



European Network of
Transmission System Operators
for Electricity

SHORT MEDIUM TERM ADEQUACY PROGNOSIS DOCUMENT UML MODEL AND SCHEMA

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2

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Revision History

Version	Release	Date	Comments
1	0	2021-04-21	Approved by SOC
1	1	2022-03-15	Updates in XSD v1.1: <ul style="list-style-type: none">mRID of Document, Series and Timeseries (ID_String type) was enlarged from 35 to 60 characters. Approved by MC.

68

69 **Objective**

70 The purpose of this document is to provide the contextual and assembly UML models and the
71 schema of the Short Medium Term Adequacy Prognosis document.

72 The schema of the Short Medium Term Adequacy Prognosis document could be used in various
73 business processes.

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

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

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

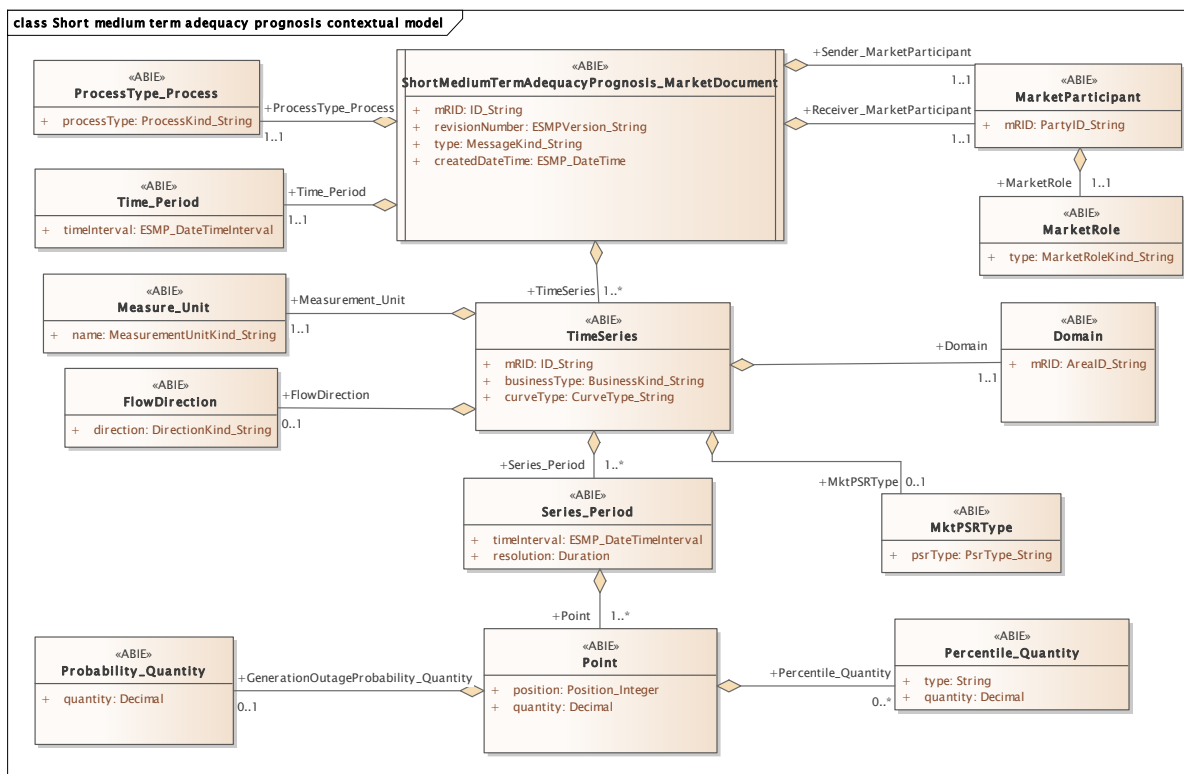
86

87 **Short medium term adequacy prognosis model**

88 **2.1 Short medium term adequacy prognosis contextual model**

89 **2.1.1 Overview of the model**

90 Figure 1 - Short medium term adequacy prognosis contextual model shows the model.



91

92 **Figure 1 - Short medium term adequacy prognosis contextual model**

93

94

95 **2.1.2 IsBasedOn relationships from the European style market profile**

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

98 **Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Domain	TC57CIM::IEC62325::MarketManagement::Domain
FlowDirection	TC57CIM::IEC62325::MarketManagement::FlowDirection
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
Percentile_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
Point	TC57CIM::IEC62325::MarketManagement::Point
Probability_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
ProcessType_Process	TC57CIM::IEC62325::MarketManagement::Process
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
ShortMediumTermAdequacyPrognosis_MarketDocu ment	TC57CIM::IEC62325::MarketManagement::MarketDocu ment
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

99

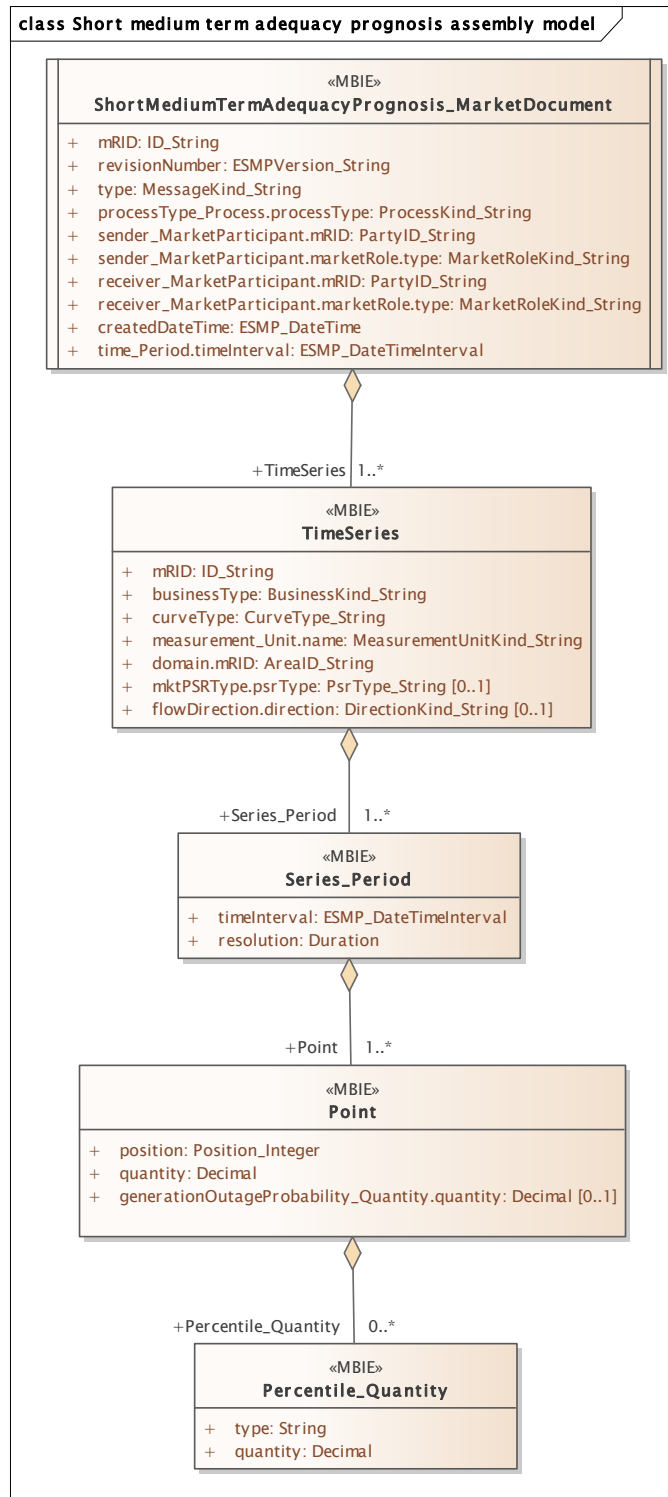
100

101

102 **2.2 Short medium term adequacy prognosis assembly model**

103 **2.2.1 Overview of the model**

104 Figure 2 - Short medium term adequacy prognosis assembly model Figure 2 shows the model.



105

106

Figure 2 - Short medium term adequacy prognosis assembly model

107

108 **2.2.2 IsBasedOn relationships from the European style market profile**

109 Table 2 - IsBasedOn dependency shows the traceability dependency of the classes used in this
110 package towards the upper level.

111 **Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Percentile_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
Point	TC57CIM::IEC62325::MarketManagement::Point
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
ShortMediumTermAdequacyPrognosis_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

112

113 **2.2.3 Detailed Short medium term adequacy prognosis assembly model**

114 **2.2.3.1 ShortMediumTermAdequacyPrognosis_MarketDocument root class**

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

117 Table 3 - Attributes of Short medium term adequacy prognosis assembly
118 model::ShortMediumTermAdequacyPrognosis_MarketDocument shows all attributes of
119 ShortMediumTermAdequacyPrognosis_MarketDocument.

120 **Table 3 - Attributes of Short medium term adequacy prognosis assembly
121 model::ShortMediumTermAdequacyPrognosis_MarketDocument**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The unique identification of the document being exchanged within a business process flow.
1	[1..1]	revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
3	[1..1]	processType_Process.processType ProcessKind_String	The identification of the nature of process that the document addresses. --- The Process associated with an electronic document header that is valid for the whole document.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document owner.
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document owner. --- The role associated with a MarketParticipant.
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document recipient.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document recipient. --- The role associated with a MarketParticipant.

Order	mult.	Attribute name / Attribute type	Description
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	time_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.

122

123 Table 4 - Association ends of Short medium term adequacy prognosis assembly
124 model::ShortMediumTermAdequacyPrognosis_MarketDocument with other classes shows all
125 association ends of ShortMediumTermAdequacyPrognosis_MarketDocument with other
126 classes.

127 **Table 4 - Association ends of Short medium term adequacy prognosis assembly**
128 **model::ShortMediumTermAdequacyPrognosis_MarketDocument 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: Short medium term adequacy prognosis contextual model::TimeSeries.TimeSeries[1..*] ----- Short medium term adequacy prognosis contextual model::ShortMediumTermAdequacyPrognosis_MarketDocument.[]

129

130 2.2.3.2 Percentile_Quantity

131 The quantity attribute provides the information relative to the percentage level of quality of the
132 prognosis quantity.

133 Table 5 - Attributes of Short medium term adequacy prognosis assembly
134 model::Percentile_Quantity shows all attributes of Percentile_Quantity.

135 **Table 5 - Attributes of Short medium term adequacy prognosis assembly**
136 **model::Percentile_Quantity**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	type String	The description of the type of the quantity.
1	[1..1]	quantity Decimal	The quantity value. The association role provides the information about what is expressed.

137

138 2.2.3.3 Point

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

140 Table 6 - Attributes of Short medium term adequacy prognosis assembly model::PointTable 6
141 shows all attributes of Point.

142 **Table 6 - Attributes of Short medium term adequacy prognosis assembly model::Point**

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

143

144 Table 7 - Association ends of Short medium term adequacy prognosis assembly model::Point
145 with other classes shows all association ends of Point with other classes.

146 **Table 7 - Association ends of Short medium term adequacy prognosis assembly
147 model::Point with other classes**

Order	mult.	Class name / Role	Description
3	[0..*]	Percentile_Quantity Percentile_Quantity	The percentile quantity value provided. Association Based On: Short medium term adequacy prognosis contextual model::Point[] ----- Short medium term adequacy prognosis contextual model::Percentile_Quantity.Percentile_Quantity[0..*]

148

149 **2.2.3.4 Series_Period**

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

151 Table 8 - Attributes of Short medium term adequacy prognosis assembly model::Series_Period
152 shows all attributes of Series_Period.

153 **Table 8 - Attributes of Short medium term adequacy prognosis assembly
154 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.

155

156 Table 9 - Association ends of Short medium term adequacy prognosis assembly
157 model::Series_Period with other classes shows all association ends of Series_Period with other
158 classes.

159 **Table 9 - Association ends of Short medium term adequacy prognosis assembly**
160 **model::Series_Period with other classes**

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

161

162 **2.2.3.5 TimeSeries**

163 A set of time-ordered quantities being exchanged.

164 Table 10 - Attributes of Short medium term adequacy prognosis assembly model::TimeSeries
165 shows all attributes of TimeSeries.

166 **Table 10 - Attributes of Short medium term adequacy prognosis assembly**
167 **model::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
2	[1..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.
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	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
5	[0..1]	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]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow. --- The flow direction associated with a TimeSeries.

168

169 Table 11 - Association ends of Short medium term adequacy prognosis assembly
170 model::TimeSeries with other classes shows all association ends of TimeSeries with other
171 classes.

172
173

Table 11 - Association ends of Short medium term adequacy prognosis assembly model::TimeSeries with other classes

Order	mult.	Class name / Role	Description
7	[1..*]	Series_Period Series_Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Short medium term adequacy prognosis contextual model::TimeSeries.[] ----- Short medium term adequacy prognosis contextual model::Series_Period.Series_Period[1..*]

174
175

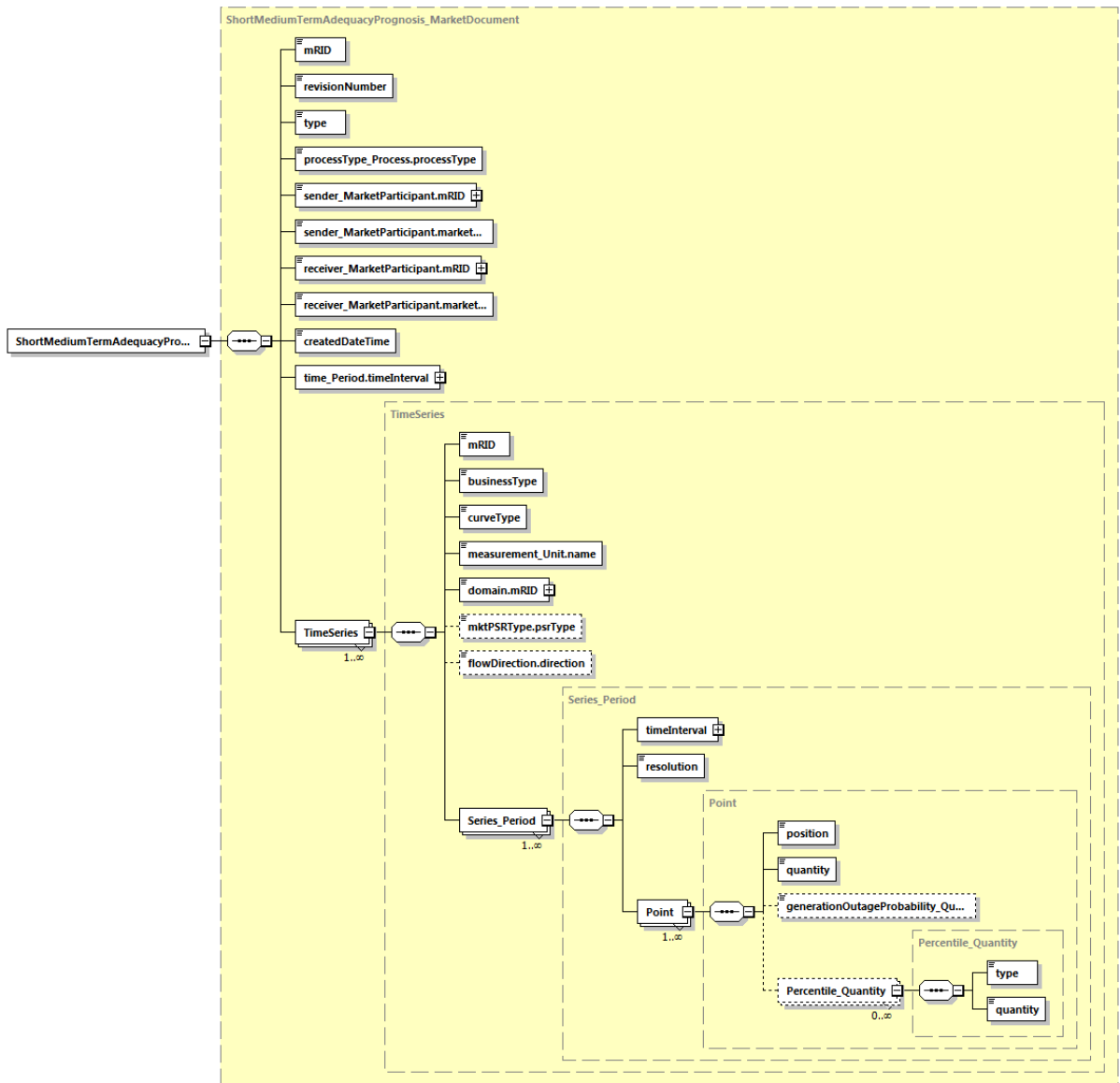
176

177 **2.2.4 Datatypes**

178 The list of datatypes used for the Short medium term adequacy prognosis assembly model is
179 as follows:

- 180 • ESMP_DateTimeInterval compound
- 181 • AreaID_String datatype, codelist CodingSchemeTypeList
- 182 • BusinessKind_String datatype, codelist BusinessTypeList
- 183 • CurveType_String datatype, codelist CurveTypeList
- 184 • DirectionKind_String datatype, codelist DirectionTypeList
- 185 • ESMP_DateTime datatype
- 186 • ESMPVersion_String datatype
- 187 • ID_String datatype
- 188 • MarketRoleKind_String datatype, codelist RoleTypeList
- 189 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 190 • MessageKind_String datatype, codelist MessageTypeList
- 191 • PartyID_String datatype, codelist CodingSchemeTypeList
- 192 • Position_Integer datatype
- 193 • ProcessKind_String datatype, codelist ProcessTypeList
- 194 • PsrType_String datatype, codelist AssetTypeList
- 195 • YMDHM_DateTime datatype
- 196

197 2.2.5 ShortMediumTermAdequacyPrognosis_MarketDocument XML schema



Generated by XMLSpy www.altova.com

198

199

200

Figure 3 - ShortMediumTermAdequacyPrognosis_MarketDocument schema structure

201

202 2.2.6 Short Medium Term Adequacy Prognosis XML schema

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

204 urn:iec62325.351:tc57wg16:451-n:smtaprognosisdocument:1:1

205

```
206 <?xml version="1.0" encoding="utf-8"?>
```

```
207 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
```

```
208 xmlns="urn:iec62325.351:tc57wg16:451-n:smtaprognosisdocument:1:1"
```

```
209 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
```

```
210 xmlns:cimp="http://www.iec.ch/cimprofile"
```

```
211 xmlns:xs="http://www.w3.org/2001/XMLSchema"
```

```
212 targetNamespace="urn:iec62325.351:tc57wg16:451-n:smtaprognosisdocument:1:1"
```

```
213 elementFormDefault="qualified" attributeFormDefault="unqualified">
```

```
214 <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-  
215 entsoe-eu-wgedi-codelists.xsd"/>
```

```
216 <xs:element name="ShortMediumTermAdequacyPrognosis_MarketDocument"
```

```
217 type="ShortMediumTermAdequacyPrognosis_MarketDocument"/>
```

```
218 <xs:complexType name="Percentile_Quantity"
```

```
219 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity">
```

```
220 <xs:sequence>
```

```
221 <xs:element name="type" type="xs:string" minOccurs="1"
```

```
222 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
223 cim16#Quantity.type"/>
```

```
224 <xs:element name="quantity" type="xs:decimal" minOccurs="1"
```

```
225 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
226 cim16#Quantity.quantity"/>
```

```
227 </xs:sequence>
```

```
228 </xs:complexType>
```

```
229 <xs:simpleType name="Position_Integer"
```

```
230 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
```

```
231 <xs:restriction base="xs:integer">
```

```
232 <xs:maxInclusive value="999999"/>
```

```
233 <xs:minInclusive value="1"/>
```

```
234 </xs:restriction>
```

```
235 </xs:simpleType>
```

```
236 <xs:complexType name="Point"
```

```
237 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
```

```
238 <xs:sequence>
```

```
239 <xs:element name="position" type="Position_Integer"
```

```
240 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
241 schema-cim16#Point.position"/>
```

```
242 <xs:element name="quantity" type="xs:decimal" minOccurs="1"
```

```
243 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
244 cim16#Point.quantity"/>
```

```
245 <xs:element
```

```
246 name="generationOutageProbability_Quantity.quantity" type="xs:decimal"
```

```
247 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
248 schema-cim16#Quantity.quantity"/>
```

```
249 <xs:element name="Percentile_Quantity"
```

```
250 type="Percentile_Quantity" minOccurs="0" maxOccurs="unbounded"
```

```
251 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
252 cim16#Point.Percentile_Quantity"/>
```

```
253 </xs:sequence>
```

```
254 </xs:complexType>
```

```
255     <xs:simpleType name="YMDHM_DateTime"
256 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
257     <xs:restriction base="xs:string">
258         <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
259 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
260 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
261 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][0
262 48]|02468)[048][02468][048]|02468)[1235679](0)[48]|02468)[1235679][2468][048]|[
263 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
264 5][0-
265 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[0134578
266 9][2468][1235679]|02468)[048][02468][1235679]|02468)[1235679](0)[01235679]|0246
267 8)[1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
268 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
269     </xs:restriction>
270     </xs:simpleType>
271     <xs:complexType name="ESMP_DateTimeInterval"
272 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
273     <xs:sequence>
274         <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
275 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
276 cim16#DateTimeInterval.start"/>
277         <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
278 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
279 cim16#DateTimeInterval.end"/>
280     </xs:sequence>
281     </xs:complexType>
282     <xs:complexType name="Series_Period"
283 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
284     <xs:sequence>
285         <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
286 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
287 schema-cim16#Period.timeInterval"/>
288         <xs:element name="resolution" type="xs:duration" minOccurs="1"
289 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
290 cim16#Period.resolution"/>
291         <xs:element name="Point" type="Point" minOccurs="1"
292 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
293 cim16#Period.Point"/>
294     </xs:sequence>
295     </xs:complexType>
296     <xs:simpleType name="ID_String"
297 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
298     <xs:restriction base="xs:string">
299         <xs:maxLength value="60"/>
300     </xs:restriction>
301     </xs:simpleType>
302     <xs:simpleType name="ESMPVersion_String"
303 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
304     <xs:restriction base="xs:string">
305         <xs:pattern value="[1-9]([0-9]){0,2}"/>
306     </xs:restriction>
307     </xs:simpleType>
308     <xs:simpleType name="MessageKind_String"
309 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
310     <xs:restriction base="ecl:MessageTypeList"/>
```

```
311     </xs:simpleType>
312     <xs:simpleType name="ProcessKind_String"
313 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
314         <xs:restriction base="ecl:ProcessTypeList"/>
315     </xs:simpleType>
316     <xs:simpleType name="PartyID_String-base"
317 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
318         <xs:restriction base="xs:string">
319             <xs:maxLength value="16"/>
320         </xs:restriction>
321     </xs:simpleType>
322     <xs:complexType name="PartyID_String"
323 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
324         <xs:simpleContent>
325             <xs:extension base="PartyID_String-base">
326                 <xs:attribute name="codingScheme"
327 type="ecl:CodingSchemeTypeList" use="required"/>
328             </xs:extension>
329         </xs:simpleContent>
330     </xs:complexType>
331     <xs:simpleType name="MarketRoleKind_String"
332 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
333         <xs:restriction base="ecl:RoleTypeList"/>
334     </xs:simpleType>
335     <xs:simpleType name="ESMP_DateTime"
336 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
337         <xs:restriction base="xs:dateTime">
338             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
339 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-
340 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
341 9])Z)|(((13579)[26][02468][048]|13579[01345789](0)[48]|13579[01345789][2468][0
342 48]|02468[048][02468][048]|02468[1235679](0)[48]|02468[1235679][2468][048]|[
343 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
344 5][0-9]:[0-5][0-
345 9])Z)|(((13579)[26][02468][1235679]|13579[01345789](0)[01235679]|13579[0134578
346 9][2468][1235679]|02468[048][02468][1235679]|02468[1235679](0)[01235679]|0246
347 8[1235679][2468][1235679]|0-9[0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
348 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
349         </xs:restriction>
350     </xs:simpleType>
351     <xs:complexType name="ShortMediumTermAdequacyPrognosis_MarketDocument"
352 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
353         <xs:sequence>
354             <xs:element name="mRID" type="ID_String" minOccurs="1"
355 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
356 cim16#IdentifiedObject.mRID"/>
357             <xs:element name="revisionNumber" type="ESMPVersion_String"
358 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
359 schema-cim16#Document.revisionNumber"/>
360             <xs:element name="type" type="MessageKind_String" minOccurs="1"
361 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
362 cim16#Document.type"/>
363             <xs:element name="processType_Process.processType"
364 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
365 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
366 cim16#Process.processType"/>
```

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367         <xs:element name="sender_MarketParticipant.mRID"  
368 type="PartyID_String" minOccurs="1" maxOccurs="1"  
369 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
370 cim16#IdentifiedObject.mRID"/>  
371         <xs:element name="sender_MarketParticipant.marketRole.type"  
372 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"  
373 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>  
374         <xs:element name="receiver_MarketParticipant.mRID"  
375 type="PartyID_String" minOccurs="1" maxOccurs="1"  
376 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
377 cim16#IdentifiedObject.mRID"/>  
378         <xs:element name="receiver_MarketParticipant.marketRole.type"  
379 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"  
380 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>  
381         <xs:element name="createdDateTime" type="ESMP_DateTime"  
382 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
383 schema-cim16#Document.createdDateTime"/>  
384         <xs:element name="time_Period.timeInterval"  
385 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"  
386 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
387 cim16#Period.timeInterval"/>  
388         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="1"  
389 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
390 cim16#MarketDocument.TimeSeries"/>  
391     </xs:sequence>  
392 </xs:complexType>  
393 <xs:simpleType name="BusinessKind_String"  
394 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
395     <xs:restriction base="ecl:BusinessTypeList"/>  
396 </xs:simpleType>  
397 <xs:simpleType name="CurveType_String"  
398 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
399     <xs:restriction base="ecl:CurveTypeList"/>  
400 </xs:simpleType>  
401 <xs:simpleType name="MeasurementUnitKind_String"  
402 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
403     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>  
404 </xs:simpleType>  
405 <xs:simpleType name="AreaID_String-base"  
406 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
407     <xs:restriction base="xs:string">  
408         <xs:maxLength value="18"/>  
409     </xs:restriction>  
410 </xs:simpleType>  
411 <xs:complexType name="AreaID_String"  
412 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
413     <xs:simpleContent>  
414         <xs:extension base="AreaID_String-base">  
415             <xs:attribute name="codingScheme"  
416 type="ecl:CodingSchemeTypeList" use="required"/>  
417         </xs:extension>  
418     </xs:simpleContent>  
419 </xs:complexType>  
420 <xs:simpleType name="PsrType_String"  
421 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
422     <xs:restriction base="ecl:AssetTypeList"/>
```

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423     </xs:simpleType>
424     <xs:simpleType name="DirectionKind_String"
425 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
426         <xs:restriction base="ecl:DirectionTypeList"/>
427     </xs:simpleType>
428     <xs:complexType name="TimeSeries"
429 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
430         <xs:sequence>
431             <xs:element name="mRID" type="ID_String" minOccurs="1"
432 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
433 cim16#IdentifiedObject.mRID"/>
434             <xs:element name="businessType" type="BusinessKind_String"
435 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
436 schema-cim16#TimeSeries.businessType"/>
437             <xs:element name="curveType" type="CurveType_String"
438 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
439 schema-cim16#TimeSeries.curveType"/>
440             <xs:element name="measurement_Unit.name"
441 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
442 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
443             <xs:element name="domain.mRID" type="AreaID_String"
444 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
445 schema-cim16#IdentifiedObject.mRID"/>
446             <xs:element name="mktPSRType.psrType" type="PsrType_String"
447 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
448 schema-cim16#MktPSRType.psrType"/>
449             <xs:element name="flowDirection.direction"
450 type="DirectionKind_String" minOccurs="0" maxOccurs="1"
451 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
452 cim16#FlowDirection.direction"/>
453             <xs:element name="Series_Period" type="Series_Period"
454 minOccurs="1" maxOccurs="unbounded"
455 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
456 cim16#TimeSeries.Series_Period"/>
457         </xs:sequence>
458     </xs:complexType>
459 </xs:schema>
460
```