



European Network of
Transmission System Operators
for Electricity

OUTAGE CONFIGURATION DOCUMENT UML MODEL AND SCHEMA

2021-02-17
APPROVED DOCUMENT
VERSION 1.2

2

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Revision History

Version	Release	Date	Comments
1	0	2020-11-09	<p>First drafting of the document.</p> <p>Changes in version of Network Outage Configuration (Ref/mltopconfigurationdocument) v1.1:</p> <ul style="list-style-type: none"> - Two new optional Relevant and Interesting status attributes linked to RegisteredResource class with cardinality 0..1. - Existing RegisteredResource and Domain classes are linked with cardinality 0..* Name of the association is Associated_Domain. - mRIDs (ID_String) enlarged to 65 chars as compliant with last versions of the ESMP.
1	1	2021-01-22	<p>Changes in version of Network Outage Configuration (Ref/mltopconfigurationdocument) v1.2:</p> <ul style="list-style-type: none"> - A new Relevant_MarketParticipant.mRID is linked to Timeseries with cardinality 0..* in Network outage configuration document to export the TSOs who marked an element as relevant.
1	2	2021-02-17	<p>The schema document was renamed to Outage configuration document UML model and schema.</p> <p>XSD was renamed to Outage configuration document and version was upgraded to v1.3</p> <p>Changes in version of Outage configuration document v1.3</p> <ul style="list-style-type: none"> • Market document class was renamed to OutageConfiguration. Before it was called Ref_MarketDocument. • Namespace was changed to urn:iec62325.351:tc57wg16:451-n:outageconfigurationdocument:1:3 <p>Approved by SOC.</p>

63

64 **1 Objective**

65 The purpose of this document is to provide the contextual and assembly UML models and the
66 schema of the Outage Configuration document.

67 The schema of the Outage Configuration document could be used in various business
68 processes.

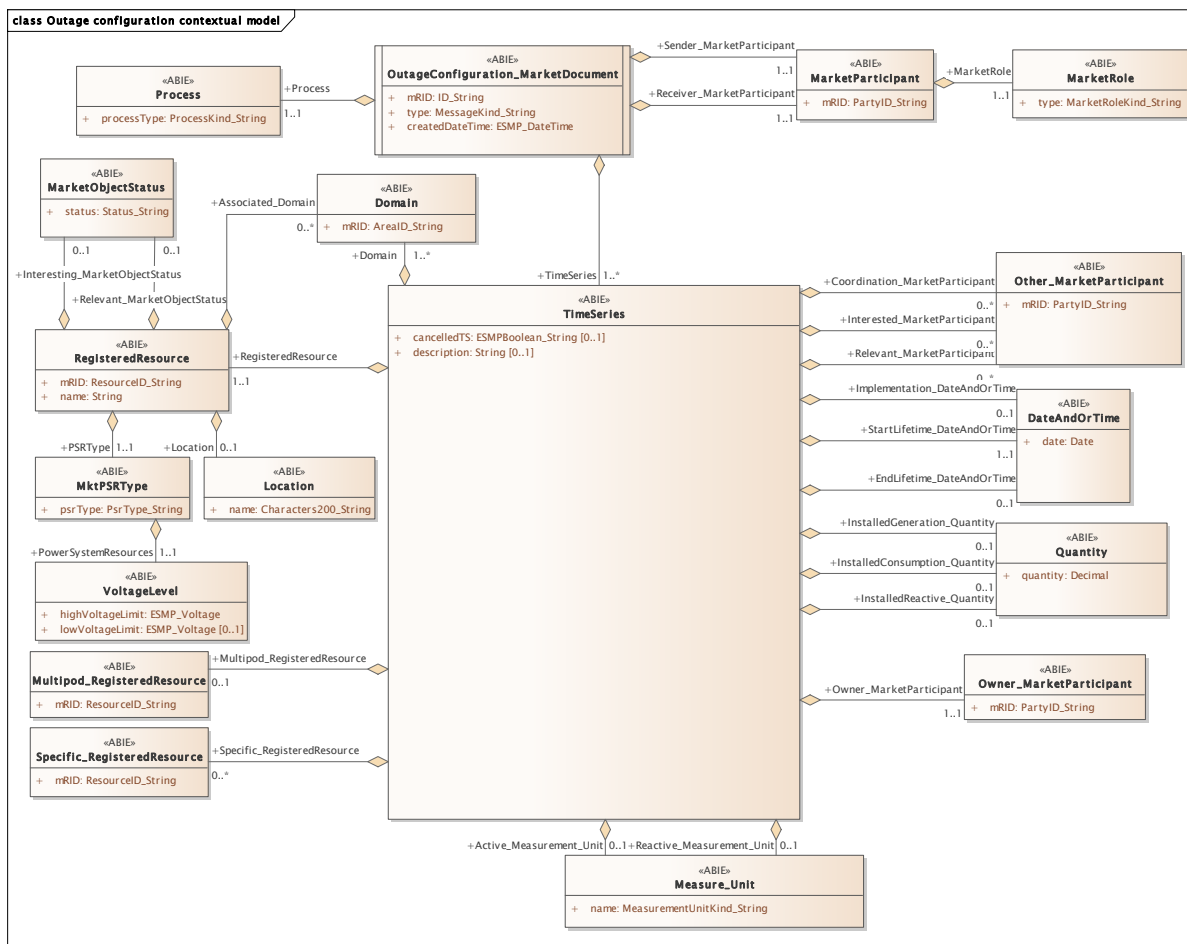
69 It is not the purpose of this document to describe all the use cases, sequence diagrams,
70 business processes, etc. for which this schema is to be used.

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

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

81

- 82 **2 Outage configuration model**
- 83 **2.1 Outage configuration contextual model**
- 84 **2.1.1 Overview of the model**
- 85 Figure 1 shows the model.



86
87 **Figure 1 - Outage configuration contextual model**

88

89

90 **2.1.2 IsBasedOn relationships from the European style market profile**

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

93

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
DateAndOrTime	TC57CIM::IEC62325::MarketManagement::DateAndOrTime
Domain	TC57CIM::IEC62325::MarketManagement::Domain
Location	TC57CIM::IEC61968::Common::Location
MarketObjectStatus	TC57CIM::IEC62325::MarketManagement::MarketObjectStatus
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
Multipod_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
Other_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
OutageConfiguration_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Owner_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
Process	TC57CIM::IEC62325::MarketManagement::Process
Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
Specific_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
VoltageLevel	TC57CIM::IEC61970::Base::Core::VoltageLevel

94

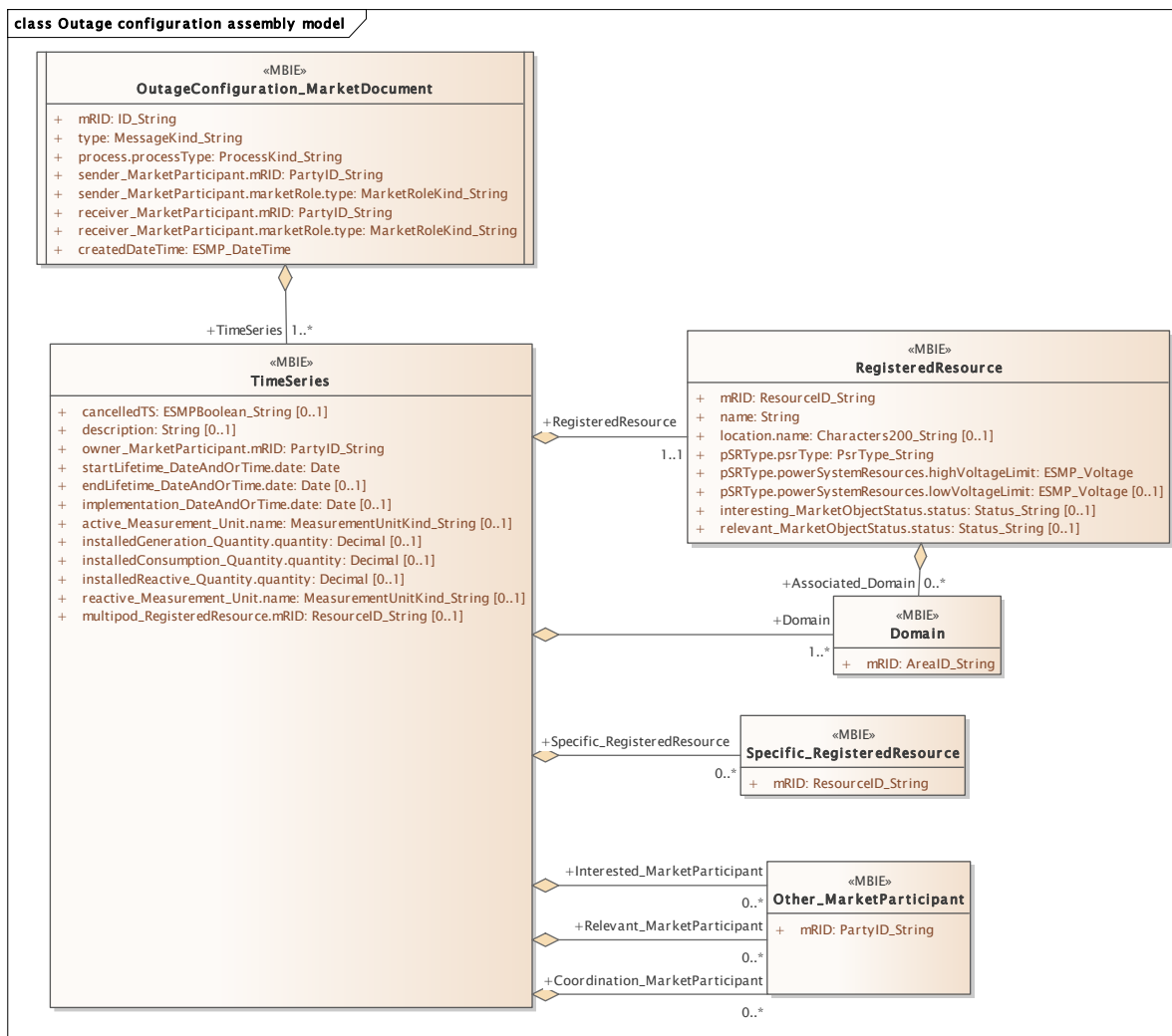
95

96

97 **2.2 Outage configuration assembly model**

98 **2.2.1 Overview of the model**

99 Figure 2 shows the model.



100

101

Figure 2 - Outage configuration assembly model

102

103

104 **2.2.2 IsBasedOn relationships from the European style market profile**

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

107

Table 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Domain	TC57CIM::IEC62325::MarketManagement::Domain
Other_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
OutageConfiguration_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
Specific_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

108

109 **2.2.3 Detailed Outage configuration assembly model**

110 **2.2.3.1 OutageConfiguration_MarketDocument root class**

111 An electronic document containing the information necessary to satisfy the requirements of the
112 configuration management process.

113 The OutageConfiguration_MarketDocument is used to transmit the information necessary to
114 configure the outage planning configuration process.

115 The OutageConfiguration_MarketDocument is also used to transmit modifications that evolve
116 the initial configuration information over time.

117 Table 3 shows all attributes of OutageConfiguration_MarketDocument.

118

Table 3 - Attributes of Outage configuration assembly model::OutageConfiguration_MarketDocument

119

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	Unique identification of the configuration document being exchanged within a given business process flow.
1	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
2	[1..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses.
3	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document owner.
4	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document owner. --- The role associated with a MarketParticipant.
5	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.

Order	mult.	Attribute name / Attribute type	Description
6	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient. --- The role associated with a MarketParticipant.
7	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.

120

121 Table 4 shows all association ends of OutageConfiguration_MarketDocument with other
122 classes.

123 **Table 4 - Association ends of Outage configuration assembly
124 model::OutageConfiguration_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
8	[1..*]	TimeSeries TimeSeries	Association Based On: Outage configuration contextual model::TimeSeries.TimeSeries[1..*] ----- Outage configuration contextual model::OutageConfiguration_MarketDocument.[]

125

126 2.2.3.2 Domain

127 A domain covering a number of related objects, such as market balance area, grid area, borders
128 etc.

129 Table 5 shows all attributes of Domain.

130 **Table 5 - Attributes of Outage configuration assembly model::Domain**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID AreaID_String	The unique identification of the domain.

131

132 2.2.3.3 Other_MarketParticipant

133 The identification of the party that provides the information concerning the resource object
134 defined in the time series.

135 Table 6 shows all attributes of Other_MarketParticipant.

136 **Table 6 - Attributes of Outage configuration assembly model::Other_MarketParticipant**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID PartyID_String	The identification of a party in the energy market.

137

138 2.2.3.4 RegisteredResource

139 A resource that is registered through the market participant registration system. Examples
140 include network element, generating unit, load, and non-physical generator or load.

141 Table 7 shows all attributes of RegisteredResource.

142 **Table 7 - Attributes of Outage configuration assembly model::RegisteredResource**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ResourceID_String	The unique identification of a resource.
1	[1..1]	name String	The name is any free human readable and possibly non unique text naming the object.
2	[0..1]	location.name Characters200_String	The name is any free human readable and possibly non unique text naming the object. The location of the element for the outage. --- Location of this power system resource.
3	[1..1]	pSRType.psrType PsrType_String	The coded type of a power system resource. --- The identification of the type of resource associated with this RegisteredResource.
4	[1..1]	pSRType.powerSystemResources.highVoltageLimit ESMP_Voltage	The bus bar's high voltage limit --- The identification of the type of resource associated with this RegisteredResource. --- The voltage level of the RegisteredResource having the MktPSRType.
5	[0..1]	pSRType.powerSystemResources.lowVoltageLimit ESMP_Voltage	The bus bar's low voltage limit --- The identification of the type of resource associated with this RegisteredResource. --- The voltage level of the RegisteredResource having the MktPSRType.
6	[0..1]	interesting_MarketObjectStatus.status Status_String	The coded condition or position of an object with regard to its standing. --- The status of the registered resource, e.g. connected, disconnected, outage, ...
7	[0..1]	relevant_MarketObjectStatus.status Status_String	The coded condition or position of an object with regard to its standing. --- The status of the registered resource, e.g. connected, disconnected, outage, ...

143

144 Table 8 shows all association ends of RegisteredResource with other classes.

145 **Table 8 - Association ends of Outage configuration assembly**
146 **model::RegisteredResource with other classes**

Order	mult.	Class name / Role	Description
8	[0..*]	Domain Associated_Domain	The identification of the domain linked by the registered resource. Association Based On: Outage configuration contextual model::Domain.Associated_Domain[0..*] ----- Outage configuration contextual model::RegisteredResource.[]

147

148 2.2.3.5 Specific_RegisteredResource

149 A resource that is registered through the market participant registration system. Examples
150 include generating unit, load, and non-physical generator or load.

151 Table 9 shows all attributes of Specific_RegisteredResource.

152
153

Table 9 - Attributes of Outage configuration assembly model::Specific_RegisteredResource

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ResourceID_String	The unique identification of a resource.

154

155 **2.2.3.6 TimeSeries**

156 A time series shall exist to describe a specific production unit, generating unit, transmission
157 asset or consumption unit. It conveys the data related to the configuration of the defined
158 information.

159 Table 10 shows all attributes of TimeSeries.

160 **Table 10 - Attributes of Outage configuration assembly model::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
1	[0..1]	cancelledTS ESMPBoolean_String	An indicator stating that the TimeSeries, identified by the mRID, is withdrawn as well as all the values sent in a previous version of the TimeSeries in a previous document.
2	[0..1]	description String	Any other information about the network element defined by the mRID of the RegisteredResource. The description is a free human readable text describing or naming the object. It may be non unique and may not correlate to a naming hierarchy.
3	[1..1]	owner_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The party who provides the information related to the RegisteredResource outage.
4	[1..1]	startLifetime_DateAndOrTime.date Date	The date as "YYYY-MM-DD", which conforms with ISO 8601. --- The date when the network element was put in service.
5	[0..1]	endLifetime_DateAndOrTime.date Date	The date as "YYYY-MM-DD", which conforms with ISO 8601. --- The date when the network element will be withdrawn of service.
6	[0..1]	implementation_DateAndOrTime.date Date	The date as "YYYY-MM-DD", which conforms with ISO 8601. --- The date of application of the information provided. This identifies the date of the effective implementation of the information provided in the time series. In the case of a creation this signifies that the object will be operational at this date. In the case of modification this signifies that the changes will be operational at this date. In the case of a deactivation this signifies that the deactivation will be effective at this date.
7	[0..1]	active_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit for active generation or consumption.
8	[0..1]	installedGeneration_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed. --- The quantity information associated to a TimeSeries. For a generating unit, the installed generation capacity.

Order	mult.	Attribute name / Attribute type	Description
9	[0..1]	installedConsumption_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed. --- The quantity information associated to a TimeSeries. For a consumption unit, the installed consumption capacity.
10	[0..1]	installedReactive_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed. --- The quantity information associated to a TimeSeries. For a unit, the reactive capacity.
11	[0..1]	reactive_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit for reactive power.
12	[0..1]	multipod_RegisteredResource.mRID ResourceID_String	The unique identification of a resource. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. --- The identification of a resource associated with a TimeSeries. The network element which is within the multipod.

161

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

163 **Table 11 - Association ends of Outage configuration assembly model::TimeSeries with**
164 **other classes**

Order	mult.	Class name / Role	Description
0	[1..1]	RegisteredResource RegisteredResource	The identification of a resource associated with a TimeSeries. The network element to be configured. Association Based On: Outage configuration contextual model::RegisteredResource.RegisteredResource[1..1] ----- Outage configuration contextual model::TimeSeries.[]
13	[1..*]	Domain Domain	The domain where the resource object associated with a TimeSeries resides. Association Based On: Outage configuration contextual model::Domain.Domain[1..*] ----- Outage configuration contextual model::TimeSeries.[]
14	[0..*]	Other_MarketParticipant Coordination_MarketParticipant	The list of parties who are involved in the coordination outage process Association Based On: Outage configuration contextual model::Other_MarketParticipant.Coordination_MarketParticipant[0..*] ----- Outage configuration contextual model::TimeSeries.[]

Order	mult.	Class name / Role	Description
15	[0..*]	Other_MarketParticipant Interested_MarketParticipant	The list of parties that are interested in information about outage of the network element object of the TimeSeries. These parties shall be notified that a case or a change to a case for an element was uploaded/inserted. Association Based On: Outage configuration contextual model::Other_MarketParticipant.Interested_MarketParticipant[0..*] ----- Outage configuration contextual model::TimeSeries.[]
16	[0..*]	Other_MarketParticipant Relevant_MarketParticipant	The identification of a market participant associated with a TimeSeries. Association Based On: Outage configuration contextual model::Other_MarketParticipant.Relevant_MarketParticipant[0..*] ----- Outage configuration contextual model::TimeSeries.[]
17	[0..*]	Specific_RegisteredResource Specific_RegisteredResource	The identification of a resource associated with a TimeSeries. The list of network elements that have a specific relationship to the network element object of this configuration. Association Based On: Outage configuration contextual model::Specific_RegisteredResource.Specific_RegisteredResource[0..*] ----- Outage configuration contextual model::TimeSeries.[]

165

166 2.2.4 Datatypes

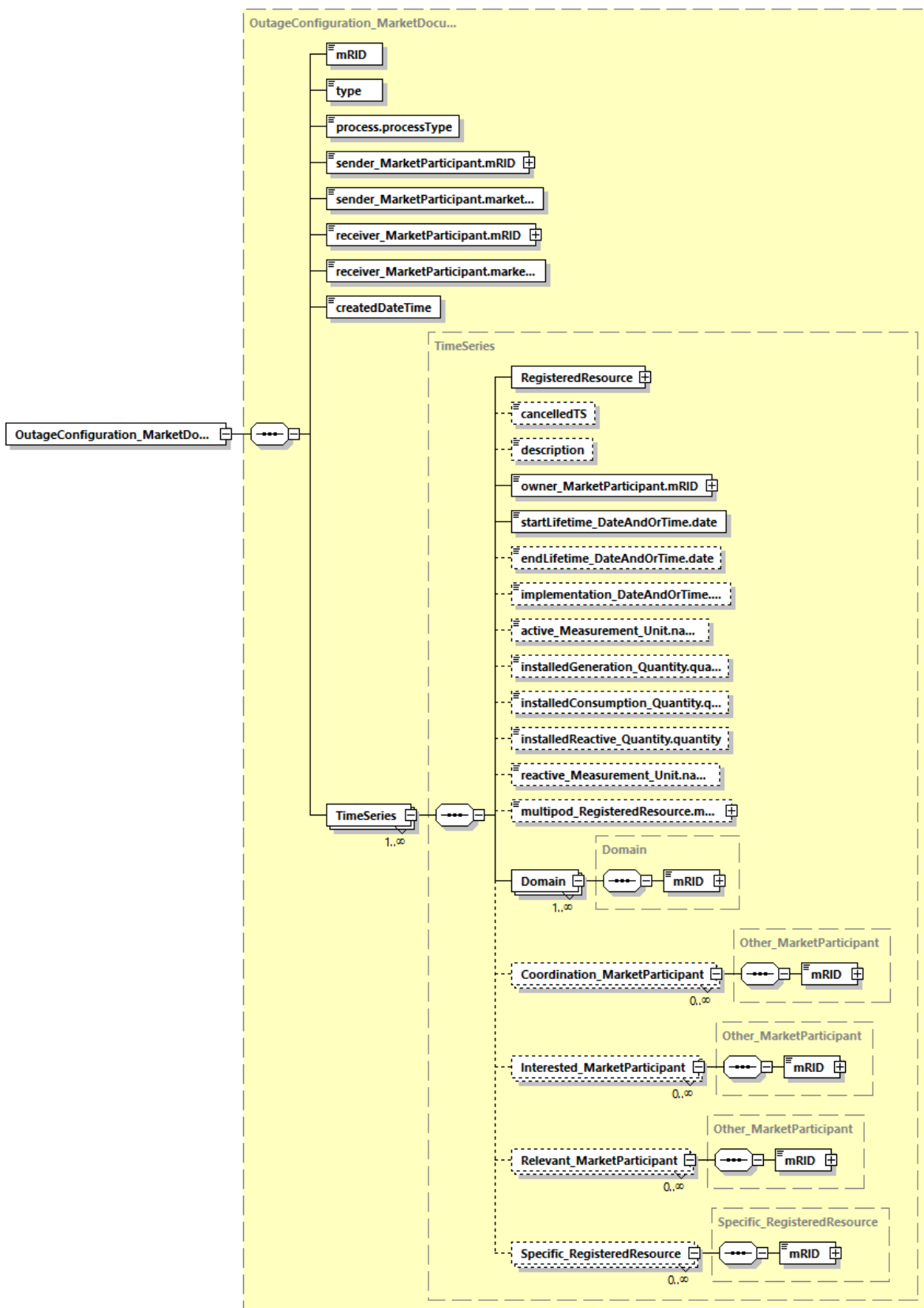
167 The list of datatypes used for the Outage configuration assembly model is as follows:

- 168 • AreaID_String datatype, codelist CodingSchemeTypeList
- 169 • Characters200_String datatype
- 170 • ESMP_DateTime datatype
- 171 • ESMP_Voltage datatype
- 172 • ESMPBoolean_String datatype, codelist IndicatorTypeList
- 173 • ID_String datatype
- 174 • MarketRoleKind_String datatype, codelist RoleTypeList
- 175 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 176 • MessageKind_String datatype, codelist MessageTypeList
- 177 • PartyID_String datatype, codelist CodingSchemeTypeList
- 178 • ProcessKind_String datatype, codelist ProcessTypeList
- 179 • PsrType_String datatype, codelist AssetTypeList
- 180 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 181 • Status_String datatype, codelist StatusTypeList
- 182 • UnitSymbol datatype, codelist UnitSymbol

183

184

185 2.2.5 Outage Configuration XML schema structure



186
 187

Figure 3 - OutageConfiguration_MarketDocument XML schema structure

188 2.2.6 Outage Configuration XML schema

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

190 urn:iec62325.351:tc57wg16:451-n:outageconfigurationdocument:1:3

```
191
192 <?xml version="1.0" encoding="utf-8"?>
193 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
194 xmlns="urn:iec62325.351:tc57wg16:451-n:outageconfigurationdocument:1:3"
195 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
196 xmlns:cimp="http://www.iec.ch/cimprofile"
197 xmlns:xs="http://www.w3.org/2001/XMLSchema"
198 targetNamespace="urn:iec62325.351:tc57wg16:451-n:outageconfigurationdocument:1:3"
199 elementFormDefault="qualified" attributeFormDefault="unqualified">
200   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
201 entsoe-eu-wgedi-codelists.xsd"/>
202   <xs:element name="OutageConfiguration_MarketDocument"
203 type="OutageConfiguration_MarketDocument"/>
204   <xs:simpleType name="AreaID_String-base"
205 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
206     <xs:restriction base="xs:string">
207       <xs:maxLength value="18"/>
208     </xs:restriction>
209   </xs:simpleType>
210   <xs:complexType name="AreaID_String"
211 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
212     <xs:simpleContent>
213       <xs:extension base="AreaID_String-base">
214         <xs:attribute name="codingScheme"
215 type="ecl:CodingSchemeTypeList" use="required"/>
216       </xs:extension>
217     </xs:simpleContent>
218   </xs:complexType>
219   <xs:complexType name="Domain"
220 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Domain">
221     <xs:sequence>
222       <xs:element name="mRID" type="AreaID_String" minOccurs="1"
223 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
224 cim16#IdentifiedObject.mRID"/>
225     </xs:sequence>
226   </xs:complexType>
227   <xs:simpleType name="PartyID_String-base"
228 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
229     <xs:restriction base="xs:string">
230       <xs:maxLength value="16"/>
231     </xs:restriction>
232   </xs:simpleType>
233   <xs:complexType name="PartyID_String"
234 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
235     <xs:simpleContent>
236       <xs:extension base="PartyID_String-base">
237         <xs:attribute name="codingScheme"
238 type="ecl:CodingSchemeTypeList" use="required"/>
239       </xs:extension>
240     </xs:simpleContent>
241   </xs:complexType>
```



```
242     <xs:complexType name="Other_MarketParticipant"
243 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
244 cim16#MarketParticipant">
245     <xs:sequence>
246         <xs:element name="mRID" type="PartyID_String" minOccurs="1"
247 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
248 cim16#IdentifiedObject.mRID"/>
249     </xs:sequence>
250 </xs:complexType>
251 <xs:simpleType name="ID_String"
252 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
253     <xs:restriction base="xs:string">
254         <xs:maxLength value="60"/>
255     </xs:restriction>
256 </xs:simpleType>
257 <xs:simpleType name="MessageKind_String"
258 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
259     <xs:restriction base="ecl:MessageTypeList"/>
260 </xs:simpleType>
261 <xs:simpleType name="ProcessKind_String"
262 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
263     <xs:restriction base="ecl:ProcessTypeList"/>
264 </xs:simpleType>
265 <xs:simpleType name="MarketRoleKind_String"
266 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
267     <xs:restriction base="ecl:RoleTypeList"/>
268 </xs:simpleType>
269 <xs:simpleType name="ESMP_DateTime"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
271     <xs:restriction base="xs:dateTime">
272         <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
273 9]|12)[0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-
274 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
275 9])Z)|(((13579)[26][02468][048]|13579[01345789](0)[48]|13579[01345789][2468][0
276 48]|02468[048][02468][048]|02468[1235679](0)[48]|02468[1235679][2468][048]|
277 0-9[0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
278 5][0-9]:[0-5][0-
279 9])Z)|(((13579)[26][02468][1235679]|13579[01345789](0)[01235679]|13579[0134578
280 9][2468][1235679]|02468[048][02468][1235679]|02468[1235679](0)[01235679]|0246
281 8[1235679][2468][1235679]|0-9[0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
282 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
283     </xs:restriction>
284 </xs:simpleType>
285 <xs:complexType name="OutageConfiguration_MarketDocument"
286 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
287     <xs:sequence>
288         <xs:element name="mRID" type="ID_String" minOccurs="1"
289 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
290 cim16#IdentifiedObject.mRID"/>
291         <xs:element name="type" type="MessageKind_String" minOccurs="1"
292 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
293 cim16#Document.type"/>
294         <xs:element name="process.processType"
295 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
296 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
297 cim16#Process.processType"/>
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298         <xs:element name="sender_MarketParticipant.mRID"
299 type="PartyID_String" minOccurs="1" maxOccurs="1"
300 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
301 cim16#IdentifiedObject.mRID"/>
302         <xs:element name="sender_MarketParticipant.marketRole.type"
303 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
304 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
305         <xs:element name="receiver_MarketParticipant.mRID"
306 type="PartyID_String" minOccurs="1" maxOccurs="1"
307 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
308 cim16#IdentifiedObject.mRID"/>
309         <xs:element name="receiver_MarketParticipant.marketRole.type"
310 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
311 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
312         <xs:element name="createdDateTime" type="ESMP_DateTime"
313 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
314 schema-cim16#Document.createdDateTime"/>
315         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="1"
316 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
317 cim16#MarketDocument.TimeSeries"/>
318     </xs:sequence>
319 </xs:complexType>
320 <xs:simpleType name="ResourceID_String-base"
321 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
322     <xs:restriction base="xs:string">
323         <xs:maxLength value="60"/>
324     </xs:restriction>
325 </xs:simpleType>
326 <xs:complexType name="ResourceID_String"
327 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
328     <xs:simpleContent>
329         <xs:extension base="ResourceID_String-base">
330             <xs:attribute name="codingScheme"
331 type="ecl:CodingSchemeTypeList" use="required"/>
332         </xs:extension>
333     </xs:simpleContent>
334 </xs:complexType>
335 <xs:simpleType name="Characters200_String"
336 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
337     <xs:restriction base="xs:string">
338         <xs:maxLength value="200"/>
339     </xs:restriction>
340 </xs:simpleType>
341 <xs:simpleType name="PsrType_String"
342 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
343     <xs:restriction base="ecl:AssetTypeList"/>
344 </xs:simpleType>
345 <xs:simpleType name="ESMP_Voltage-base"
346 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
347     <xs:restriction base="xs:float">
348         <xs:pattern value="([0-9]*\.\?[0-9]*)"/>
349     </xs:restriction>
350 </xs:simpleType>
351 <xs:complexType name="ESMP_Voltage"
352 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
353     <xs:simpleContent>

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354         <xs:extension base="ESMP_Voltage-base">
355             <xs:attribute name="unit" type="ecl:UnitSymbol"
356 use="required" fixed="KVT"/>
357         </xs:extension>
358     </xs:simpleContent>
359 </xs:complexType>
360 <xs:simpleType name="Status_String"
361 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
362     <xs:restriction base="ecl:StatusTypeList"/>
363 </xs:simpleType>
364 <xs:complexType name="RegisteredResource"
365 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
366 cim16#RegisteredResource">
367     <xs:sequence>
368         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
369 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
370 cim16#IdentifiedObject.mRID"/>
371         <xs:element name="name" type="xs:string" minOccurs="1"
372 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
373 cim16#IdentifiedObject.name"/>
374         <xs:element name="location.name" type="Characters200_String"
375 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
376 schema-cim16#IdentifiedObject.name"/>
377         <xs:element name="pSRType.psrType" type="PsrType_String"
378 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
379 schema-cim16#MktPSRType.psrType"/>
380         <xs:element
381 name="pSRType.powerSystemResources.highVoltageLimit" type="ESMP_Voltage"
382 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
383 schema-cim16#VoltageLevel.highVoltageLimit"/>
384         <xs:element name="pSRType.powerSystemResources.lowVoltageLimit"
385 type="ESMP_Voltage" minOccurs="0" maxOccurs="1"
386 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
387 cim16#VoltageLevel.lowVoltageLimit"/>
388         <xs:element name="interesting_MarketObjectStatus.status"
389 type="Status_String" minOccurs="0" maxOccurs="1"
390 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
391 cim16#MarketObjectStatus.status"/>
392         <xs:element name="relevant_MarketObjectStatus.status"
393 type="Status_String" minOccurs="0" maxOccurs="1"
394 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
395 cim16#MarketObjectStatus.status"/>
396         <xs:element name="Associated_Domain" type="Domain"
397 minOccurs="0" maxOccurs="unbounded"
398 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
399 cim16#RegisteredResource.Associated_Domain"/>
400     </xs:sequence>
401 </xs:complexType>
402 <xs:complexType name="Specific_RegisteredResource"
403 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
404 cim16#RegisteredResource">
405     <xs:sequence>
406         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
407 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
408 cim16#IdentifiedObject.mRID"/>
409     </xs:sequence>

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410     </xs:complexType>
411     <xs:simpleType name="ESMPBoolean_String"
412 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
413         <xs:restriction base="ecl:IndicatorTypeList"/>
414     </xs:simpleType>
415     <xs:simpleType name="MeasurementUnitKind_String"
416 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
417         <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
418     </xs:simpleType>
419     <xs:complexType name="TimeSeries"
420 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
421         <xs:sequence>
422             <xs:element name="RegisteredResource" type="RegisteredResource"
423 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
424 schema-cim16#TimeSeries.RegisteredResource"/>
425             <xs:element name="cancelledTS" type="ESMPBoolean_String"
426 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
427 schema-cim16#TimeSeries.cancelledTS"/>
428             <xs:element name="description" type="xs:string" minOccurs="0"
429 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
430 cim16#IdentifiedObject.description"/>
431             <xs:element name="owner_MarketParticipant.mRID"
432 type="PartyID_String" minOccurs="1" maxOccurs="1"
433 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
434 cim16#IdentifiedObject.mRID"/>
435             <xs:element name="startLifetime_DateAndOrTime.date"
436 type="xs:date" minOccurs="1" maxOccurs="1"
437 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
438 cim16#DateAndOrTime.date"/>
439             <xs:element name="endLifetime_DateAndOrTime.date"
440 type="xs:date" minOccurs="0" maxOccurs="1"
441 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
442 cim16#DateAndOrTime.date"/>
443             <xs:element name="implementation_DateAndOrTime.date"
444 type="xs:date" minOccurs="0" maxOccurs="1"
445 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
446 cim16#DateAndOrTime.date"/>
447             <xs:element name="active_Measurement_Unit.name"
448 type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
449 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
450             <xs:element name="installedGeneration_Quantity.quantity"
451 type="xs:decimal" minOccurs="0" maxOccurs="1"
452 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
453 cim16#Quantity.quantity"/>
454             <xs:element name="installedConsumption_Quantity.quantity"
455 type="xs:decimal" minOccurs="0" maxOccurs="1"
456 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
457 cim16#Quantity.quantity"/>
458             <xs:element name="installedReactive_Quantity.quantity"
459 type="xs:decimal" minOccurs="0" maxOccurs="1"
460 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
461 cim16#Quantity.quantity"/>
462             <xs:element name="reactive_Measurement_Unit.name"
463 type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
464 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
```

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465         <xs:element name="multipod_RegisteredResource.mRID"  
466 type="ResourceID_String" minOccurs="0" maxOccurs="1"  
467 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
468 cim16#IdentifiedObject.mRID"/>  
469         <xs:element name="Domain" type="Domain" minOccurs="1"  
470 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
471 cim16#TimeSeries.Domain"/>  
472         <xs:element name="Coordination_MarketParticipant"  
473 type="Other_MarketParticipant" minOccurs="0" maxOccurs="unbounded"  
474 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
475 cim16#TimeSeries.Coordination_MarketParticipant"/>  
476         <xs:element name="Interested_MarketParticipant"  
477 type="Other_MarketParticipant" minOccurs="0" maxOccurs="unbounded"  
478 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
479 cim16#TimeSeries.Interested_MarketParticipant"/>  
480         <xs:element name="Relevant_MarketParticipant"  
481 type="Other_MarketParticipant" minOccurs="0" maxOccurs="unbounded"  
482 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
483 cim16#TimeSeries.Relevant_MarketParticipant"/>  
484         <xs:element name="Specific_RegisteredResource"  
485 type="Specific_RegisteredResource" minOccurs="0" maxOccurs="unbounded"  
486 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
487 cim16#TimeSeries.Specific_RegisteredResource"/>  
488     </xs:sequence>  
489 </xs:complexType>  
490 </xs:schema>  
491
```