriction base="xs:string">
364         <xs:pattern value="[1-9]([0-9]){0,2}"/>
365     </xs:restriction>
366 </xs:simpleType>
367     <xs:complexType name="SenderOriginal_MarketDocument"
368 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
369     <xs:sequence>
370         <xs:element name="mRID" type="ID_String" minOccurs="1"
371 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
372 cim16#IdentifiedObject.mRID"/>
373         <xs:element name="revisionNumber" type="ESMPVersion_String"
374 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
375 schema-cim16#Document.revisionNumber"/>
376         <xs:element name="sender_MarketParticipant.mRID"
377 type="PartyID_String" minOccurs="1" maxOccurs="1"
378 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
379 cim16#IdentifiedObject.mRID"/>
380         <xs:element name="Sender_TimeSeries" type="TimeSeries"
381 minOccurs="1" maxOccurs="unbounded"
382 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
383 cim16#MarketDocument.Sender_TimeSeries"/>
384     </xs:sequence>
385 </xs:complexType>
386     <xs:complexType name="Series_Period"
387 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
388     <xs:sequence>
389         <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
390 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
391 schema-cim16#Period.timeInterval"/>
392         <xs:element name="resolution" type="xs:duration" minOccurs="1"
393 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
394 cim16#Period.resolution"/>
395         <xs:element name="Point" type="Point" minOccurs="1"
396 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
397 cim16#Period.Point"/>
398     </xs:sequence>
399 </xs:complexType>
400     <xs:simpleType name="BusinessKind_String"
401 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
402     <xs:restriction base="ecl:BusinessTypeList"/>
403 </xs:simpleType>
404     <xs:simpleType name="DirectionKind_String"
405 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
406     <xs:restriction base="ecl:DirectionTypeList"/>
407 </xs:simpleType>
408     <xs:simpleType name="EnergyProductKind_String"
409 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
410     <xs:restriction base="ecl:EnergyProductTypeList"/>
411 </xs:simpleType>
412     <xs:simpleType name="AreaID_String-base"
413 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
414     <xs:restriction base="xs:string">
415         <xs:maxLength value="18"/>
416     </xs:restriction>

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417     </xs:simpleType>
418     <xs:complexType name="AreaID_String"
419 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
420         <xs:simpleContent>
421             <xs:extension base="AreaID_String-base">
422                 <xs:attribute name="codingScheme"
423 type="ecl:CodingSchemeTypeList" use="required"/>
424             </xs:extension>
425         </xs:simpleContent>
426     </xs:complexType>
427     <xs:simpleType name="ResourceID_String-base"
428 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
429         <xs:restriction base="xs:string">
430             <xs:maxLength value="60"/>
431         </xs:restriction>
432     </xs:simpleType>
433     <xs:complexType name="ResourceID_String"
434 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
435         <xs:simpleContent>
436             <xs:extension base="ResourceID_String-base">
437                 <xs:attribute name="codingScheme"
438 type="ecl:CodingSchemeTypeList" use="required"/>
439             </xs:extension>
440         </xs:simpleContent>
441     </xs:complexType>
442     <xs:simpleType name="CapacityContractKind_String"
443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
444         <xs:restriction base="ecl:ContractTypeList"/>
445     </xs:simpleType>
446     <xs:simpleType name="MeasurementUnitKind_String"
447 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
448         <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
449     </xs:simpleType>
450     <xs:simpleType name="ObjectAggregationKind_String"
451 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
452         <xs:restriction base="ecl:ObjectAggregationTypeList"/>
453     </xs:simpleType>
454     <xs:simpleType name="CurveType_String"
455 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
456         <xs:restriction base="ecl:CurveTypeList"/>
457     </xs:simpleType>
458     <xs:complexType name="TimeSeries"
459 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
460         <xs:sequence>
461             <xs:element name="mRID" type="ID_String" minOccurs="1"
462 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
463 cim16#IdentifiedObject.mRID"/>
464             <xs:element name="businessType" type="BusinessKind_String"
465 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
466 schema-cim16#TimeSeries.businessType"/>
467             <xs:element name="flowDirection.direction"
468 type="DirectionKind_String" minOccurs="0" maxOccurs="1"
469 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
470 cim16#FlowDirection.direction"/>

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471         <xs:element name="product" type="EnergyProductKind_String"
472 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
473 schema-cim16#TimeSeries.product"/>
474         <xs:element name="connecting_Domain.mRID" type="AreaID_String"
475 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
476 schema-cim16#IdentifiedObject.mRID"/>
477         <xs:element name="registeredResource.mRID"
478 type="ResourceID_String" minOccurs="0" maxOccurs="1"
479 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
480 cim16#IdentifiedObject.mRID"/>
481         <xs:element name="resourceProvider_MarketParticipant.mRID"
482 type="PartyID_String" minOccurs="1" maxOccurs="1"
483 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
484 cim16#IdentifiedObject.mRID"/>
485         <xs:element
486 name="substituteResourceProvider_MarketParticipant.mRID" type="PartyID_String"
487 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
488 schema-cim16#IdentifiedObject.mRID"/>
489         <xs:element name="acquiring_Domain.mRID" type="AreaID_String"
490 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
491 schema-cim16#IdentifiedObject.mRID"/>
492         <xs:element name="marketAgreement.type"
493 type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
494 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
495         <xs:element name="marketAgreement.mRID" type="ID_String"
496 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
497 schema-cim16#IdentifiedObject.mRID"/>
498         <xs:element name="measurement_Unit.name"
499 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
500 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
501         <xs:element name="objectAggregation"
502 type="ObjectAggregationKind_String" minOccurs="0" maxOccurs="1"
503 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
504 cim16#TimeSeries.objectAggregation"/>
505         <xs:element name="curveType" type="CurveType_String"
506 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
507 schema-cim16#TimeSeries.curveType"/>
508         <xs:element name="Series_Period" type="Series_Period"
509 minOccurs="1" maxOccurs="unbounded"
510 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
511 cim16#TimeSeries.Series_Period"/>
512         <xs:element name="Reason" type="Reason" minOccurs="0"
513 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
514 cim16#TimeSeries.Reason"/>
515     </xs:sequence>
516 </xs:complexType>
517 </xs:schema>
518
```