



European Network of  
Transmission System Operators  
for Electricity

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# CONFIGURATION DOCUMENT UML MODEL AND SCHEMA

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2022-03-15  
APPROVED DOCUMENT  
VERSION 1.1

2

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66

## Revision History

Version	Release	Date	Comments
0	1	2019-12-23	First draft of the document.
0	2	2020-02-14	Second draft of the document. Comments from CIM EG were taken into account.
1	0	2020-03-18	Approved by MC.
1	1	2022-03-15	Updates in XSD v3.3: mRID of Document, Series and Timeseries (ID_String type) was enlarged from 35 to 60 characters. Approved by MC.

67

68 **Objective**

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

71 The schema of the Configuration\_MarketDocument could be used in various business  
72 processes.

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

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

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

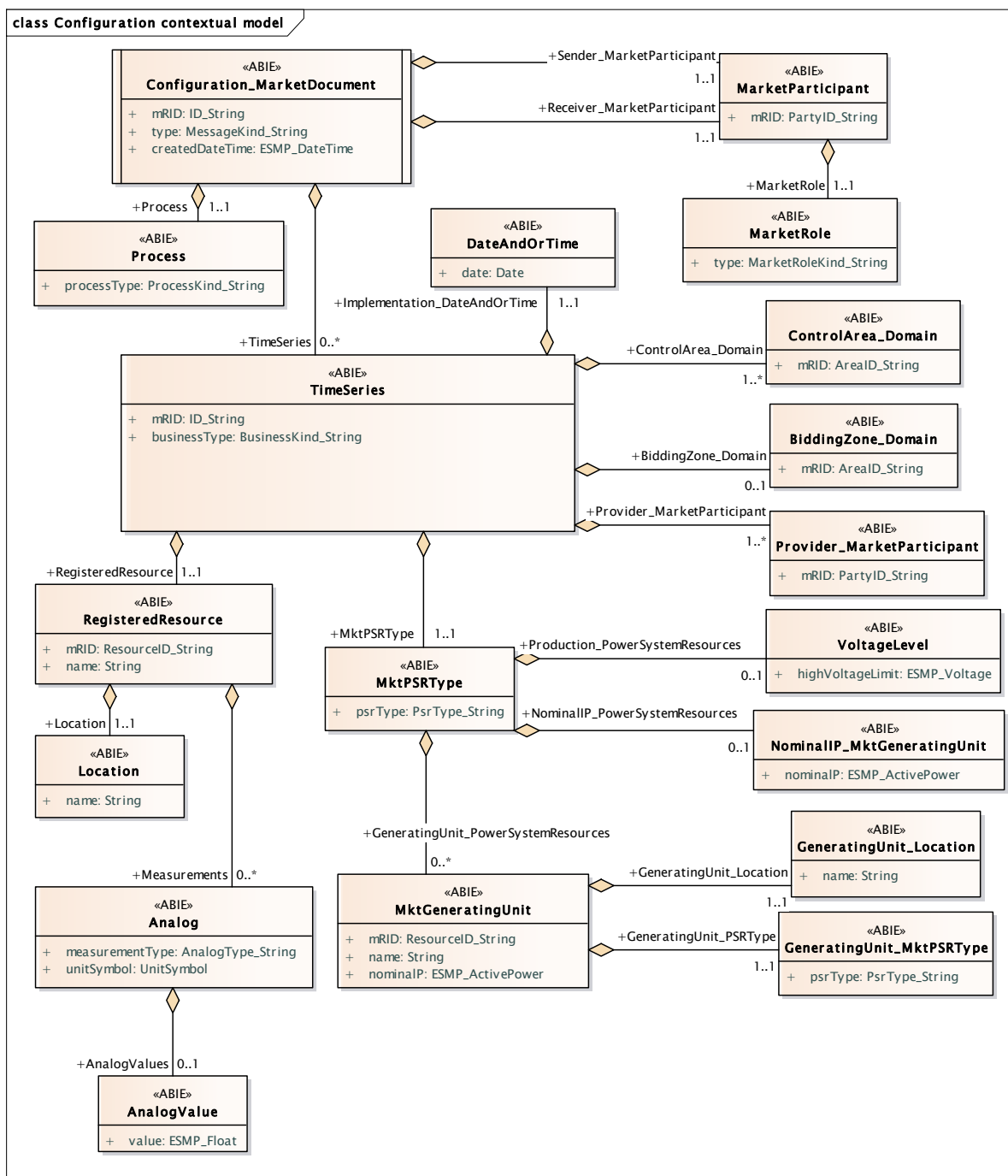
85

86 **Configuration\_MarketDocument**

87 2.1 Configuration contextual model

88 2.1.1 Overview of the model

89 Figure 1 shows the model.



90

91

Figure 1 - Configuration contextual model

92 **2.1.2 IsBasedOn relationships from the European style market profile**

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

95 **Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Analog	TC57CIM::IEC61970::Base::Meas::Analog
AnalogValue	TC57CIM::IEC61970::Base::Meas::AnalogValue
BiddingZone_Domain	TC57CIM::IEC62325::MarketManagement::Domain
Configuration_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
ControlArea_Domain	TC57CIM::IEC62325::MarketManagement::Domain
DateAndOrTime	TC57CIM::IEC62325::MarketManagement::DateAndOrTime
GeneratingUnit_Location	TC57CIM::IEC61968::Common::Location
GeneratingUnit_MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
Location	TC57CIM::IEC61968::Common::Location
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
MktGeneratingUnit	TC57CIM::IEC62325::MarketCommon::MktGeneratingUnit
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
NominallP_MktGeneratingUnit	TC57CIM::IEC62325::MarketCommon::MktGeneratingUnit
Process	TC57CIM::IEC62325::MarketManagement::Process
Provider_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
VoltageLevel	TC57CIM::IEC61970::Base::Core::VoltageLevel

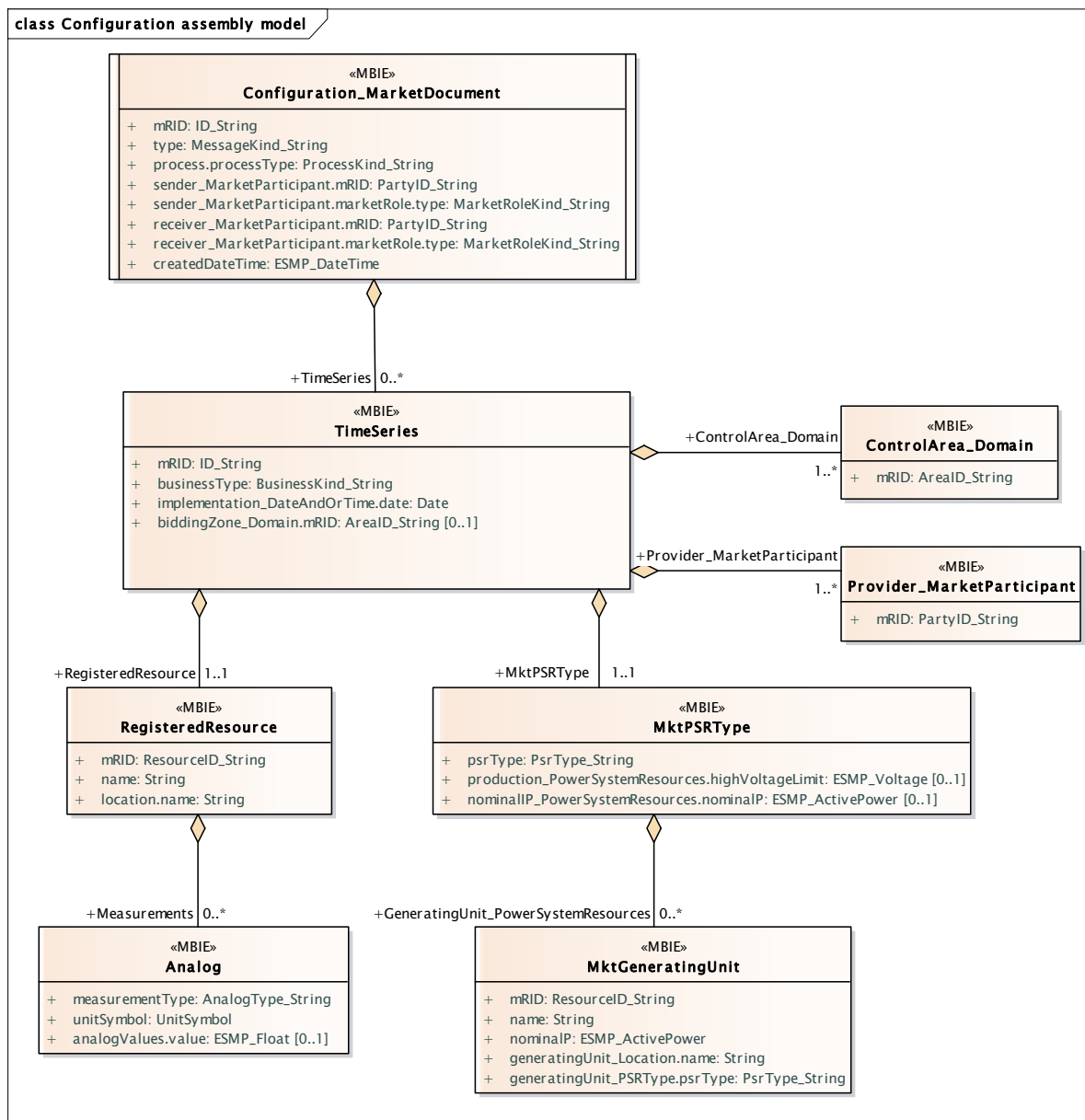
96



97 2.2 Configuration assembly model

98 2.2.1 Overview of the model

99 Figure 2 shows the model.



100

101

Figure 2 - Configuration assembly model

102

103 **2.2.2 IsBasedOn relationships from the European style market profile**

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

106

**Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Analog	TC57CIM::IEC61970::Base::Meas::Analog
Configuration_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
ControlArea_Domain	TC57CIM::IEC62325::MarketManagement::Domain
MktGeneratingUnit	TC57CIM::IEC62325::MarketCommon::MktGeneratingUnit
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
Provider_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

107

108 **2.2.3 Detailed Configuration assembly model**

109 **2.2.3.1 Configuration\_MarketDocument root class**

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

112 The Configuration\_MarketDocument is used to transmit the information necessary to permit the  
113 validation of production units, transmission assets and consumption units when market  
114 information is provided by the data providers to the market information aggregator for  
115 publication.

116 The Configuration\_MarketDocument is also used to transmit modifications or deactivations that  
117 evolve the initial configuration information over time.

118 Table 3 shows all attributes of Configuration\_MarketDocument.

119 **Table 3 - Attributes of Configuration assembly model::Configuration\_MarketDocument**

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.
5	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.
6	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient.

Order	mult.	Attribute name / Attribute type	Description
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 Configuration\_MarketDocument with other classes.

122

123

**Table 4 - Association ends of Configuration assembly model::Configuration\_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
8	[0..*]	TimeSeries TimeSeries	Association Based On: Configuration contextual model::TimeSeries.TimeSeries[0..*] ----- Configuration contextual model::Configuration_MarketDocument.[]

124

### 125 2.2.3.2 Analog

126 Analog represents an analog Measurement.

127 Table 5 shows all attributes of Analog.

128

**Table 5 - Attributes of Configuration assembly model::Analog**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	measurementType AnalogType_String	Specifies the type of measurement. For example, this specifies if the measurement represents an indoor temperature, outdoor temperature, bus voltage, line flow, etc.
1	[1..1]	unitSymbol UnitSymbol	The unit of measure of the measured quantity.
2	[0..1]	analogValues.value ESMP_Float	The value to supervise. --- Measurement to which this value is connected.

129

### 130 2.2.3.3 ControlArea\_Domain

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

133 Table 6 shows all attributes of ControlArea\_Domain.

134

**Table 6 - Attributes of Configuration assembly model::ControlArea\_Domain**

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

135

### 136 2.2.3.4 MktGeneratingUnit

137 The information about a generating unit.

138 Table 7 shows all attributes of MktGeneratingUnit.

139

**Table 7 - Attributes of Configuration assembly model::MktGeneratingUnit**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ResourceID_String	The unique identification of the generation unit.
1	[1..1]	name String	The name is any free human readable and possibly non unique text naming the object.
2	[1..1]	nominalP ESMP_ActivePower	The nominal power of the generating unit.
3	[1..1]	generatingUnit_Location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of the MktGeneratingUnit.
4	[1..1]	generatingUnit_PSRTYPE.psrType PsrType_String	The coded type of a power system resource. --- The coded type of the generating unit.

140

### 141 2.2.3.5 MktPSRType

142 The type of a power system resource

143 Table 8 shows all attributes of MktPSRType.

144

**Table 8 - Attributes of Configuration assembly model::MktPSRType**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	psrType PsrType_String	The coded type of a power system resource.
1	[0..1]	production_PowerSystemResources.highVoltageLimit ESMP_Voltage	The bus bar's high voltage limit --- The voltage level of the RegisteredResource having the MktPSRType.
2	[0..1]	nominalP_PowerSystemResources.nominalP ESMP_ActivePower	The nominal power of a production or consumption unit. --- The installed capacity of a production unit or a consumption unit.

145

146 Table 9 shows all association ends of MktPSRType with other classes.

**Table 9 - Association ends of Configuration assembly model::MktPSRType with other classes**

148

Order	mult.	Class name / Role	Description
3	[0..*]	MktGeneratingUnit GeneratingUnit_PowerSystemResources	The generating unit(s) associated with the RegisteredResource of the MktPSRType. Association Based On: Configuration contextual model::MktGeneratingUnit.GeneratingUnit_PowerSystemResources[0..*] ----- Configuration contextual model::MktPSRType.[]

149

### 150 2.2.3.6 Provider\_MarketParticipant

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

153 Table 10 shows all attributes of Provider\_MarketParticipant.

154 **Table 10 - Attributes of Configuration assembly model::Provider\_MarketParticipant**

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

155

### 156 2.2.3.7 RegisteredResource

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

159 Table 11 shows all attributes of RegisteredResource.

160 **Table 11 - Attributes of 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	[1..1]	location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this RegisteredResource.

161

162 Table 12 shows all association ends of RegisteredResource with other classes.

163 **Table 12 - Association ends of Configuration assembly model::RegisteredResource with  
164 other classes**

Order	mult.	Class name / Role	Description
3	[0..*]	Analog Measurements	The power system resource that contains the measurement. Association Based On: Configuration contextual model::Analog.Measurements[0..*] ----- Configuration contextual model::RegisteredResource.[]

165

### 166 2.2.3.8 TimeSeries

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

170 Table 13 shows all attributes of TimeSeries.

171 **Table 13 - Attributes of Configuration 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.

Order	mult.	Attribute name / Attribute type	Description
2	[1..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.
3	[0..1]	biddingZone_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.

172

173 Table 14 shows all association ends of TimeSeries with other classes.

174 **Table 14 - Association ends of Configuration assembly model::TimeSeries with other**  
175 **classes**

Order	mult.	Class name / Role	Description
4	[1..1]	RegisteredResource RegisteredResource	The identification of a resource associated with a TimeSeries. Association Based On: Configuration contextual model::RegisteredResource.RegisteredResource[1..1] ----- Configuration contextual model::TimeSeries.[]
5	[1..*]	ControlArea_Domain ControlArea_Domain	The domain where the resource object associated with a TimeSeries resides. Association Based On: Configuration contextual model::ControlArea_Domain.ControlArea_Domain[1..*] ----- Configuration contextual model::TimeSeries.[]
6	[1..*]	Provider_MarketParticipant Provider_MarketParticipant	The identification of the party that provides the information concerning the resource object defined in the time series. Association Based On: Configuration contextual model::Provider_MarketParticipant.Provider_MarketParticipant[1..*] ----- Configuration contextual model::TimeSeries.[]
7	[1..1]	MktPSRType MktPSRType	The identification of the type of resource associated with a TimeSeries. Association Based On: Configuration contextual model::TimeSeries.[] ----- Configuration contextual model::MktPSRType.MktPSRType[1..1]

176

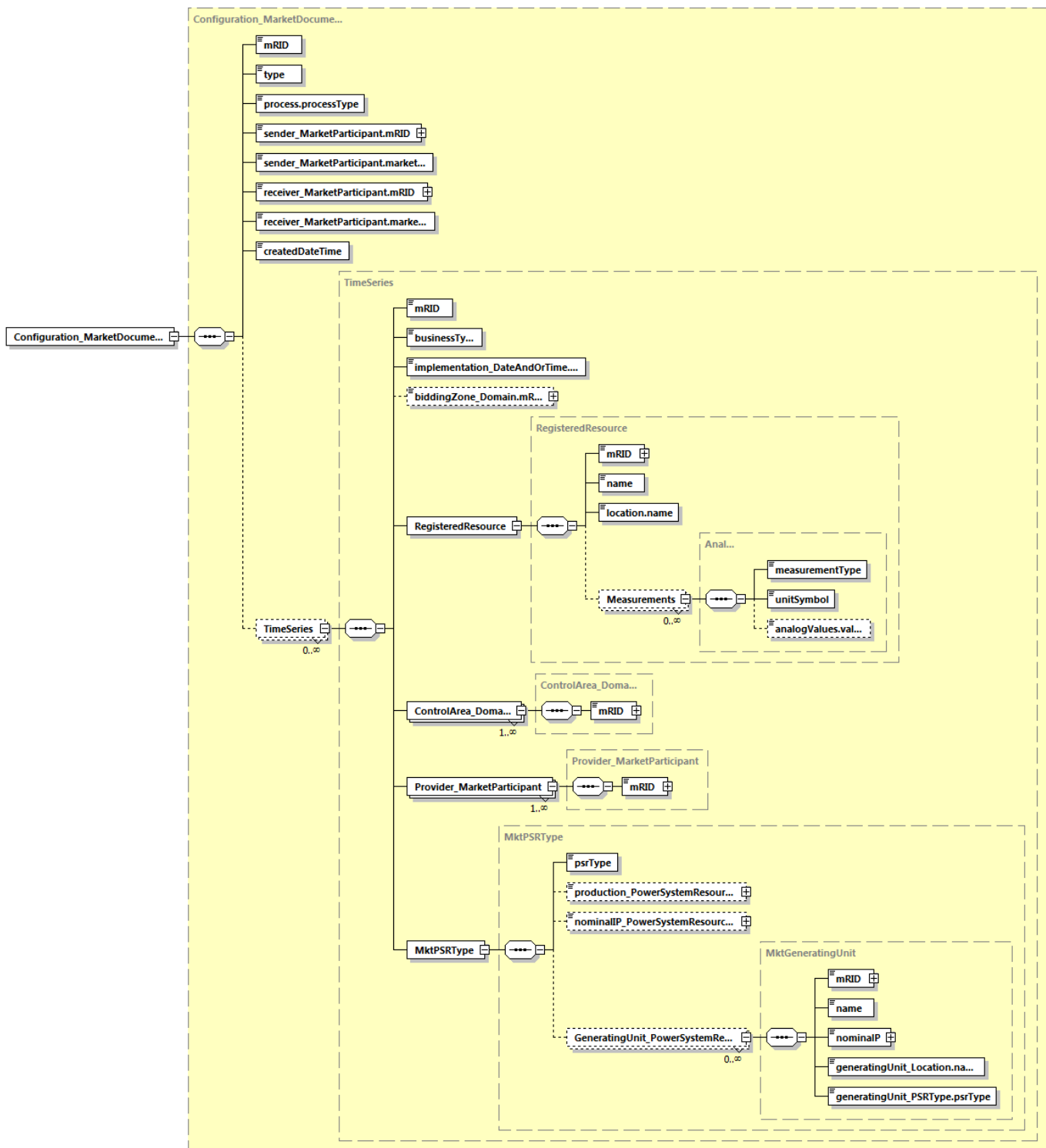
177

#### 178 **2.2.4 Datatypes**

179 The list of datatypes used for the Configuration assembly model is as follows:

- 180 • AnalogType\_String datatype, codelist AnalogTypeList
- 181 • AreaID\_String datatype, codelist CodingSchemeTypeList
- 182 • BusinessKind\_String datatype, codelist BusinessTypeList
- 183 • ESMP\_ActivePower datatype
- 184 • ESMP\_DateTime datatype
- 185 • ESMP\_Float datatype
- 186 • ESMP\_Voltage datatype
- 187 • ID\_String datatype
- 188 • MarketRoleKind\_String datatype, codelist RoleTypeList
- 189 • MessageKind\_String datatype, codelist MessageTypeList
- 190 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 191 • ProcessKind\_String datatype, codelist ProcessTypeList
- 192 • PsrType\_String datatype, codelist AssetTypeList
- 193 • ResourceID\_String datatype, codelist CodingSchemeTypeList
- 194 • UnitSymbol datatype, codelist UnitSymbol
- 195

196 2.2.5 Configuration\_MarketDocument XML schema structure



Generated by XMLSpy

www.altova.com

Figure 3 - Configuration\_MarketDocument schema structure

197  
 198



## 199 2.2.6 Configuration\_MarketDocument XML schema

200

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

202 urn:iec62325.351:tc57wg16:451-6:configurationdocument:3:3

```
203 <?xml version="1.0" encoding="utf-8"?>
204 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
205 xmlns="urn:iec62325.351:tc57wg16:451-6:configurationdocument:3:3"
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:tc57wg16:451-6:configurationdocument:3:3"
210 elementFormDefault="qualified" attributeFormDefault="unqualified">
211   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
212 entsoe-eu-wgedi-codelists.xsd"/>
213   <xs:element name="Configuration_MarketDocument"
214 type="Configuration_MarketDocument"/>
215   <xs:simpleType name="AnalogType_String"
216 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
217     <xs:restriction base="ecl:AnalogTypeList"/>
218   </xs:simpleType>
219   <xs:simpleType name="UnitSymbol"
220 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#UnitSymbol">
221     <xs:restriction base="ecl:UnitSymbol"/>
222   </xs:simpleType>
223   <xs:simpleType name="ESMP_Float"
224 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Float">
225     <xs:restriction base="xs:float">
226       <xs:pattern value="([0-9]*\.\?[0-9]*)"/>
227     </xs:restriction>
228   </xs:simpleType>
229   <xs:complexType name="Analog"
230 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Analog">
231     <xs:sequence>
232       <xs:element name="measurementType" type="AnalogType_String"
233 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
234 schema-cim16#Measurement.measurementType"/>
235       <xs:element name="unitSymbol" type="UnitSymbol" minOccurs="1"
236 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
237 cim16#Measurement.unitSymbol"/>
238       <xs:element name="analogValues.value" type="ESMP_Float"
239 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
240 schema-cim16#AnalogValue.value"/>
241     </xs:sequence>
242   </xs:complexType>
243   <xs:simpleType name="ID_String"
244 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
245     <xs:restriction base="xs:string">
246       <xs:maxLength value="60"/>
247     </xs:restriction>
248   </xs:simpleType>
249   <xs:simpleType name="MessageKind_String"
250 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
251     <xs:restriction base="ecl:MessageTypeList"/>
252   </xs:simpleType>
253   <xs:simpleType name="ProcessKind_String"
254 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
255     <xs:restriction base="ecl:ProcessTypeList"/>
```

```
256     </xs:simpleType>
257     <xs:simpleType name="PartyID_String-base"
258 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
259         <xs:restriction base="xs:string">
260             <xs:maxLength value="16"/>
261         </xs:restriction>
262     </xs:simpleType>
263     <xs:complexType name="PartyID_String"
264 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
265         <xs:simpleContent>
266             <xs:extension base="PartyID_String-base">
267                 <xs:attribute name="codingScheme"
268 type="ecl:CodingSchemeTypeList" use="required"/>
269             </xs:extension>
270         </xs:simpleContent>
271     </xs:complexType>
272     <xs:simpleType name="MarketRoleKind_String"
273 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
274         <xs:restriction base="ecl:RoleTypeList"/>
275     </xs:simpleType>
276     <xs:simpleType name="ESMP_DateTime"
277 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
278         <xs:restriction base="xs:dateTime">
279             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
280 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
281 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
282 9])Z)|((([13579][26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][0
283 48]|02468][048][02468][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|
284 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
285 5][0-9]:[0-5][0-
286 9])Z)|((([13579][26][02468][1235679]|13579][01345789](0)[01235679]|13579][0134578
287 9][2468][1235679]|02468][048][02468][1235679]|02468][1235679](0)[01235679]|0246
288 8][1235679][2468][1235679]|0-9][0-9][13579][01345789]))[\-](02)[\-](0[1-9]|1[0-
289 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
290         </xs:restriction>
291     </xs:simpleType>
292     <xs:complexType name="Configuration_MarketDocument"
293 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
294         <xs:sequence>
295             <xs:element name="mRID" type="ID_String" minOccurs="1"
296 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
297 cim16#IdentifiedObject.mRID"/>
298             <xs:element name="type" type="MessageKind_String"
299 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
300 schema-cim16#Document.type"/>
301             <xs:element name="process.processType"
302 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
303 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
304 cim16#Process.processType"/>
305             <xs:element name="sender_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="sender_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="receiver_MarketParticipant.mRID"
313 type="PartyID_String" minOccurs="1" maxOccurs="1"
314 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
315 cim16#IdentifiedObject.mRID"/>
```

```

316         <xs:element name="receiver_MarketParticipant.marketRole.type"
317 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
318 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
319         <xs:element name="createdDateTime" type="ESMP_DateTime"
320 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
321 schema-cim16#Document.createdDateTime"/>
322         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
323 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
324 cim16#MarketDocument.TimeSeries"/>
325     </xs:sequence>
326 </xs:complexType>
327 <xs:simpleType name="AreaID_String-base"
328 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
329     <xs:restriction base="xs:string">
330         <xs:maxLength value="18"/>
331     </xs:restriction>
332 </xs:simpleType>
333 <xs:complexType name="AreaID_String"
334 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
335     <xs:simpleContent>
336         <xs:extension base="AreaID_String-base">
337             <xs:attribute name="codingScheme"
338 type="ecl:CodingSchemeTypeList" use="required"/>
339         </xs:extension>
340     </xs:simpleContent>
341 </xs:complexType>
342 <xs:complexType name="ControlArea_Domain"
343 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Domain">
344     <xs:sequence>
345         <xs:element name="mRID" type="AreaID_String" minOccurs="1"
346 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
347 cim16#IdentifiedObject.mRID"/>
348     </xs:sequence>
349 </xs:complexType>
350 <xs:simpleType name="ResourceID_String-base"
351 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
352     <xs:restriction base="xs:string">
353         <xs:maxLength value="60"/>
354     </xs:restriction>
355 </xs:simpleType>
356 <xs:complexType name="ResourceID_String"
357 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
358     <xs:simpleContent>
359         <xs:extension base="ResourceID_String-base">
360             <xs:attribute name="codingScheme"
361 type="ecl:CodingSchemeTypeList" use="required"/>
362         </xs:extension>
363     </xs:simpleContent>
364 </xs:complexType>
365 <xs:simpleType name="ESMP_ActivePower-base"
366 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ActivePower">
367     <xs:restriction base="xs:float">
368         <xs:pattern value="([0-9]*\.\?[0-9]*)"/>
369     </xs:restriction>
370 </xs:simpleType>
371 <xs:complexType name="ESMP_ActivePower"
372 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ActivePower">
373     <xs:simpleContent>
374         <xs:extension base="ESMP_ActivePower-base">
  
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375         <xs:attribute name="unit" type="ecl:UnitSymbol"
376 use="required" fixed="MAW"/>
377         </xs:extension>
378     </xs:simpleContent>
379 </xs:complexType>
380 <xs:simpleType name="PsrType_String"
381 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
382     <xs:restriction base="ecl:AssetTypeList"/>
383 </xs:simpleType>
384 <xs:complexType name="MktGeneratingUnit"
385 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
386 cim16#MktGeneratingUnit">
387     <xs:sequence>
388         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
389 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
390 cim16#IdentifiedObject.mRID"/>
391         <xs:element name="name" type="xs:string" minOccurs="1"
392 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
393 cim16#IdentifiedObject.name"/>
394         <xs:element name="nominalP" type="ESMP_ActivePower"
395 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
396 schema-cim16#GeneratingUnit.nominalP"/>
397         <xs:element name="generatingUnit_Location.name"
398 type="xs:string" minOccurs="1" maxOccurs="1"
399 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
400 cim16#IdentifiedObject.name"/>
401         <xs:element name="generatingUnit_PSRType.psrType"
402 type="PsrType_String" minOccurs="1" maxOccurs="1"
403 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
404 cim16#MktPSRType.psrType"/>
405     </xs:sequence>
406 </xs:complexType>
407 <xs:simpleType name="ESMP_Voltage-base"
408 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
409     <xs:restriction base="xs:float">
410         <xs:pattern value="([0-9]*\.\?[0-9]*)"/>
411     </xs:restriction>
412 </xs:simpleType>
413 <xs:complexType name="ESMP_Voltage"
414 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
415     <xs:simpleContent>
416         <xs:extension base="ESMP_Voltage-base">
417             <xs:attribute name="unit" type="ecl:UnitSymbol"
418 use="required" fixed="KVT"/>
419         </xs:extension>
420     </xs:simpleContent>
421 </xs:complexType>
422 <xs:complexType name="MktPSRType"
423 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MktPSRType">
424     <xs:sequence>
425         <xs:element name="psrType" type="PsrType_String" minOccurs="1"
426 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
427 cim16#MktPSRType.psrType"/>
428         <xs:element
429 name="production_PowerSystemResources.highVoltageLimit" type="ESMP_Voltage"
430 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
431 schema-cim16#VoltageLevel.highVoltageLimit"/>
432         <xs:element name="nominalIP_PowerSystemResources.nominalP"
433 type="ESMP_ActivePower" minOccurs="0" maxOccurs="1"

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434 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
435 cim16#GeneratingUnit.nominalP"/>
436     <xs:element name="GeneratingUnit_PowerSystemResources"
437 type="MktGeneratingUnit" minOccurs="0" maxOccurs="unbounded"
438 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
439 cim16#MktPSRType.GeneratingUnit_PowerSystemResources"/>
440     </xs:sequence>
441 </xs:complexType>
442 <xs:complexType name="Provider_MarketParticipant"
443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
444 cim16#MarketParticipant">
445     <xs:sequence>
446         <xs:element name="mRID" type="PartyID_String" minOccurs="1"
447 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
448 cim16#IdentifiedObject.mRID"/>
449     </xs:sequence>
450 </xs:complexType>
451 <xs:complexType name="RegisteredResource"
452 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
453 cim16#RegisteredResource">
454     <xs:sequence>
455         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
456 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
457 cim16#IdentifiedObject.mRID"/>
458         <xs:element name="name" type="xs:string" minOccurs="1"
459 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
460 cim16#IdentifiedObject.name"/>
461         <xs:element name="location.name" type="xs:string"
462 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
463 schema-cim16#IdentifiedObject.name"/>
464         <xs:element name="Measurements" type="Analog" minOccurs="0"
465 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
466 cim16#RegisteredResource.Measurements"/>
467     </xs:sequence>
468 </xs:complexType>
469 <xs:simpleType name="BusinessKind_String"
470 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
471     <xs:restriction base="ecl:BusinessTypeList"/>
472 </xs:simpleType>
473 <xs:complexType name="TimeSeries"
474 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
475     <xs:sequence>
476         <xs:element name="mRID" type="ID_String" minOccurs="1"
477 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
478 cim16#IdentifiedObject.mRID"/>
479         <xs:element name="businessType" type="BusinessKind_String"
480 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
481 schema-cim16#TimeSeries.businessType"/>
482         <xs:element name="implementation_DateAndOrTime.date"
483 type="xs:date" minOccurs="1" maxOccurs="1"
484 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
485 cim16#DateAndOrTime.date"/>
486         <xs:element name="biddingZone_Domain.mRID"
487 type="AreaID_String" minOccurs="0" maxOccurs="1"
488 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
489 cim16#IdentifiedObject.mRID"/>
490         <xs:element name="RegisteredResource"
491 type="RegisteredResource" minOccurs="1" maxOccurs="1"
492 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
493 cim16#TimeSeries.RegisteredResource"/>
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494         <xs:element name="ControlArea_Domain"  
495 type="ControlArea_Domain" minOccurs="1" maxOccurs="unbounded"  
496 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
497 cim16#TimeSeries.ControlArea_Domain"/>  
498         <xs:element name="Provider_MarketParticipant"  
499 type="Provider_MarketParticipant" minOccurs="1" maxOccurs="unbounded"  
500 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
501 cim16#TimeSeries.Provider_MarketParticipant"/>  
502         <xs:element name="MktPSRType" type="MktPSRType" minOccurs="1"  
503 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
504 cim16#TimeSeries.MktPSRType"/>  
505         </xs:sequence>  
506     </xs:complexType>  
507 </xs:schema>  
508
```