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European Network of
Transmission System Operators
for Electricity

ENERGY PROGNOSIS DOCUMENT UML MODEL AND SCHEMA

2021-01-27
APPROVED DOCUMENT
VERSION 1.0

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Revision History

Version	Release	Date	Comments
1	0	2021-01-27	Updates in Energy Prognosis document v1.2: • Optional process type attribute added to EnergyPrognosis_marketDocument class • Order of attributes in Series_Period class is changed. Now the first one is timeInterval and the second resolution. Reason is to align with the rest of market documents. Approved by MC.

63

1 Objective

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

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

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

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

- Description of the business process;

- Use case of the business process;

- Sequence diagrams of the business process;

- List of the schema (XSD) to be used in the business process and versions of the schema;

- For each schema, dependency tables providing the necessary information for the generation of the XML instances, i.e. when the optional attributes are to be used, which codes from which ENTSO-E codelist are to be used.

82 **2 EnergyPrognosis_MarketDocument**

83 2.1 **Energy prognosis contextual model**

84 **2.1.1 Overview of the model**

85 Figure 1 shows the model.
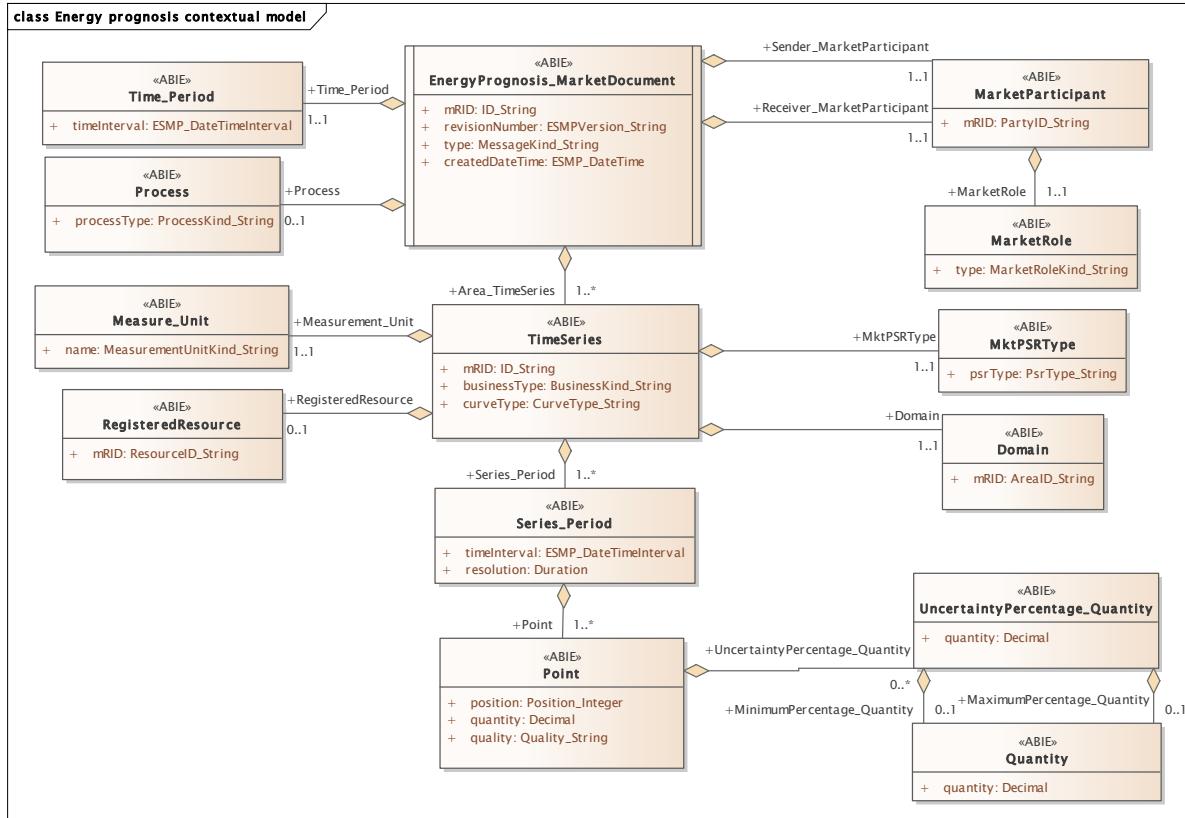
86

87 **Figure 1 - Energy prognosis contextual model**

88

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2.1.2   IsBasedOn relationships from the European style market profile

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

93   **Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Domain	TC57CIM::IEC62325::MarketManagement::Domain
EnergyPrognosis_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
UncertaintyPercentage_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity

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95

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96

2.2 **Energy prognosis assembly model**

2.2.1 **Overview of the model**

99 Figure 2 shows the model.
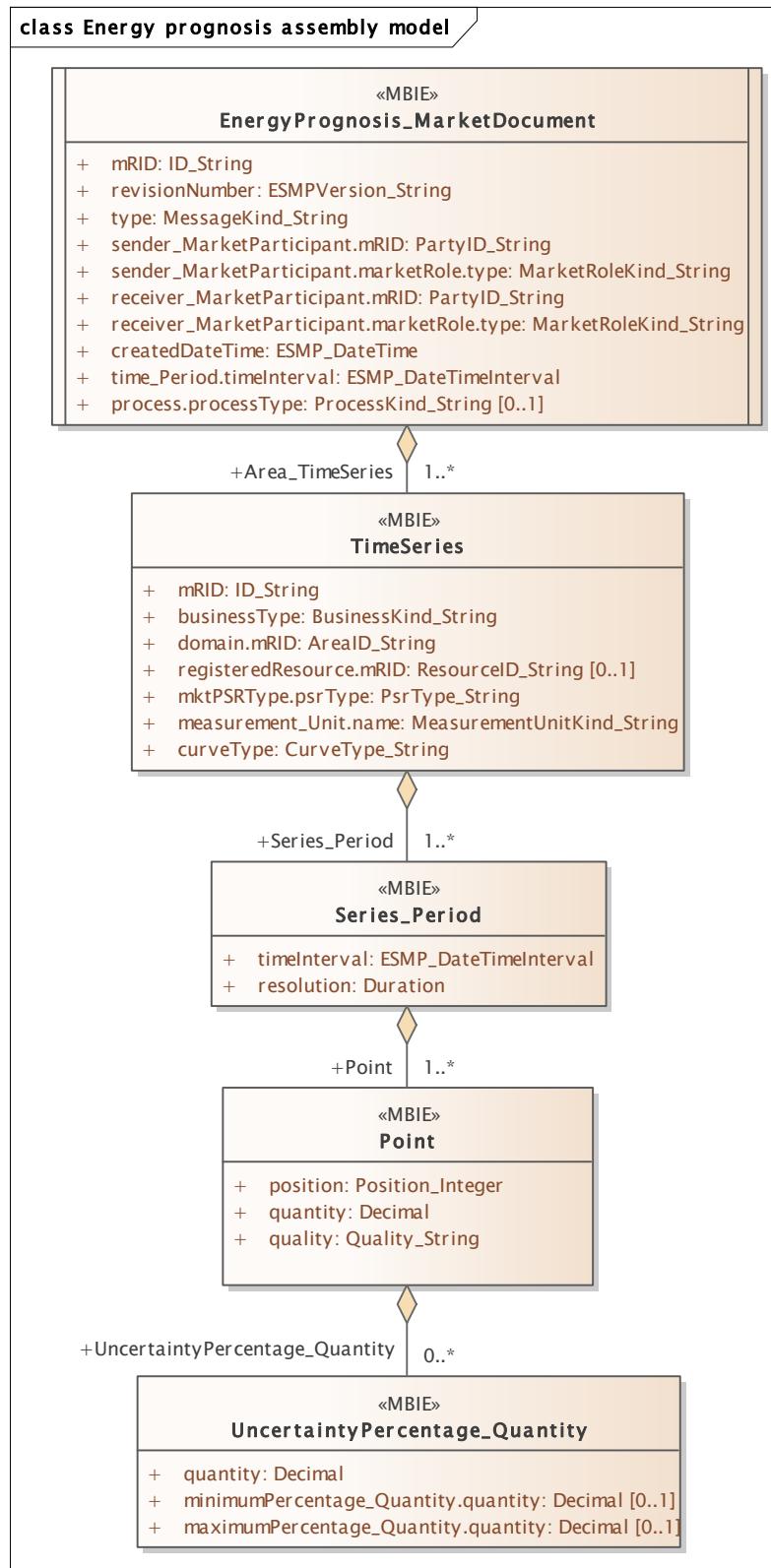
Figure 2 - Energy prognosis assembly model

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102 **2.2.2 IsBasedOn relationships from the European style market profile**

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

105 **Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
EnergyPrognosis_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Point	TC57CIM::IEC62325::MarketManagement::Point
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
UncertaintyPercentage_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity

106

107 **2.2.3 Detailed Energy prognosis assembly model**

108 **2.2.3.1 EnergyPrognosis_MarketDocument root class**

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

111 Table 3 shows all attributes of EnergyPrognosis_MarketDocument.

112 **Table 3 - Attributes of Energy prognosis assembly**
113 **model::EnergyPrognosis_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]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document owner.
4	[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.
5	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document recipient.
6	[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.
7	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
8	[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.
9	[0..1]	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.

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115   Table 4 shows all association ends of EnergyPrognosis_MarketDocument with other classes.

116   **Table 4 - Association ends of Energy prognosis assembly**
117   **model::EnergyPrognosis_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
10	[1..*]	TimeSeries Area_TimeSeries	The time series that provides a set of energy prognosis. Association Based On: Energy prognosis contextual model::EnergyPrognosis_MarketDocument.[] ----- Energy prognosis contextual model::TimeSeries.Area_TimeSeries[1..*]

118

119   **2.2.3.2   Point**

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

121   Table 5 shows all attributes of Point.

122   **Table 5 - Attributes of Energy 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	[1..1]	quality Quality_String	The quality of the information being provided. This quality may be estimated, not available, as provided, etc.

123

124   Table 6 shows all association ends of Point with other classes.

125   **Table 6 - Association ends of Energy prognosis assembly model::Point with other**
126   **classes**

Order	mult.	Class name / Role	Description
3	[0..*]	UncertaintyPercentage_Quantity UncertaintyPercentage_Quantity	The percentage of uncertainty of the quantity value provided. Association Based On: Energy prognosis contextual model::Point.[] ----- Energy prognosis contextual model::UncertaintyPercentage_Quantity.UncertaintyPercentage_Quantity[0..*]

127

128   **2.2.3.3   Series_Period**

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

130   Table 7 shows all attributes of Series_Period.

131   **Table 7 - Attributes of Energy prognosis 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.

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

132

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

134 **Table 8 - Association ends of Energy prognosis assembly model::Series_Period with**
135 **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: Energy prognosis contextual model::Series_Period.[] ----- Energy prognosis contextual model::Point.Point[1..*]

136

137 **2.2.3.4   TimeSeries**

138 A set of time-ordered quantities being exchanged.

139 Table 9 shows all attributes of TimeSeries.

140 **Table 9 - Attributes of Energy prognosis 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.
2	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries that provides the identification of the area concerned by the prognosis.
3	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.
4	[1..1]	mktPSRType.psrType PsrType_String	The coded type of a power system resource. --- The identification of the type of resource associated with a TimeSeries.
5	[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.
6	[1..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

141

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

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143 **Table 10 - Association ends of Energy prognosis assembly model::TimeSeries with**
144 **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: Energy prognosis contextual model::TimeSeries.[] ----- Energy prognosis contextual model::Series_Period.Series_Period[1..*]

145

2.2.3.5 UncertaintyPercentage_Quantity

147 The quantity attribute provides the information relative to the percentage level of quality of the
148 prognosis quantity.

149 Table 11 shows all attributes of UncertaintyPercentage_Quantity.

150 **Table 11 - Attributes of Energy prognosis assembly**
151 **model::UncertaintyPercentage_Quantity**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	quantity Decimal	The quantity value. The percentage of uncertainty of the provided quantity.
1	[0..1]	minimumPercentage_Quantity.quantity Decimal	The quantity value. --- The minimum uncertainity percentage.
2	[0..1]	maximumPercentage_Quantity.quantity Decimal	The quantity value. --- The maximum uncertainity percentage.

152

2.2.4 Datatypes

154 The list of datatypes used for the Energy prognosis assembly model is as follows:

155 • ESMP_DateTimeInterval compound
156 • AreaID_String datatype, codelist CodingSchemeTypeList
157 • BusinessKind_String datatype, codelist BusinessTypeList
158 • CurveType_String datatype, codelist CurveTypeList
159 • ESMP_DateTime datatype
160 • ESMPVersion_String datatype
161 • ID_String datatype
162 • MarketRoleKind_String datatype, codelist RoleTypeList
163 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
164 • MessageKind_String datatype, codelist MessageTypeList
165 • PartyID_String datatype, codelist CodingSchemeTypeList
166 • Position_Integer datatype
167 • ProcessKind_String datatype, codelist ProcessTypeList
168 • PsrType_String datatype, codelist AssetTypeList
169 • Quality_String datatype, codelist QualityTypeList
170 • ResourceID_String datatype, codelist CodingSchemeTypeList
171 • YMDHM_DateTime datatype
172

173

174   **2.2.5   EnergyPrognosis_MarketDocument XML schema structure**
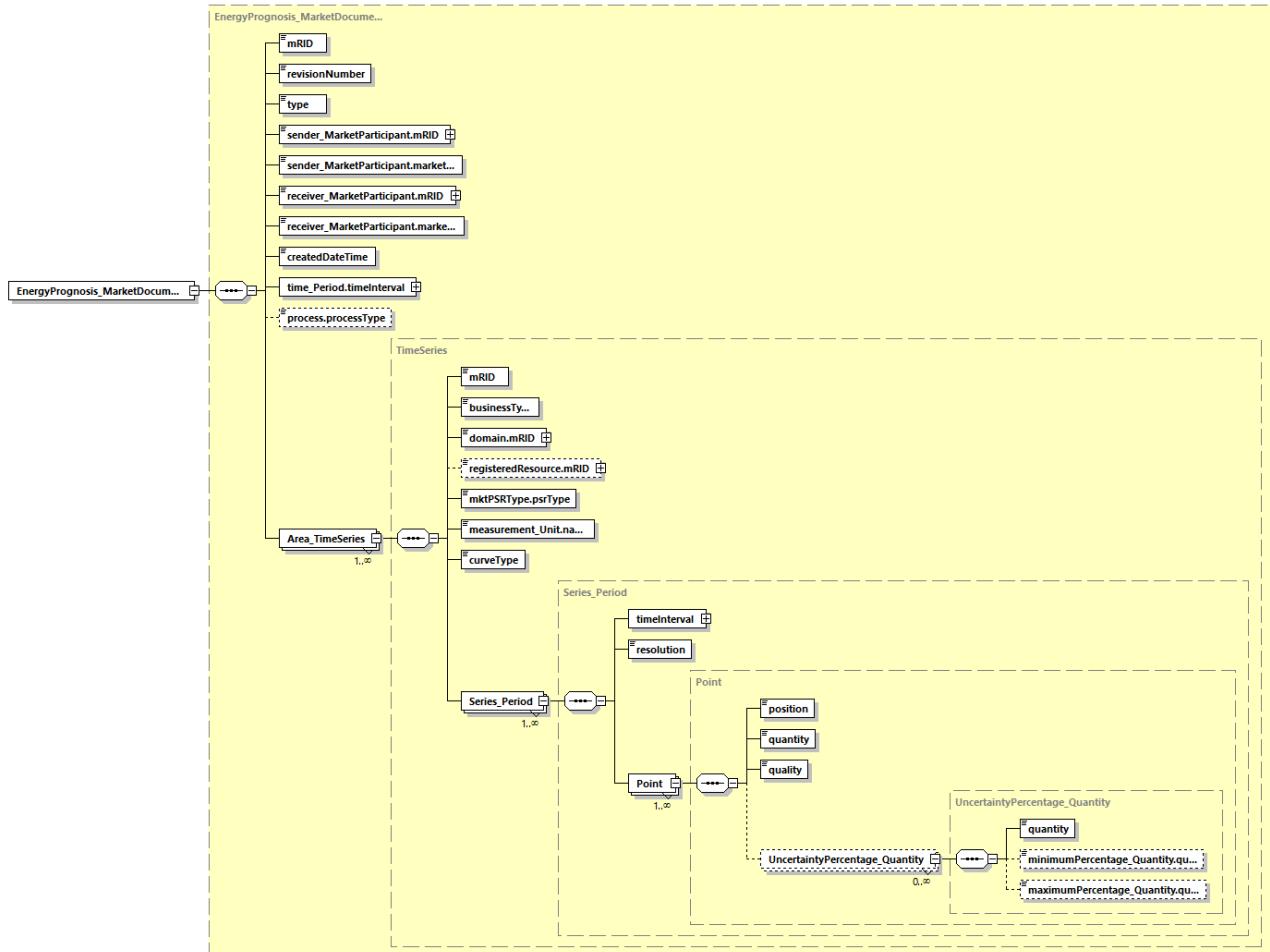
Figure 3 – EnergyPrognosis_MarketDocument schema structure

175
176

177   **2.2.6   EnergyPrognosis_MarketDocument XML schema**

178

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

180   urn:iec62325.351:tc57wg16:451-n:energyprognosisdocument:1:2

```
181     <?xml version="1.0" encoding="utf-8"?>
182     <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
183     xmlns="urn:iec62325.351:tc57wg16:451-n:energyprognosisdocument:1:2"
184     xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
185     xmlns:cimp="http://www.iec.ch/cimprofile"
186     xmlns:xs="http://www.w3.org/2001/XMLSchema"
187     targetNamespace="urn:iec62325.351:tc57wg16:451-n:energyprognosisdocument:1:2"
188     elementFormDefault="qualified" attributeFormDefault="unqualified">
189             <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
190     entsoe-eu-wgedi-codelists.xsd"/>
191             <xs:element name="EnergyPrognosis_MarketDocument"
192     type="EnergyPrognosis_MarketDocument"/>
193             <xs:simpleType name="ID_String"
194     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
195                     <xs:restriction base="xs:string">
196                             <xs:maxLength value="60"/>
197                     </xs:restriction>
198             </xs:simpleType>
199             <xs:simpleType name="ESMPVersion_String"
200     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
201                     <xs:restriction base="xs:string">
202                             <xs:pattern value="[1-9]([0-9]){0,2}"/>
203                     </xs:restriction>
204             </xs:simpleType>
205             <xs:simpleType name="MessageKind_String"
206     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
207                     <xs:restriction base="ecl:MessageTypeList"/>
208             </xs:simpleType>
209             <xs:simpleType name="PartyID_String-base"
210     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
211                     <xs:restriction base="xs:string">
212                             <xs:maxLength value="16"/>
213                     </xs:restriction>
214             </xs:simpleType>
215             <xs:complexType name="PartyID_String"
216     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
217                     <xs:simpleContent>
218                             <xs:extension base="PartyID_String-base">
219                                     <xs:attribute name="codingScheme"
220     type="ecl:CodingSchemeTypeList" use="required"/>
221                             </xs:extension>
222                     </xs:simpleContent>
223             </xs:complexType>
224             <xs:simpleType name="MarketRoleKind_String"
225     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
226                     <xs:restriction base="ecl:RoleTypeList"/>
227             </xs:simpleType>
228             <xs:simpleType name="ESMP_DateTime"
229     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
230                     <xs:restriction base="xs:dateTime">
231                             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
232     9]|[12][0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
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238  9])Z)|(([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
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242                  </xs:restriction>
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248          <xs:simpleType name="YMDHM_DateTime"
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250                  <xs:restriction base="xs:string">
251                          <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
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262                  </xs:restriction>
263          </xs:simpleType>
264          <xs:complexType name="ESMP_DateTimeInterval"
265  sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
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267                          <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
268  maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
269  cim16#DateTimeInterval.start"/>
270                          <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
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272  cim16#DateTimeInterval.end"/>
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277                  <xs:sequence>
278                          <xs:element name="mRID" type="ID_String" minOccurs="1"
279  maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
280  cim16#IdentifiedObject.mRID"/>
281                          <xs:element name="revisionNumber" type="ESMPVersion_String"
282  minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
283  schema-cim16#Document.revisionNumber"/>
284                          <xs:element name="type" type="MessageKind_String" minOccurs="1"
285  maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
286  cim16#Document.type"/>
287                          <xs:element name="sender_MarketParticipant.mRID"
288  type="PartyID_String" minOccurs="1" maxOccurs="1"
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290  cim16#IdentifiedObject.mRID"/>
291                          <xs:element name="sender_MarketParticipant.marketRole.type"
292  type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
293  sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
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```
294        <xs:element name="receiver_MarketParticipant.mRID"
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297    cim16#IdentifiedObject.mRID"/>
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299    type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
300    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
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302    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
303    schema-cim16#Document.createdDateTime"/>
304        <xs:element name="time_Period.timeInterval"
305    type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
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307    cim16#Period.timeInterval"/>
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309    type="ProcessKind_String" minOccurs="0" maxOccurs="1"
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311    cim16#Process.processType"/>
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313    minOccurs="1" maxOccurs="unbounded"
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315    cim16#MarketDocument.Area_TimeSeries"/>
316        </xs:sequence>
317    </xs:complexType>
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319    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
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321            <xs:maxInclusive value="999999"/>
322            <xs:minInclusive value="1"/>
323        </xs:restriction>
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327        <xs:restriction base="ecl:QualityTypeList"/>
328    </xs:simpleType>
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333    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
334    schema-cim16#Point.position"/>
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336    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
337    cim16#Point.quantity"/>
338            <xs:element name="quality" type="Quality_String" minOccurs="1"
339    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
340    cim16#Point.quality"/>
341            <xs:element name="UncertaintyPercentage_Quantity"
342    type="UncertaintyPercentage_Quantity" minOccurs="0" maxOccurs="unbounded"
343    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
344    cim16#Point.UncertaintyPercentage_Quantity"/>
345        </xs:sequence>
346    </xs:complexType>
347    <xs:complexType name="Series_Period"
348    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
349        <xs:sequence>
350            <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
351    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
352    schema-cim16#Period.timeInterval"/>
```

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```
353         <xs:element name="resolution" type="xs:duration" minOccurs="1"
354    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
355    cim16#Period.resolution"/>
356         <xs:element name="Point" type="Point" minOccurs="1"
357    maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
358    cim16#Period.Point"/>
359         </xs:sequence>
360      </xs:complexType>
361      <xs:simpleType name="BusinessKind_String"
362    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
363         <xs:restriction base="ecl:BusinessTypeList"/>
364      </xs:simpleType>
365      <xs:simpleType name="AreaID_String-base"
366    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
367         <xs:restriction base="xs:string">
368            <xs:maxLength value="18"/>
369         </xs:restriction>
370      </xs:simpleType>
371      <xs:complexType name="AreaID_String"
372    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
373         <xs:simpleContent>
374            <xs:extension base="AreaID_String-base">
375               <xs:attribute name="codingScheme"
376    type="ecl:CodingSchemeTypeList" use="required"/>
377            </xs:extension>
378         </xs:simpleContent>
379      </xs:complexType>
380      <xs:simpleType name="ResourceID_String-base"
381    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
382         <xs:restriction base="xs:string">
383            <xs:maxLength value="60"/>
384         </xs:restriction>
385      </xs:simpleType>
386      <xs:complexType name="ResourceID_String"
387    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
388         <xs:simpleContent>
389            <xs:extension base="ResourceID_String-base">
390               <xs:attribute name="codingScheme"
391    type="ecl:CodingSchemeTypeList" use="required"/>
392            </xs:extension>
393         </xs:simpleContent>
394      </xs:complexType>
395      <xs:simpleType name="PsrType_String"
396    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
397         <xs:restriction base="ecl:AssetTypeList"/>
398      </xs:simpleType>
399      <xs:simpleType name="MeasurementUnitKind_String"
400    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
401         <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
402      </xs:simpleType>
403      <xs:simpleType name="CurveType_String"
404    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
405         <xs:restriction base="ecl:CurveTypeList"/>
406      </xs:simpleType>
407      <xs:complexType name="TimeSeries"
408    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
409         <xs:sequence>
410            <xs:element name="mRID" type="ID_String" minOccurs="1"
411    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
412    cim16#IdentifiedObject.mRID"/>
```

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```
413                        <xs:element name="businessType" type="BusinessKind_String"
414    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
415    schema-cim16#TimeSeries.businessType"/>
416                        <xs:element name="domain.mRID" type="AreaID_String"
417    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
418    schema-cim16#IdentifiedObject.mRID"/>
419                        <xs:element name="registeredResource.mRID"
420    type="ResourceID_String" minOccurs="0" maxOccurs="1"
421    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
422    cim16#IdentifiedObject.mRID"/>
423                        <xs:element name="mktPSRType.psrType" type="PsrType_String"
424    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
425    schema-cim16#MktPSRType.psrType"/>
426                        <xs:element name="measurement_Unit.name"
427    type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
428    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
429                        <xs:element name="curveType" type="CurveType_String"
430    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
431    schema-cim16#TimeSeries.curveType"/>
432                        <xs:element name="Series_Period" type="Series_Period"
433    minOccurs="1" maxOccurs="unbounded"
434    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
435    cim16#TimeSeries.Series_Period"/>
436                </xs:sequence>
437        </xs:complexType>
438        <xs:complexType name="UncertaintyPercentage_Quantity"
439    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity">
440                <xs:sequence>
441                        <xs:element name="quantity" type="xs:decimal" minOccurs="1"
442    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
443    cim16#Quantity.quantity"/>
444                        <xs:element name="minimumPercentage_Quantity.quantity"
445    type="xs:decimal" minOccurs="0" maxOccurs="1"
446    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
447    cim16#Quantity.quantity"/>
448                        <xs:element name="maximumPercentage_Quantity.quantity"
449    type="xs:decimal" minOccurs="0" maxOccurs="1"
450    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
451    cim16#Quantity.quantity"/>
452                </xs:sequence>
453        </xs:complexType>
454    </xs:schema>
455
```