



European Network of
Transmission System Operators
for Electricity

STATISTICAL DOCUMENT UML MODEL AND SCHEMA

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VERSION 1.0

2

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58

Revision History

Version	Release	Date	Comments
1	0	2024-04-03	First version of the document. Agreed by CIM WG.

59

60 **1. Objective**

61 The purpose of this document is to provide the contextual and assembly UML models and the
62 schema of the Statistical_MarketDocument.

63 The schema of the Statistical_MarketDocument could be used in various business processes.

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

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

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

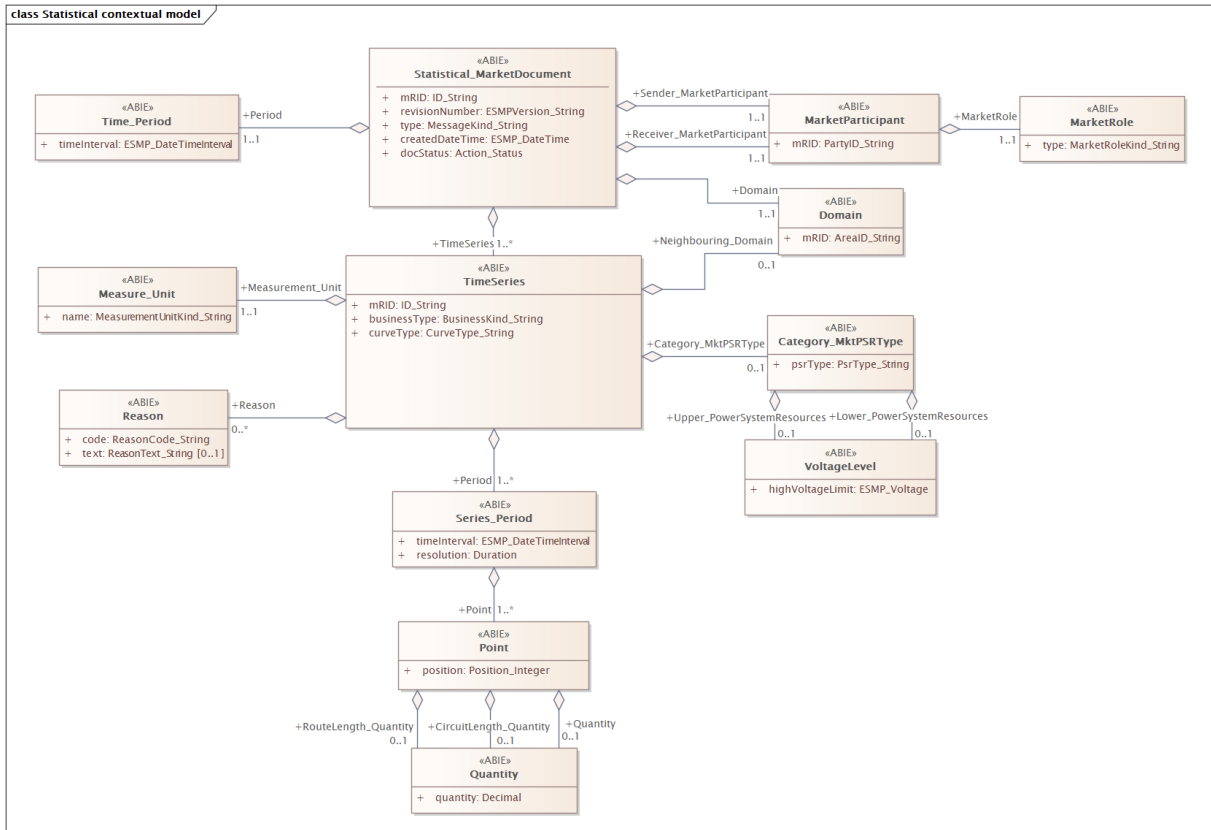
76

77 **2. Statistical_MarketDocument**

78 **2.1. Statistical contextual model**

79 **2.1.1. Overview of the model**

80 Figure 1 shows the model.



81

82

Figure 1 - Statistical contextual model

83

84

85 **2.1.2. IsBasedOn relationships from the European style market profile**

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

88

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Category_MktPSRType	TC57CIM::Market::MarketManagement::MktPSRType
Domain	TC57CIM::Market::MarketManagement::Domain
MarketParticipant	TC57CIM::Market::MarketCommon::MarketParticipant
MarketRole	TC57CIM::Market::MarketCommon::MarketRole
Measure_Unit	TC57CIM::Market::MarketManagement::Unit
Point	TC57CIM::Market::MarketManagement::Point
Quantity	TC57CIM::Market::MarketManagement::Quantity
Reason	TC57CIM::Market::MarketManagement::Reason
Series_Period	TC57CIM::Market::MarketManagement::Period
Statistical_MarketDocument	TC57CIM::Market::MarketManagement::MarketDocument
Time_Period	TC57CIM::Market::MarketManagement::Period
TimeSeries	TC57CIM::Market::MarketManagement::TimeSeries
VoltageLevel	TC57CIM::IEC61970::Base::Core::VoltageLevel

89

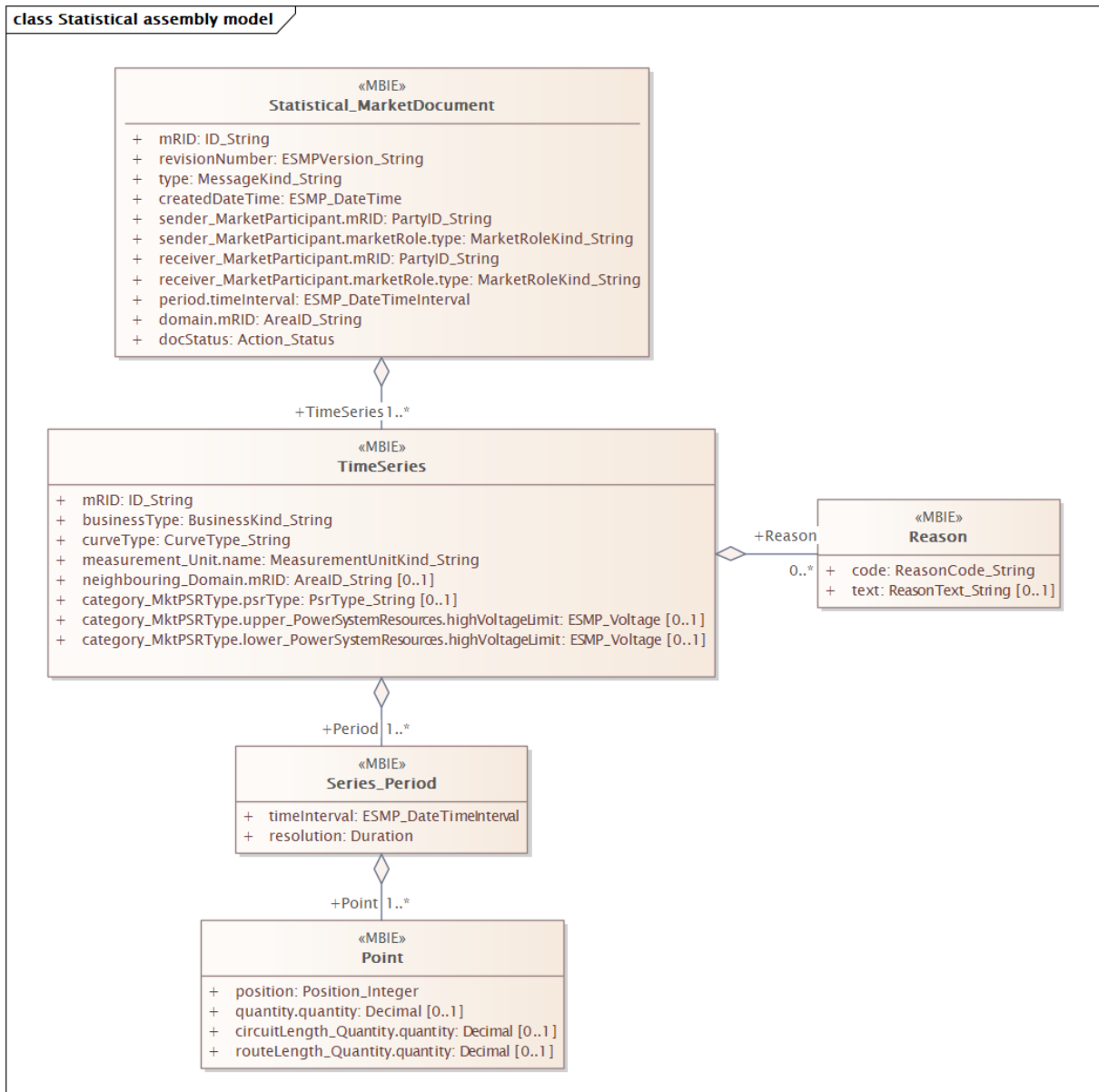
90

91

92 **2.2. Statistical assembly model**

93 **2.2.1. Overview of the model**

94 Figure 2 shows the model.



95

96 **Figure 2 - Statistical assembly model**

97 **2.2.2. IsBasedOn relationships from the European style market profile**

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

100

Table 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Point	TC57CIM::Market::MarketManagement::Point
Reason	TC57CIM::Market::MarketManagement::Reason
Series_Period	TC57CIM::Market::MarketManagement::Period
Statistical_MarketDocument	TC57CIM::Market::MarketManagement::MarketDocument
TimeSeries	TC57CIM::Market::MarketManagement::TimeSeries

101

102 **2.2.3. Detailed Statistical assembly model**

103 **2.2.3.1. Statistical_MarketDocument root class**

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

106 Table 3 shows all attributes of Statistical_MarketDocument.

107 **Table 3 - Attributes of Statistical assembly model::Statistical_MarketDocument**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The unique identification of the document being exchanged within a business process flow. In the ESMP context, the "model authority" is defined as a party (originator of the exchange) that provides an identification in the context of a business exchange such as document 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.
1	[1..1]	revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
3	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. 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 MarketParticipant associated with an electronic document header.

Order	mult.	Attribute name / Attribute type	Description
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The MarketParticipant associated with an electronic document header. --- The role associated with a MarketParticipant.
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. 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 MarketParticipant associated with an electronic document header.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The MarketParticipant associated with an electronic document header. --- The role associated with a MarketParticipant.
8	[1..1]	period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The time interval that is associated with an electronic document and which is valid for the whole document.
9	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. 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 Domain associated with an electronic document header.
11	[1..1]	docStatus Action_Status	The identification of the condition or position of the document with regard to its standing.

108

109 Table 4 shows all association ends of Statistical_MarketDocument with other classes.

110 **Table 4 - Association ends of Statistical assembly model::Statistical_MarketDocument**
111 **with other classes**

Order	mult.	Class name / Role	Description
10	[1..*]	TimeSeries TimeSeries	The time series that is associated with an electronic document. Association Based On: Statistical contextual model::TimeSeries.TimeSeries[1..*] ----- Statistical contextual model::Statistical_MarketDocument.[]

112

113 **2.2.3.2. Point**

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

115 Table 5 shows all attributes of Point.

116 **Table 5 - Attributes of Statistical assembly model::Point**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	position Position_Integer	A sequential value representing the relative position within a given time interval.
1	[0..1]	quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed. --- The Quantity information associated with a given Point.
2	[0..1]	circuitLength_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed. --- The Quantity information associated with a given Point.
3	[0..1]	routeLength_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed. --- The Quantity information associated with a given Point.

117

118 **2.2.3.3. Reason**

119 The motivation of an act.

120 Table 6 shows all attributes of Reason.

121 **Table 6 - Attributes of Statistical assembly model::Reason**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	code ReasonCode_String	The motivation of an act in coded form.
1	[0..1]	text ReasonText_String	The textual explanation corresponding to the reason code.

122

123 **2.2.3.4. Series_Period**

124 The identification of the period of time corresponding to a given time interval and resolution.

125 Table 7 shows all attributes of Series_Period.

126 **Table 7 - Attributes of Statistical assembly model::Series_Period**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	timeInterval ESMP_DateTimeInterval	The start and end time of the period.
1	[1..1]	resolution Duration	The definition of the number of units of time that compose an individual step within a period.

127

128 Table 8 shows all association ends of Series_Period with other classes.

129 **Table 8 - Association ends of Statistical assembly model::Series_Period with other**
130 **classes**

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	The Point information associated with a given Series_Period.within a TimeSeries. Association Based On: Statistical contextual model::Point.Point[1..*] ----- Statistical contextual model::Series_Period.[]

131

132 **2.2.3.5. TimeSeries**

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

134 In the ESMP profile, the TimeSeries provides not only time-ordered quantities but also time-
135 ordered information.

136 Table 9 shows all attributes of TimeSeries.

137 **Table 9 - Attributes of Statistical assembly model::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series. In the ESMP context, the "model authority" is defined as a party (originator of the exchange) that provides a unique identification in the context of a business exchange such as time series identification, bid 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.
1	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
2	[1..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

Order	mult.	Attribute name / Attribute type	Description
3	[1..1]	measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure associated with the quantities in a TimeSeries.
4	[0..1]	neighbouring_Domain.mRID AreaID_String	The unique identification of the domain. 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 domain associated with a TimeSeries.
5	[0..1]	category_MktPSRType.psrType PsrType_String	The coded type of a power system resource. --- The identification of the type of resource associated with a TimeSeries.
6	[0..1]	category_MktPSRType.upper_PowerSystemResources.highVoltageLimit ESMP_Voltage	The bus bar's high voltage limit --- The identification of the type of resource associated with a TimeSeries. --- The voltage level of the RegisteredResource having the MktPSRType.
7	[0..1]	category_MktPSRType.lower_PowerSystemResources.highVoltageLimit ESMP_Voltage	The bus bar's high voltage limit --- The identification of the type of resource associated with a TimeSeries. --- The voltage level of the RegisteredResource having the MktPSRType.

138

139 Table 10 shows all association ends of TimeSeries with other classes.

140 **Table 10 - Association ends of Statistical assembly model::TimeSeries with other**
141 **classes**

Order	mult.	Class name / Role	Description
8	[1..*]	Series_Period Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Statistical contextual model::Series_Period.Period[1..*] ----- Statistical contextual model::TimeSeries.[]
9	[0..*]	Reason Reason	The reason information associated with a TimeSeries providing motivation information. Association Based On: Statistical contextual model::Reason.Reason[0..*] ----- Statistical contextual model::TimeSeries.[]

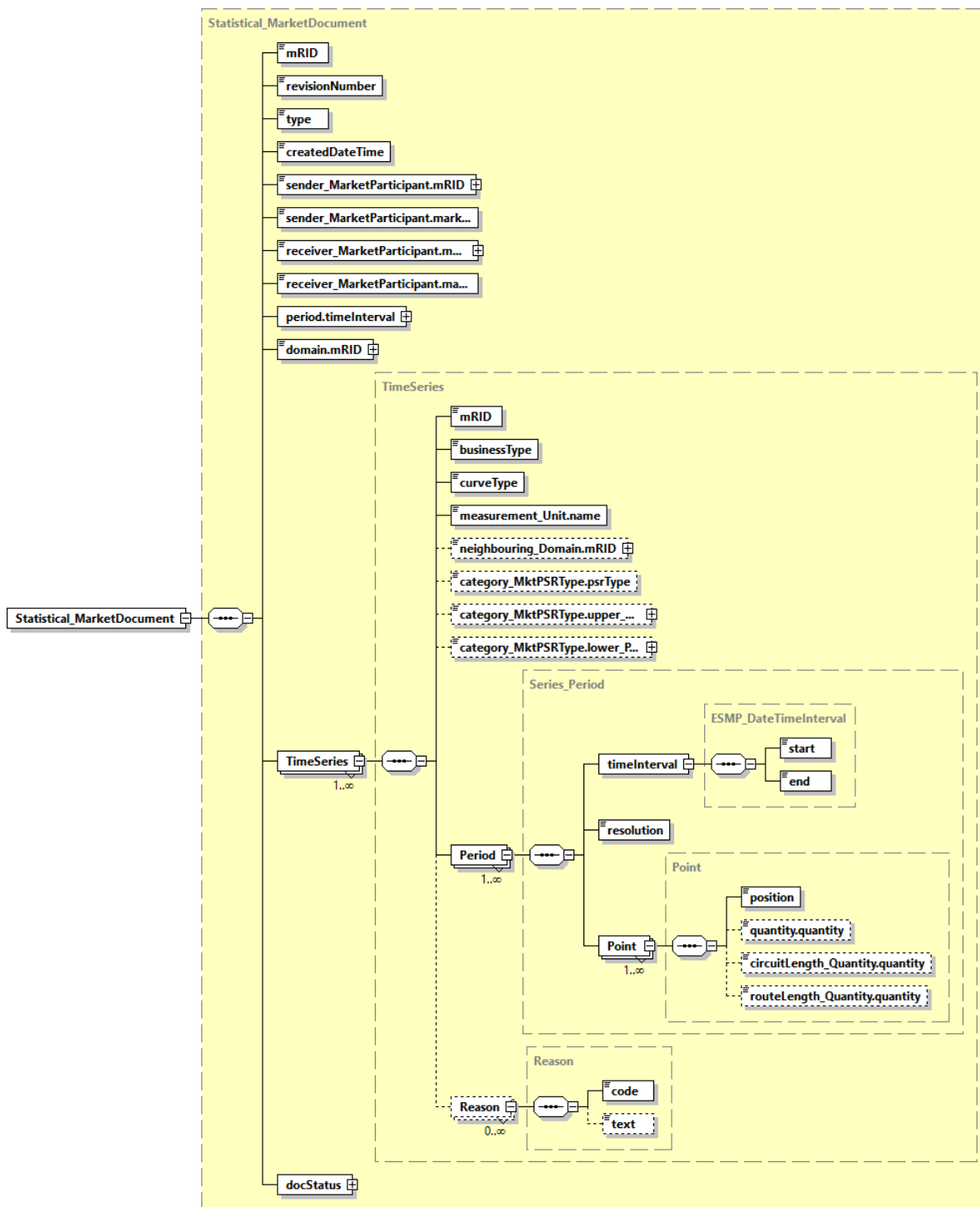
142

143 2.2.4. Datatypes

144 The list of datatypes used for the Statistical assembly model is as follows:

- 145 • Action_Status compound
- 146 • ESMP_DateTimeInterval compound
- 147 • ArealD_String datatype, codelist CodingSchemeTypeList
- 148 • BusinessKind_String datatype, codelist BusinessTypeList
- 149 • CurveType_String datatype, codelist CurveTypeList
- 150 • ESMP_DateTime datatype
- 151 • ESMP_Voltage datatype
- 152 • ESMPVersion_String datatype
- 153 • ID_String datatype
- 154 • MarketRoleKind_String datatype, codelist RoleTypeList
- 155 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 156 • MessageKind_String datatype, codelist MessageTypeList
- 157 • PartyID_String datatype, codelist CodingSchemeTypeList
- 158 • Position_Integer datatype
- 159 • PsrType_String datatype, codelist AssetTypeList
- 160 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 161 • ReasonText_String datatype
- 162 • Status_String datatype, codelist StatusTypeList
- 163 • UnitSymbol datatype, codelist UnitSymbol
- 164 • YMDHM_DateTime datatype

165 2.2.5. Statistical_MarketDocument XML schema structure



166
167

Generated by XMLSpy www.altova.com

Figure 3 - ReserveBid_MarketDocument XML schema structure

168 2.2.6. Statistical_MarketDocument XML schema

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

170 urn:iec62325.351:tc57wg16:451-n:statisticaldocument:1:0

```

171
172 <?xml version="1.0" encoding="utf-8"?>
173 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
174 xmlns="urn:iec62325.351:tc57wg16:451-n:statisticaldocument:1:0"
175 xmlns:sawSDL="http://www.w3.org/ns/sawSDL"
176 xmlns:cimp="http://www.iec.ch/cimprofile" attributeFormDefault="unqualified"
177 elementFormDefault="qualified" targetNamespace="urn:iec62325.351:tc57wg16:451-
178 n:statisticaldocument:1:0" xmlns:xs="http://www.w3.org/2001/XMLSchema">
179   <xs:import schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd"
180 namespace="urn:entsoe.eu:wgedi:codelists" />
181   <xs:element name="Statistical_MarketDocument" type="Statistical_MarketDocument"
182 />
183   <xs:simpleType name="Position_Integer"
184 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
185     <xs:restriction base="xs:integer">
186       <xs:maxInclusive value="999999" />
187       <xs:minInclusive value="1" />
188     </xs:restriction>
189   </xs:simpleType>
190   <xs:complexType name="Point" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-
191 schema-cim16#Point">
192     <xs:sequence>
193       <xs:element minOccurs="1" maxOccurs="1" name="position"
194 type="Position_Integer" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
195 cim16#Point.position">
196       </xs:element>
197       <xs:element minOccurs="0" maxOccurs="1" name="quantity.quantity"
198 type="xs:decimal" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
199 cim16#Quantity.quantity">
200       </xs:element>
201       <xs:element minOccurs="0" maxOccurs="1"
202 name="circuitLength_Quantity.quantity" type="xs:decimal"
203 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
204 cim16#Quantity.quantity">
205       </xs:element>
206       <xs:element minOccurs="0" maxOccurs="1" name="routeLength_Quantity.quantity"
207 type="xs:decimal" sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-
208 cim16#Quantity.quantity">
209       </xs:element>
210     </xs:sequence>
211   </xs:complexType>
212   <xs:simpleType name="ReasonCode_String"
213 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
214     <xs:restriction base="ecl:ReasonCodeTypeList" />
215   </xs:simpleType>
216   <xs:simpleType name="ReasonText_String"
217 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
218     <xs:restriction base="xs:string">
219       <xs:maxLength value="512" />
220     </xs:restriction>
221   </xs:simpleType>

```



```

222     <xs:complexType name="Reason"
223 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
224     <xs:sequence>
225         <xs:element minOccurs="1" maxOccurs="1" name="code" type="ReasonCode_String"
226 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code">
227         </xs:element>
228         <xs:element minOccurs="0" maxOccurs="1" name="text" type="ReasonText_String"
229 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text">
230         </xs:element>
231     </xs:sequence>
232 </xs:complexType>
233 <xs:simpleType name="YMDHM_DateTime"
234 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
235     <xs:restriction base="xs:string">
236         <xs:pattern value="((([0-9]{4})(\-)((0[13578]|1[02])|\-)((0[1-9]|12)[0-
237 9]|3[01]))|(([0-9]{4})(\-)((0[469]|(11))|\-)((0[1-9]|12)[0-9]|30))T((([01][0-9]|2[0-
238 3]):[0-5][0-
239 9])Z)|((([13579][26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][0
240 48]|02468][048][02468][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|1
241 0-9][0-9][13579][26])\-)((02)\-)((0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
242 5][0-
243 9])Z)|((([13579][26][02468][1235679]|13579][01345789](0)[01235679]|13579][0134578
244 9][2468][1235679]|02468][048][02468][1235679]|02468][1235679](0)[01235679]|0246
245 8][1235679][2468][1235679]|0-9][0-9][13579][01345789])\-)((02)\-)((0[1-9]|1[0-
246 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)" />
247     </xs:restriction>
248 </xs:simpleType>
249 <xs:complexType name="ESMP_DateTimeInterval"
250 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
251     <xs:sequence>
252         <xs:element minOccurs="1" maxOccurs="1" name="start" type="YMDHM_DateTime"
253 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
254 cim16#DateTimeInterval.start">
255         </xs:element>
256         <xs:element minOccurs="1" maxOccurs="1" name="end" type="YMDHM_DateTime"
257 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
258 cim16#DateTimeInterval.end">
259         </xs:element>
260     </xs:sequence>
261 </xs:complexType>
262 <xs:complexType name="Series_Period"
263 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
264     <xs:sequence>
265         <xs:element minOccurs="1" maxOccurs="1" name="timeInterval"
266 type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
267 schema-cim16#Period.timeInterval">
268         </xs:element>
269         <xs:element minOccurs="1" maxOccurs="1" name="resolution" type="xs:duration"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
271 cim16#Period.resolution">
272         </xs:element>
273         <xs:element minOccurs="1" maxOccurs="unbounded" name="Point" type="Point"
274 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point">
275         </xs:element>
276     </xs:sequence>
277 </xs:complexType>

```

```

278     <xs:simpleType name="ID_String"
279 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
280     <xs:restriction base="xs:string">
281     <xs:maxLength value="60" />
282     </xs:restriction>
283     </xs:simpleType>
284     <xs:simpleType name="ESMPVersion_String"
285 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
286     <xs:restriction base="xs:string">
287     <xs:pattern value="[1-9]([0-9]){0,2}" />
288     </xs:restriction>
289     </xs:simpleType>
290     <xs:simpleType name="MessageKind_String"
291 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
292     <xs:restriction base="ecl:MessageTypeList" />
293     </xs:simpleType>
294     <xs:simpleType name="ESMP_DateTime"
295 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
296     <xs:restriction base="xs:dateTime">
297     <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|12)[0-
298 9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-9]|30))T(([01][0-9]|2[0-
299 3]):[0-5][0-9]:[0-5][0-
300 9])Z)|(((13579)[26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][0
301 48]|02468][1235679]|02468][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|
302 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
303 5][0-9]:[0-5][0-
304 9])Z)|(((13579)[26][02468][1235679]|13579][01345789](0)[01235679]|13579][0134578
305 9][2468][1235679]|02468][048][02468][1235679]|02468][1235679](0)[01235679]|0246
306 8][1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
307 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)" />
308     </xs:restriction>
309     </xs:simpleType>
310     <xs:simpleType name="PartyID_String-base"
311 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
312     <xs:restriction base="xs:string">
313     <xs:maxLength value="16" />
314     </xs:restriction>
315     </xs:simpleType>
316     <xs:complexType name="PartyID_String"
317 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
318     <xs:simpleContent>
319     <xs:extension base="PartyID_String-base">
320     <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
321 use="required" />
322     </xs:extension>
323     </xs:simpleContent>
324     </xs:complexType>
325     <xs:simpleType name="MarketRoleKind_String"
326 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
327     <xs:restriction base="ecl:RoleTypeList" />
328     </xs:simpleType>
329     <xs:simpleType name="AreaID_String-base"
330 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
331     <xs:restriction base="xs:string">
332     <xs:maxLength value="18" />
333     </xs:restriction>

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334     </xs:simpleType>
335     <xs:complexType name="AreaID_String"
336     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
337         <xs:simpleContent>
338             <xs:extension base="AreaID_String-base">
339                 <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
340                 use="required" />
341             </xs:extension>
342         </xs:simpleContent>
343     </xs:complexType>
344     <xs:simpleType name="Status_String"
345     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
346         <xs:restriction base="ecl:StatusTypeList" />
347     </xs:simpleType>
348     <xs:complexType name="Action_Status"
349     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status">
350         <xs:sequence>
351             <xs:element minOccurs="1" maxOccurs="1" name="value" type="Status_String"
352             sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status.value">
353         </xs:element>
354     </xs:sequence>
355 </xs:complexType>
356 <xs:complexType name="Statistical_MarketDocument"
357 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
358 <xs:sequence>
359 <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
360 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
361 cim16#IdentifiedObject.mRID">
362 </xs:element>
363 <xs:element minOccurs="1" maxOccurs="1" name="revisionNumber"
364 type="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
365 schema-cim16#Document.revisionNumber">
366 </xs:element>
367 <xs:element minOccurs="1" maxOccurs="1" name="type"
368 type="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
369 schema-cim16#Document.type">
370 </xs:element>
371 <xs:element minOccurs="1" maxOccurs="1" name="createdDateTime"
372 type="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
373 cim16#Document.createdDateTime">
374 </xs:element>
375 <xs:element minOccurs="1" maxOccurs="1" name="sender_MarketParticipant.mRID"
376 type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
377 cim16#IdentifiedObject.mRID">
378 </xs:element>
379 <xs:element minOccurs="1" maxOccurs="1"
380 name="sender_MarketParticipant.marketRole.type" type="MarketRoleKind_String"
381 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
382 </xs:element>
383 <xs:element minOccurs="1" maxOccurs="1"
384 name="receiver_MarketParticipant.mRID" type="PartyID_String"
385 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
386 cim16#IdentifiedObject.mRID">
387 </xs:element>

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388     <xs:element minOccurs="1" maxOccurs="1"
389 name="receiver_MarketParticipant.marketRole.type" type="MarketRoleKind_String"
390 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
391     </xs:element>
392     <xs:element minOccurs="1" maxOccurs="1" name="period.timeInterval"
393 type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
394 schema-cim16#Period.timeInterval">
395     </xs:element>
396     <xs:element minOccurs="1" maxOccurs="1" name="domain.mRID"
397 type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
398 cim16#IdentifiedObject.mRID">
399     </xs:element>
400     <xs:element minOccurs="1" maxOccurs="unbounded" name="TimeSeries"
401 type="TimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
402 cim16#MarketDocument.TimeSeries">
403     </xs:element>
404     <xs:element minOccurs="1" maxOccurs="1" name="docStatus"
405 type="Action_Status" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
406 cim16#Document.docStatus">
407     </xs:element>
408 </xs:sequence>
409 </xs:complexType>
410 <xs:simpleType name="BusinessKind_String"
411 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
412     <xs:restriction base="ecl:BusinessTypeList" />
413 </xs:simpleType>
414 <xs:simpleType name="CurveType_String"
415 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
416     <xs:restriction base="ecl:CurveTypeList" />
417 </xs:simpleType>
418 <xs:simpleType name="MeasurementUnitKind_String"
419 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
420     <xs:restriction base="ecl:UnitOfMeasureTypeList" />
421 </xs:simpleType>
422 <xs:simpleType name="PsrType_String"
423 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
424     <xs:restriction base="ecl:AssetTypeList" />
425 </xs:simpleType>
426 <xs:simpleType name="ESMP_Voltage-base"
427 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
428     <xs:restriction base="xs:float">
429         <xs:pattern value="([0-9]*\.[0-9]*)" />
430     </xs:restriction>
431 </xs:simpleType>
432 <xs:complexType name="ESMP_Voltage"
433 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Voltage">
434     <xs:simpleContent>
435         <xs:extension base="ESMP_Voltage-base">
436             <xs:attribute fixed="KVT" name="unit" type="ecl:UnitSymbol" use="required"
437 />
438         </xs:extension>
439     </xs:simpleContent>
440 </xs:complexType>
441 <xs:complexType name="TimeSeries"
442 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
443     <xs:sequence>

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444     <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
445 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
446 cim16#IdentifiedObject.mRID">
447     </xs:element>
448     <xs:element minOccurs="1" maxOccurs="1" name="businessType"
449 type="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
450 schema-cim16#TimeSeries.businessType">
451     </xs:element>
452     <xs:element minOccurs="1" maxOccurs="1" name="curveType"
453 type="CurveType_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
454 cim16#TimeSeries.curveType">
455     </xs:element>
456     <xs:element minOccurs="1" maxOccurs="1" name="measurement_Unit.name"
457 type="MeasurementUnitKind_String"
458 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name">
459     </xs:element>
460     <xs:element minOccurs="0" maxOccurs="1" name="neighbouring_Domain.mRID"
461 type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
462 cim16#IdentifiedObject.mRID">
463     </xs:element>
464     <xs:element minOccurs="0" maxOccurs="1" name="category_MktPSRType.psrType"
465 type="PsrType_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
466 cim16#MktPSRType.psrType">
467     </xs:element>
468     <xs:element minOccurs="0" maxOccurs="1"
469 name="category_MktPSRType.upper_PowerSystemResources.highVoltageLimit"
470 type="ESMP_Voltage" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
471 cim16#VoltageLevel.highVoltageLimit">
472     </xs:element>
473     <xs:element minOccurs="0" maxOccurs="1"
474 name="category_MktPSRType.lower_PowerSystemResources.highVoltageLimit"
475 type="ESMP_Voltage" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
476 cim16#VoltageLevel.highVoltageLimit">
477     </xs:element>
478     <xs:element minOccurs="1" maxOccurs="unbounded" name="Period"
479 type="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
480 cim16#TimeSeries.Period">
481     </xs:element>
482     <xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason"
483 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
484 cim16#TimeSeries.Reason">
485     </xs:element>
486 </xs:sequence>
487 </xs:complexType>
488 </xs:schema>

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