



European Network of
Transmission System Operators
for Electricity

CONFIGURATION DOCUMENT UML MODEL AND SCHEMA

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VERSION 1.0

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.

67

68 1 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.

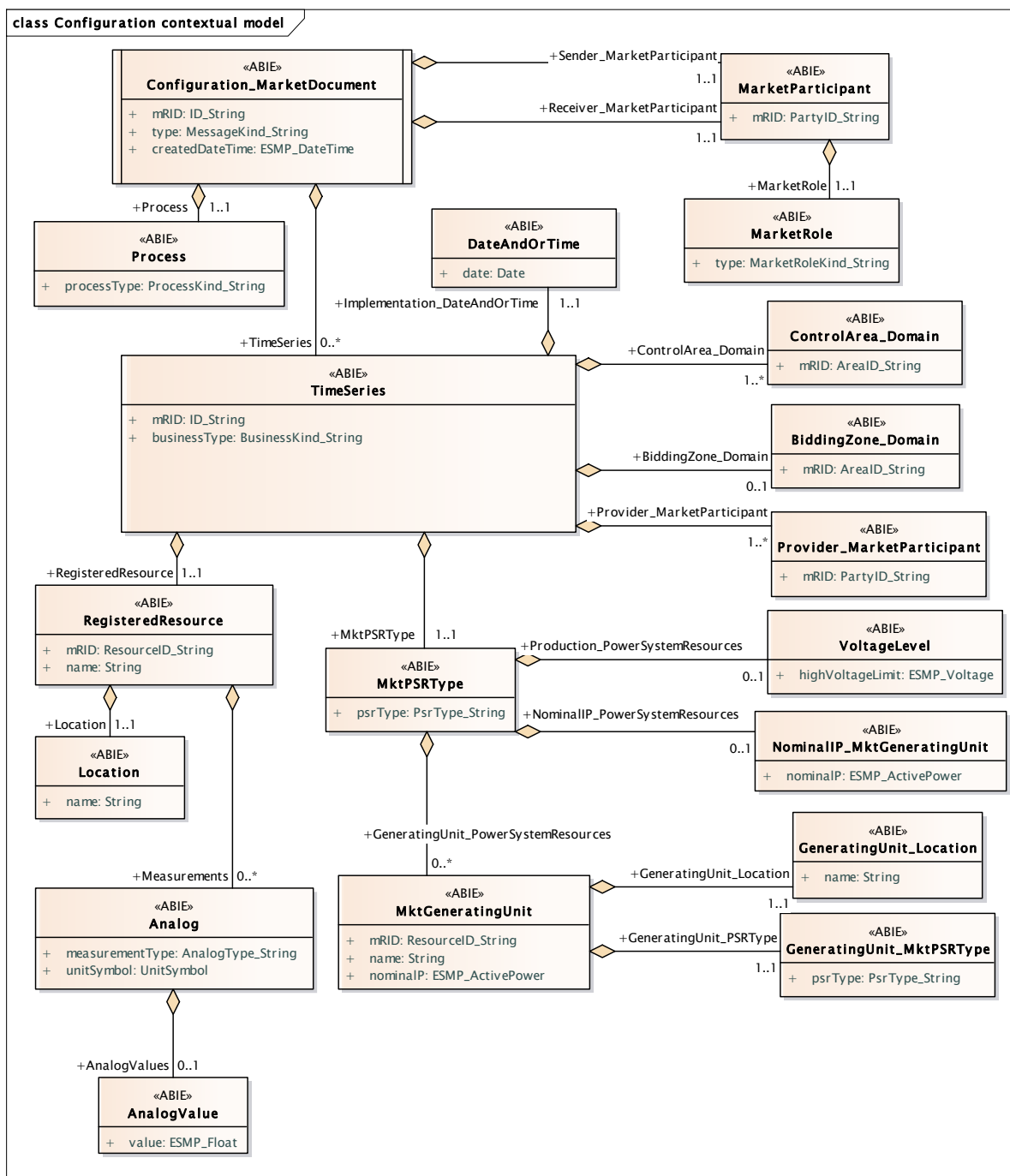
85

86 **2 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**

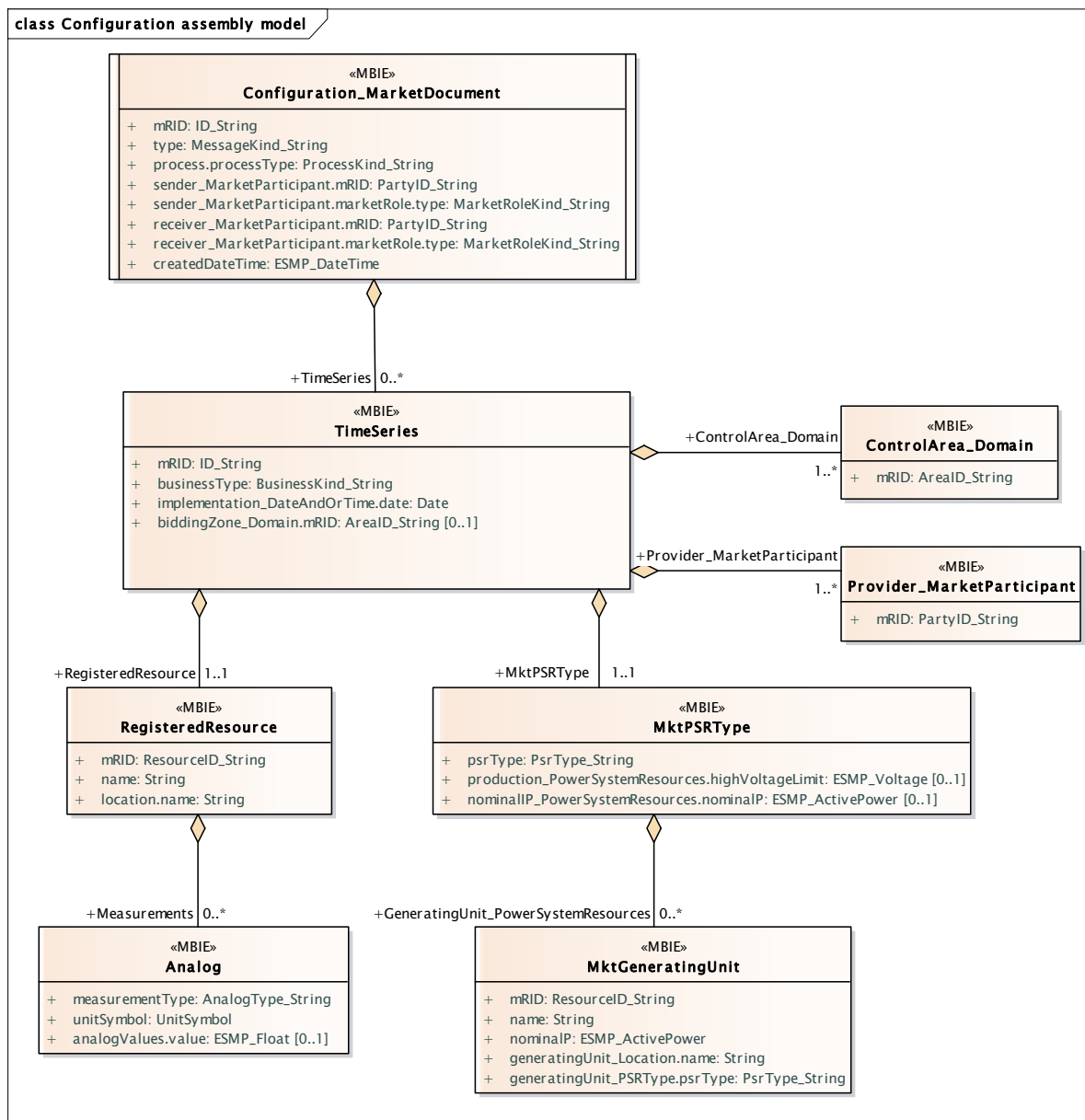
Name	Complete IsBasedOn Path
Analog	TC57CIM::IEC61970::Base::Meas::Analog
AnalogValue	TC57CIM::IEC61970::Base::Meas::AnalogValue
BiddingZone_Domain	TC57CIM::IEC62325::MarketManagement::Domain
Configuration_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
ControlArea_Domain	TC57CIM::IEC62325::MarketManagement::Domain
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 etc.

132

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

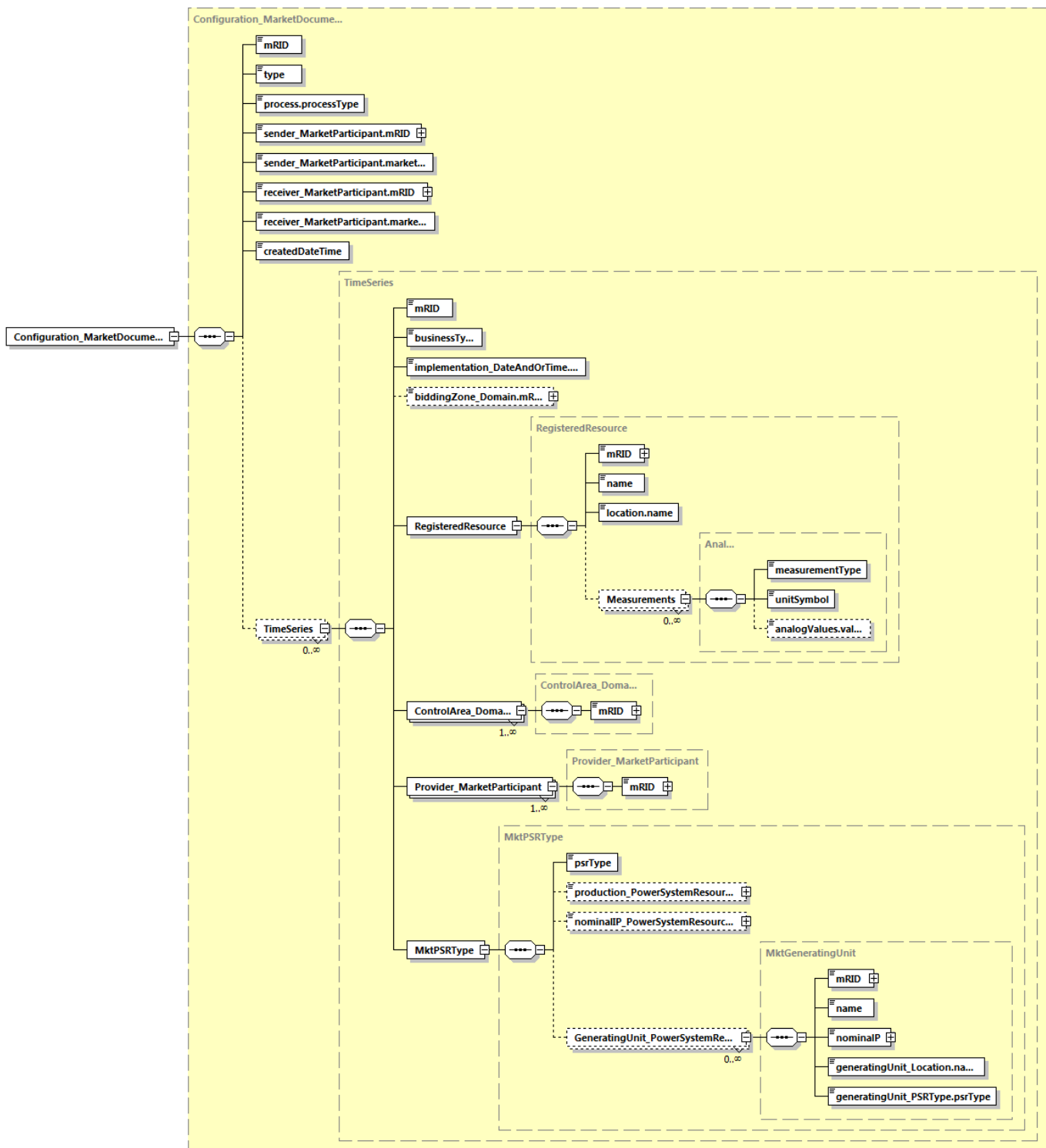
177

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:3:2

```
203 <?xml version="1.0" encoding="utf-8"?>
204 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
205 xmlns:sawsdl="http://www.w3.org/ns/sawsdl" xmlns="urn:iec62325.351:tc57wg16:451-
206 6:configurationdocument:3:2" xmlns:cimp="http://www.iec.ch/cimprofile"
207 xmlns:xs="http://www.w3.org/2001/XMLSchema"
208 targetNamespace="urn:iec62325.351:tc57wg16:451-6:configurationdocument:3:2"
209 elementFormDefault="qualified" attributeFormDefault="unqualified">
210   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
211 entsoe-eu-wgedi-codelists.xsd"/>
212   <xs:element name="Configuration_MarketDocument"
213 type="Configuration_MarketDocument"/>
214   <xs:simpleType name="AnalogType_String"
215 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
216     <xs:restriction base="ecl:AnalogTypeList"/>
217   </xs:simpleType>
218   <xs:simpleType name="UnitSymbol"
219 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
220     <xs:restriction base="ecl:UnitSymbol"/>
221   </xs:simpleType>
222   <xs:simpleType name="ESMP_Float"
223 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Float">
224     <xs:restriction base="xs:float">
225       <xs:pattern value="([0-9]*\.[0-9]*)"/>
226     </xs:restriction>
227   </xs:simpleType>
228   <xs:complexType name="Analog"
229 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Analog">
230     <xs:sequence>
231       <xs:element name="measurementType" type="AnalogType_String"
232 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
233 schema-cim16#Measurement.measurementType"/>
234       <xs:element name="unitSymbol" type="UnitSymbol" minOccurs="1"
235 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
236 cim16#Measurement.unitSymbol"/>
237       <xs:element name="analogValues.value" type="ESMP_Float"
238 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
239 schema-cim16#AnalogValue.value"/>
240     </xs:sequence>
241   </xs:complexType>
242   <xs:simpleType name="ID_String"
243 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
244     <xs:restriction base="xs:string">
245       <xs:maxLength value="35"/>
246     </xs:restriction>
247   </xs:simpleType>
248   <xs:simpleType name="MessageKind_String"
249 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
250     <xs:restriction base="ecl:MessageTypeList"/>
251   </xs:simpleType>
252   <xs:simpleType name="ProcessKind_String"
253 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
254     <xs:restriction base="ecl:ProcessTypeList"/>
255   </xs:simpleType>
```

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

```

315         <xs:element name="receiver_MarketParticipant.marketRole.type"
316 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
317 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
318         <xs:element name="createdDateTime" type="ESMP_DateTime"
319 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
320 schema-cim16#Document.createdDateTime"/>
321         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
322 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
323 cim16#MarketDocument.TimeSeries"/>
324     </xs:sequence>
325 </xs:complexType>
326 <xs:simpleType name="AreaID_String-base"
327 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
328     <xs:restriction base="xs:string">
329         <xs:maxLength value="18"/>
330     </xs:restriction>
331 </xs:simpleType>
332 <xs:complexType name="AreaID_String"
333 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
334     <xs:simpleContent>
335         <xs:extension base="AreaID_String-base">
336             <xs:attribute name="codingScheme"
337 type="ecl:CodingSchemeTypeList" use="required"/>
338         </xs:extension>
339     </xs:simpleContent>
340 </xs:complexType>
341 <xs:complexType name="ControlArea_Domain"
342 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Domain">
343     <xs:sequence>
344         <xs:element name="mRID" type="AreaID_String" minOccurs="1"
345 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
346 cim16#IdentifiedObject.mRID"/>
347     </xs:sequence>
348 </xs:complexType>
349 <xs:simpleType name="ResourceID_String-base"
350 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
351     <xs:restriction base="xs:string">
352         <xs:maxLength value="60"/>
353     </xs:restriction>
354 </xs:simpleType>
355 <xs:complexType name="ResourceID_String"
356 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
357     <xs:simpleContent>
358         <xs:extension base="ResourceID_String-base">
359             <xs:attribute name="codingScheme"
360 type="ecl:CodingSchemeTypeList" use="required"/>
361         </xs:extension>
362     </xs:simpleContent>
363 </xs:complexType>
364 <xs:simpleType name="ESMP_ActivePower-base"
365 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ActivePower">
366     <xs:restriction base="xs:float">
367         <xs:pattern value="([0-9]*\.\?[0-9]*)"/>
368     </xs:restriction>
369 </xs:simpleType>
370 <xs:complexType name="ESMP_ActivePower"
371 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ActivePower">
372     <xs:simpleContent>
373         <xs:extension base="ESMP_ActivePower-base">

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374         <xs:attribute name="unit" type="ecl:UnitSymbol"
375 use="required" fixed="MAW"/>
376         </xs:extension>
377     </xs:simpleContent>
378 </xs:complexType>
379 <xs:simpleType name="PsrType_String"
380 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
381     <xs:restriction base="ecl:AssetTypeList"/>
382 </xs:simpleType>
383 <xs:complexType name="MktGeneratingUnit"
384 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
385 cim16#MktGeneratingUnit">
386     <xs:sequence>
387         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
388 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
389 cim16#IdentifiedObject.mRID"/>
390         <xs:element name="name" type="xs:string" minOccurs="1"
391 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
392 cim16#IdentifiedObject.name"/>
393         <xs:element name="nominalP" type="ESMP_ActivePower"
394 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
395 schema-cim16#GeneratingUnit.nominalP"/>
396         <xs:element name="generatingUnit_Location.name"
397 type="xs:string" minOccurs="1" maxOccurs="1"
398 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
399 cim16#IdentifiedObject.name"/>
400         <xs:element name="generatingUnit_PSRType.psrType"
401 type="PsrType_String" minOccurs="1" maxOccurs="1"
402 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
403 cim16#MktPSRType.psrType"/>
404     </xs:sequence>
405 </xs:complexType>
406 <xs:simpleType name="ESMP_Voltage-base"
407 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
408     <xs:restriction base="xs:float">
409         <xs:pattern value="([0-9]*\.\?[0-9]*)"/>
410     </xs:restriction>
411 </xs:simpleType>
412 <xs:complexType name="ESMP_Voltage"
413 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
414     <xs:simpleContent>
415         <xs:extension base="ESMP_Voltage-base">
416             <xs:attribute name="unit" type="ecl:UnitSymbol"
417 use="required" fixed="KVT"/>
418         </xs:extension>
419     </xs:simpleContent>
420 </xs:complexType>
421 <xs:complexType name="MktPSRType"
422 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MktPSRType">
423     <xs:sequence>
424         <xs:element name="psrType" type="PsrType_String" minOccurs="1"
425 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
426 cim16#MktPSRType.psrType"/>
427         <xs:element
428 name="production_PowerSystemResources.highVoltageLimit" type="ESMP_Voltage"
429 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
430 schema-cim16#VoltageLevel.highVoltageLimit"/>
431         <xs:element name="nominalIP_PowerSystemResources.nominalP"
432 type="ESMP_ActivePower" minOccurs="0" maxOccurs="1"

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