



European Network of  
Transmission System Operators  
for Electricity

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# PUBLICATION DOCUMENT UML MODEL AND SCHEMA

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## Revision History

Version	Release	Date	Comments
0	0	2017-01-27	First drafting of the document.
1	0	2017-01-30	Version to be submitted to Market Committee following WG EDI meeting in March 2017.

65

## 66    **1    Objective**

67    The purpose of this document is to provide the contextual and assembly UML models and the  
68    schema of the Publication\_MarketDocument.

69    The schema of the Publication\_MarketDocument could be used in various business processes.

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

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

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

## 2 Publication\_MarketDocument

### 2.1 Publication contextual model

#### 2.1.1 Overview of the model

Figure 1 shows the model.

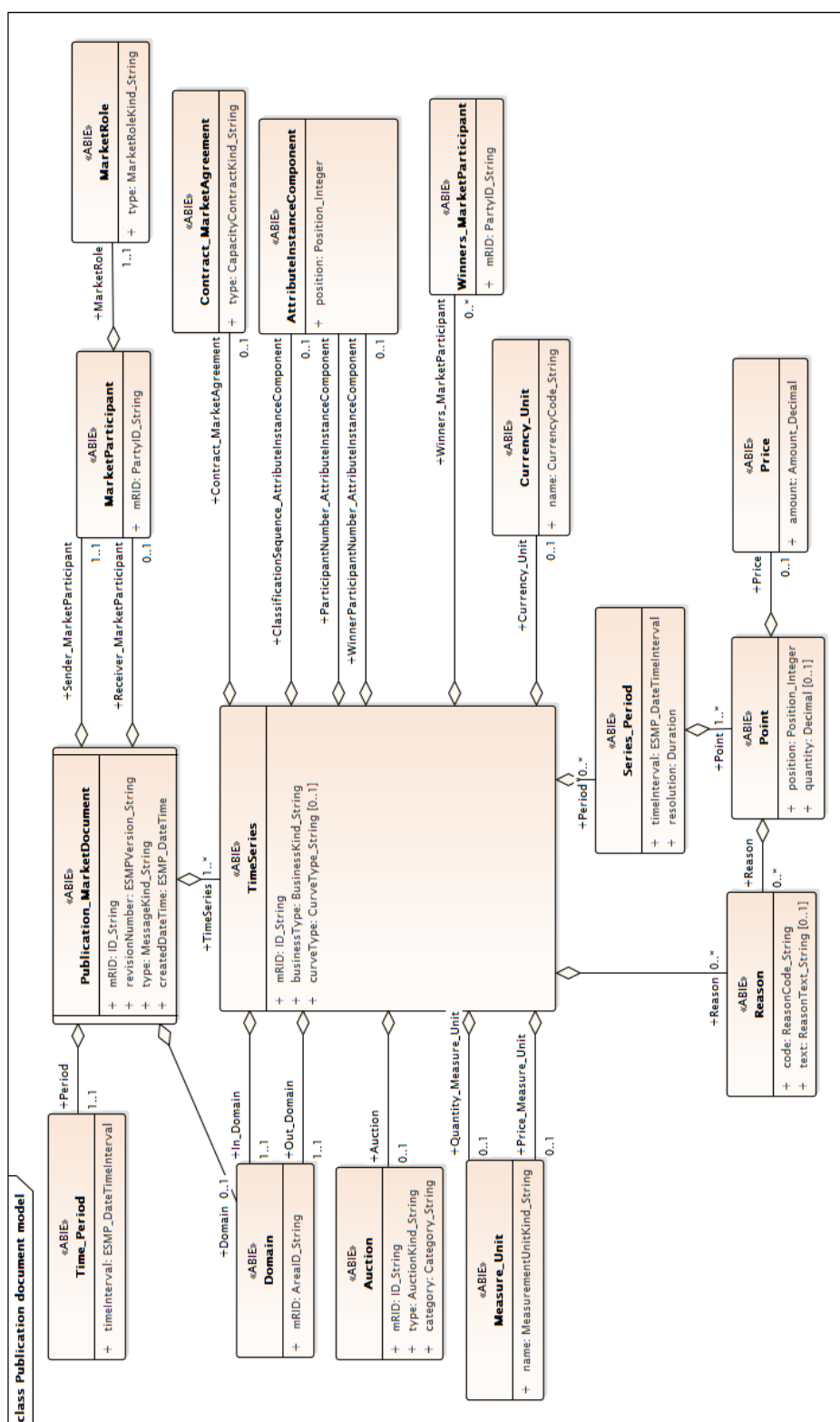


Figure 1 - Publication contextual model

## 2.1.2 IsBasedOn relationships from the European style market profile

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

**Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
AttributeInstanceComponent	TC57CIM::IEC62325::MarketManagement::AttributeInstanceComponent
Auction	TC57CIM::IEC62325::MarketManagement::Auction
Contract_MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
Currency_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Domain	TC57CIM::IEC62325::MarketManagement::Domain
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Point	TC57CIM::IEC62325::MarketManagement::Point
Price	TC57CIM::IEC62325::MarketManagement::Price
Publication_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
Winners_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant

## 2.2 Publication assembly model

### 2.2.1 Overview of the model

Figure 2 shows the model.

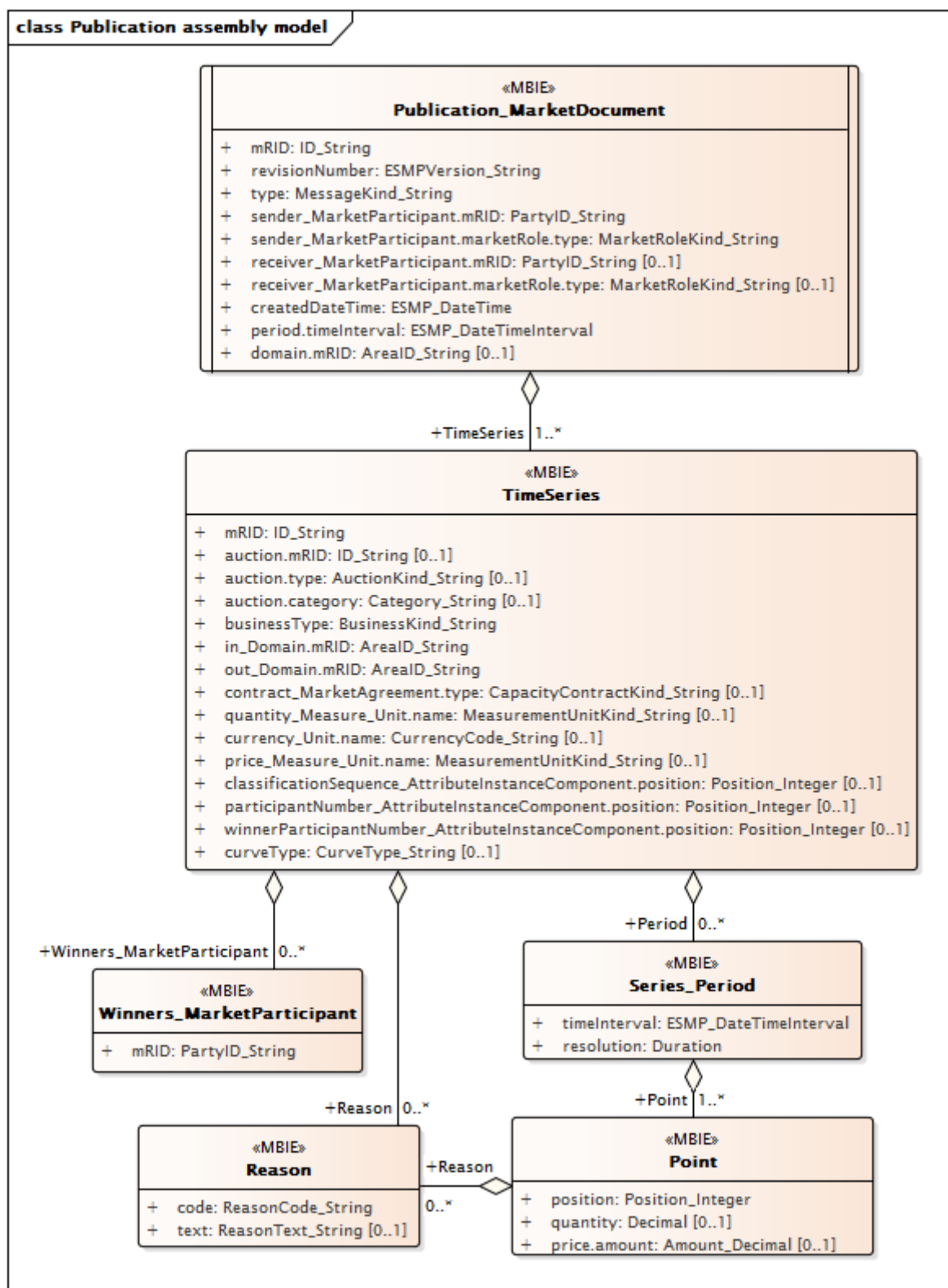


Figure 2 - Publication assembly model



## 2.2.2 IsBasedOn relationships from the European style market profile

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

**Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Point	TC57CIM::IEC62325::MarketManagement::Point
Publication_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
Winners_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant

## 2.2.3 Detailed Publication assembly model

### 2.2.3.1 Publication\_MarketDocument root class

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

A publication document is issued by the transmission capacity allocator at the end of a specific auctioning cycle or by the system operator once the NTC values have been agreed.

Table 3 shows all attributes of Publication\_MarketDocument.

**Table 3 - Attributes of Publication assembly model::Publication\_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. --- Document owner.
4	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document owner.
5	[0..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.
6	[0..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient.
7	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
8	[1..1]	period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The beginning and ending date and time of the period that the publication document is covering.
9	[0..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the publication document

Table 4 shows all association ends of Publication\_MarketDocument with other classes.

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

Order	mult.	Class name / Role	Description
10	[1..*]	TimeSeries TimeSeries	Association Based On: Publication contextual model::TimeSeries.TimeSeries[1..*] ----- Publication contextual model::Publication_MarketDocument.[]

### 2.2.3.2 Point

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

Table 5 shows all attributes of Point.

**Table 5 - Attributes of Publication 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 Decimal	The quantity auctioned for the interval in question. The principal quantity identified for a point.
2	[0..1]	price.amount Amount_Decimal	A number of monetary units specified in a unit of currency. --- The price expressed per currency per unit of price measure. This information defines the price expressed in the unit of measurement of price per unit of quantity in compliance with the pricing scheme based on local market rules. A price may be negative in cases where it is providing the difference between in and out area market prices. The price is mandatory in the case of capacity auctions and shall not be provided in the case of rule based allocations depending on local market rules.

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

**Table 6 - Association ends of Publication assembly model::Point with other classes**

Order	mult.	Class name / Role	Description
3	[0..*]	Reason Reason	Association Based On: Publication contextual model::Reason.Reason[0..*] ----- Publication contextual model::Point.[]

### 2.2.3.3 Reason

The motivation of an act.

Table 7 shows all attributes of Reason.

**Table 7 - Attributes of Publication assembly model::Reason**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	code ReasonCode_String	The motivation of an act in coded form.

Order	mult.	Attribute name / Attribute type	Description
1	[0..1]	text ReasonText_String	The textual explanation corresponding to the reason code.

128

#### 129 2.2.3.4 Series\_Period

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

131 Table 8 shows all attributes of Series\_Period.

132 **Table 8 - Attributes of Publication 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.

133

134 Table 9 shows all association ends of Series\_Period with other classes.

135 **Table 9 - Association ends of Publication assembly model::Series\_Period with other**  
136 **classes**

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	Association Based On: Publication contextual model::Point.Point[1..*] ----- Publication contextual model::Series_Period.[]

137

#### 138 2.2.3.5 TimeSeries

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

140 Table 10 shows all attributes of TimeSeries.

141 **Table 10 - Attributes of Publication assembly model::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[0..1]	auction.mRID ID_String	The unique identification of the auction. --- A unique identification of the set of specifications that clearly defines the allocation process to which the time series is addressed.
2	[0..1]	auction.type AuctionKind_String	The kind of the auction (e.g. implicit, explicit, ...). --- A unique identification of the set of specifications that clearly defines the allocation process to which the time series is addressed.

Order	mult.	Attribute name / Attribute type	Description
3	[0..1]	<a href="#">auction.category</a> Category_String	The product category of an auction. --- A unique identification of the set of specifications that clearly defines the allocation process to which the time series is addressed.
4	[1..1]	<a href="#">businessType</a> BusinessKind_String	The identification of the nature of the time series.
5	[1..1]	<a href="#">in_Domain.mRID</a> AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
6	[1..1]	<a href="#">out_Domain.mRID</a> AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
7	[0..1]	<a href="#">contract_MarketAgreement.type</a> CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract. --- The contract type defines the conditions under which the capacity was allocated and handled, e.g.: daily auction, weekly auction, monthly auction, yearly auction, long term contract, etc. The significance of this type is dependent on the in area and out area specific coded working methods.
8	[0..1]	<a href="#">quantity_Measure_Unit.name</a> MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure in which the quantities in the times eries are expressed., e.g. MAW.
9	[0..1]	<a href="#">currency_Unit.name</a> CurrencyCode_String	The identification of the formal code for a currency (ISO 4217). --- The currency in which the monetary amount is expressed.
10	[0..1]	<a href="#">price_Measure_Unit.name</a> MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure in which the price in the time series is expressed per unit of currency (MW per unit, MWh per unit, etc.).
11	[0..1]	<a href="#">classificationSequence_AttributeInstanceComponent.position</a> Position_Integer	A sequential value representing a relative sequence number. --- The sequence of a time series within a given auction category and contract type. A classification sequence is only provided in the case where there are several auctions in the same category and contract type.
12	[0..1]	<a href="#">participantNumber_AttributeInstanceComponent.position</a> Position_Integer	A sequential value representing a relative sequence number. --- The number of parties that participated in the auction. It is only provided if the auction rules permit it.

Order	mult.	Attribute name / Attribute type	Description
13	[0..1]	winnerParticipantNumber_AttributeInstanceComponent.position Position_Integer	A sequential value representing a relative sequence number. --- The number of parties that had successful bids in the auction. This information is only provided if the auction rules permit it.
14	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

142

143 Table 11 shows all association ends of TimeSeries with other classes.

144 **Table 11 - Association ends of Publication assembly model::TimeSeries with other**  
145 **classes**

Order	mult.	Class name / Role	Description
15	[0..*]	Series_Period Period	Association Based On: Publication contextual model::Series_Period.Period[0..*] ----- Publication contextual model::TimeSeries.[]
16	[0..*]	Reason Reason	Association Based On: Publication contextual model::Reason.Reason[0..*] ----- Publication contextual model::TimeSeries.[]
17	[0..*]	Winners_MarketParticipant Winners_MarketParticipant	The identification of the market participants who get something at the auction. Association Based On: Publication contextual model::Winners_MarketParticipant.Winners_MarketParticipant[0..*] ----- Publication contextual model::TimeSeries.[]

146

### 147 2.2.3.6 Winners\_MarketParticipant

148 The identification of the party participating in energy market business processes.

149 Table 12 shows all attributes of Winners\_MarketParticipant.

150 **Table 12 - Attributes of Publication assembly model::Winners\_MarketParticipant**

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

151

### 152 2.2.4 Datatypes

153 The list of datatypes used for the Publication assembly model is as follows:

- 154 • ESMP\_DateTimeInterval compound
- 155 • Amount\_Decimal datatype
- 156 • AreaID\_String datatype, codelist CodingSchemeTypeList
- 157 • AuctionKind\_String datatype, codelist AuctionTypeList
- 158 • BusinessKind\_String datatype, codelist BusinessTypeList

- 159 • CapacityContractKind\_String datatype, codelist ContractTypeList
- 160 • Category\_String datatype, codelist CategoryTypeList
- 161 • CurrencyCode\_String datatype, codelist CurrencyTypeList
- 162 • CurveType\_String datatype, codelist CurveTypeList
- 163 • ESMP\_DateTime datatype
- 164 • ESMPVersion\_String datatype
- 165 • ID\_String datatype
- 166 • MarketRoleKind\_String datatype, codelist RoleTypeList
- 167 • MeasurementUnitKind\_String datatype, codelist UnitOfMeasureTypeList
- 168 • MessageKind\_String datatype, codelist MessageTypeList
- 169 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 170 • Position\_Integer datatype
- 171 • ReasonCode\_String datatype, codelist ReasonCodeTypeList
- 172 • ReasonText\_String datatype
- 173 • YMDHM\_DateTime datatype

## 2.3 Publication\_MarketDocument XML schema

### 2.3.1 Publication\_MarketDocument XML schema structure

Figure 3 to Figure 5 provide the structure of the schema.

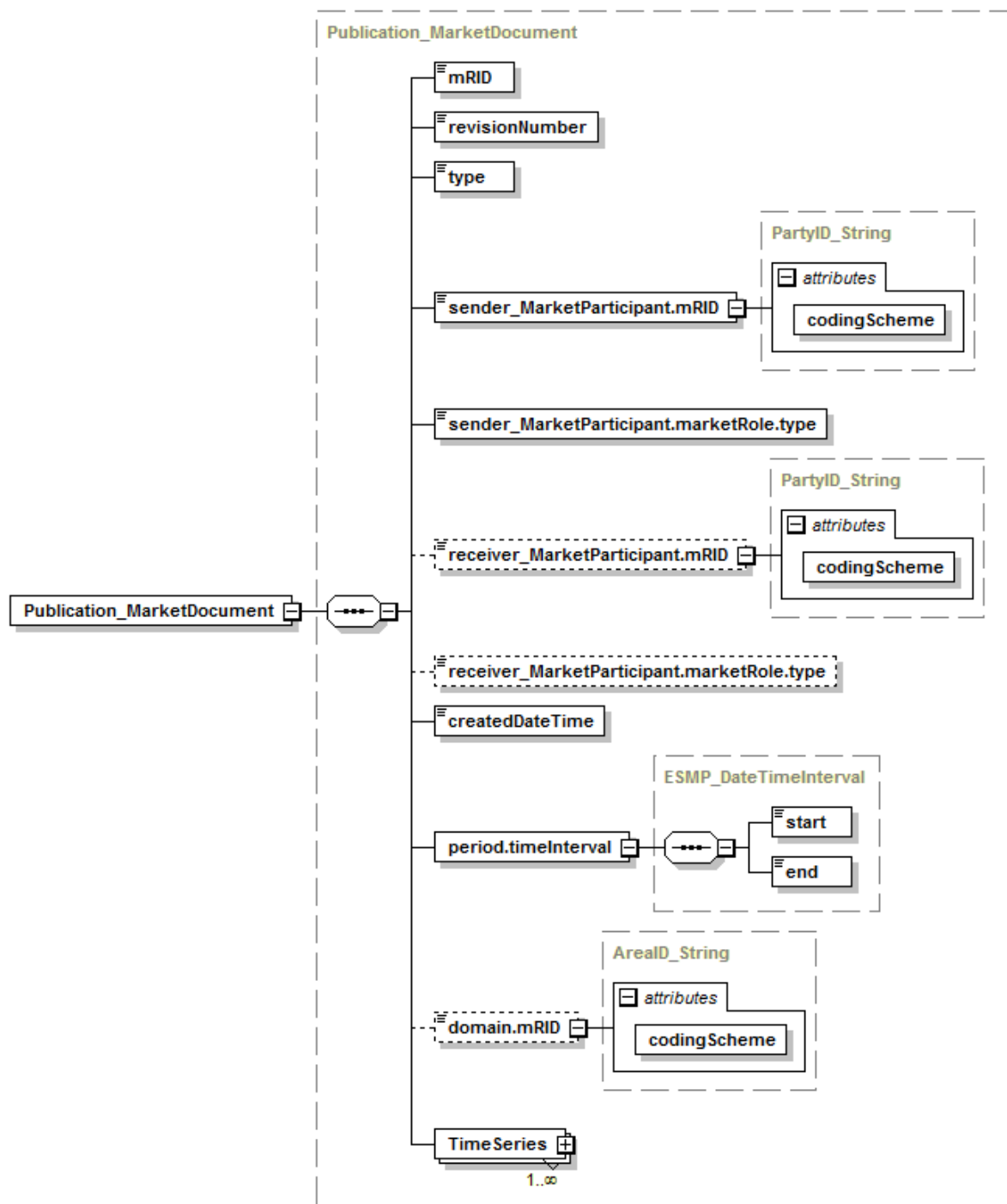


Figure 3 - Publication\_MarketDocument schema structure 1/3

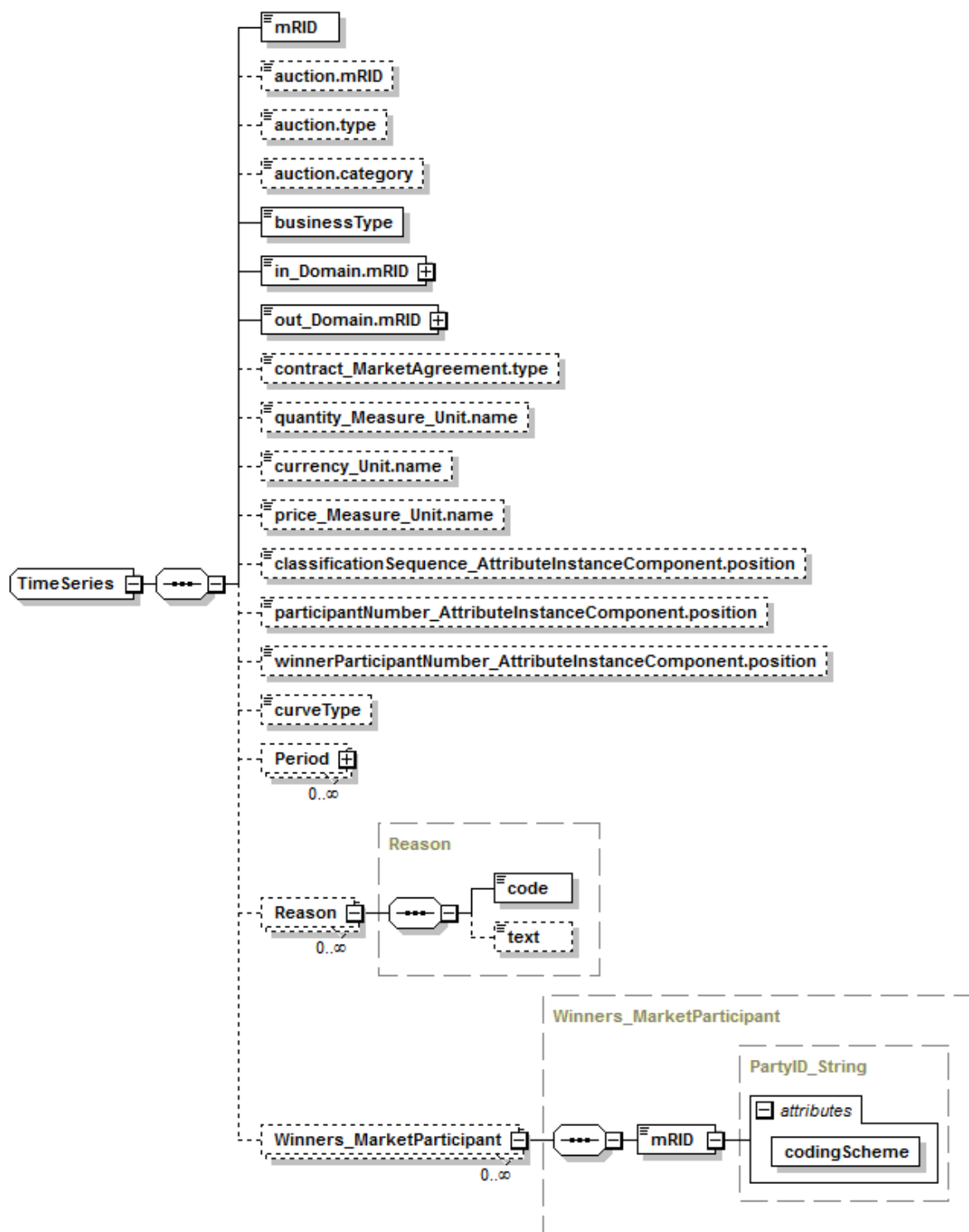


Figure 4 - Publication\_MarketDocument schema structure 2/3



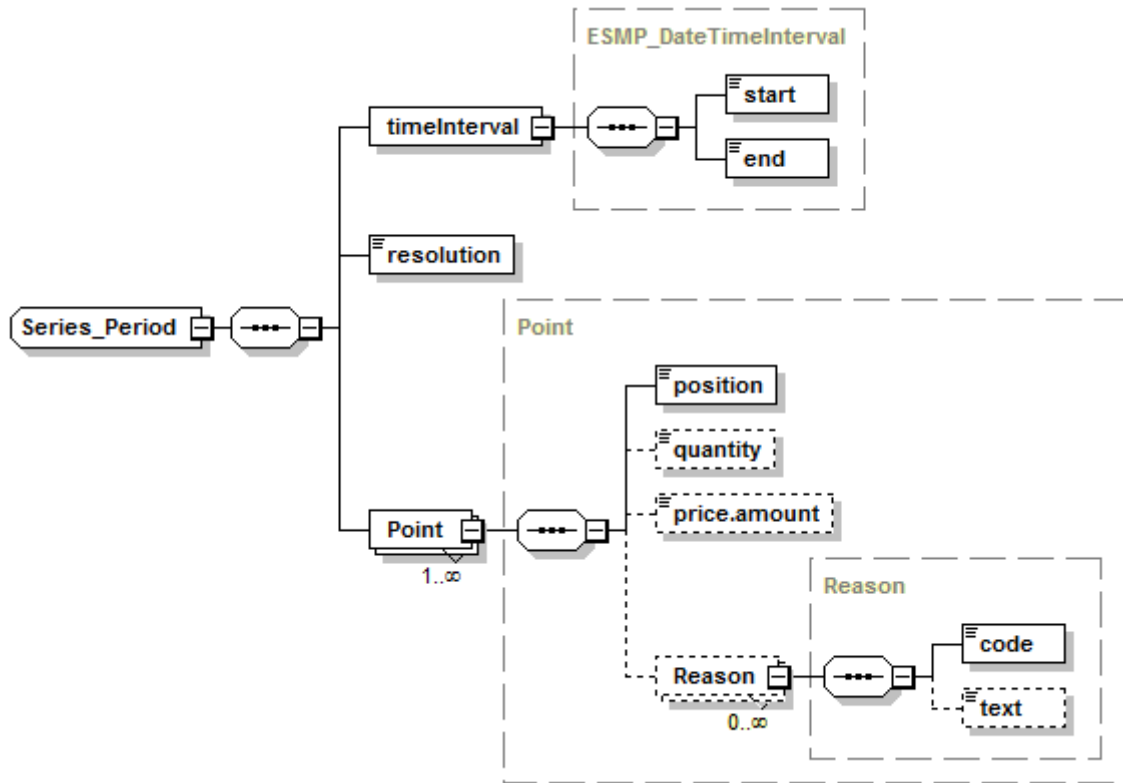


Figure 5 - Publication\_MarketDocument schema structure 3/3

### 2.3.2 Publication\_MarketDocument XML schema

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

urn:iec62325.351:tc57wg16:451-3:publicationdocument:7:0

```

<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:cl="urn:entsoe.eu:wgedi:codelists"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl" xmlns="urn:iec62325.351:tc57wg16:451-
3:publicationdocument:7:0" xmlns:cimp="http://www.iec.ch/cimprofile"
attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="urn:iec62325.351:tc57wg16:451-3:publicationdocument:7:0"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:import schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd"
namespace="urn:entsoe.eu:wgedi:codelists" />
  <xs:element name="Publication_MarketDocument" type="Publication_MarketDocument" />
  <xs:simpleType name="Position_Integer"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
    <xs:restriction base="xs:integer">
      <xs:minInclusive value="1" />
      <xs:maxInclusive value="999999" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="Amount_Decimal"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Decimal">
    <xs:restriction base="xs:decimal">
      <xs:totalDigits value="17" />
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
schema-cim16#Point">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="position" type="Position_Integer"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position">
      </xs:element>
      <xs:element minOccurs="0" maxOccurs="1" name="quantity" type="xs:decimal"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity">
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
schema-cim16#Reason">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="code" type="xs:string"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code">
      </xs:element>
      <xs:element minOccurs="0" maxOccurs="1" name="text" type="xs:string"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text">
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
schema-cim16#ESMP_DateTimeInterval">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="start" type="xs:string"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ESMP_DateTimeInterval.start">
      </xs:element>
      <xs:element minOccurs="1" maxOccurs="1" name="end" type="xs:string"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ESMP_DateTimeInterval.end">
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
schema-cim16#Series_Period">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="timeInterval" type="ESMP_DateTimeInterval"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Series_Period.timeInterval">
      </xs:element>
      <xs:element minOccurs="1" maxOccurs="1" name="resolution" type="Position_Integer"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Series_Period.resolution">
      </xs:element>
      <xs:element minOccurs="1" maxOccurs="1" name="Point" type="Point"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Series_Period.Point">
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:schema>

```



```

217       </xs:element>
218       <xs:element minOccurs="0" maxOccurs="1" name="price.amount"
219 type="Amount_Decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
220 cim16#Price.amount">
221       </xs:element>
222       <xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason"
223 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.Reason">
224       </xs:element>
225     </xs:sequence>
226   </xs:complexType>
227   <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
228 schema-cim16#String">
229     <xs:restriction base="xs:string">
230       <xs:maxLength value="35" />
231     </xs:restriction>
232   </xs:simpleType>
233   <xs:simpleType name="ESMPVersion_String"
234 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
235     <xs:restriction base="xs:string">
236       <xs:pattern value="[1-9]([0-9]){0,2}" />
237     </xs:restriction>
238   </xs:simpleType>
239   <xs:simpleType name="MessageKind_String"
240 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
241     <xs:restriction base="cl:MessageTypeList" />
242   </xs:simpleType>
243   <xs:simpleType name="PartyID_String-base"
244 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
245     <xs:restriction base="xs:string">
246       <xs:maxLength value="16" />
247     </xs:restriction>
248   </xs:simpleType>
249   <xs:complexType name="PartyID_String"
250 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
251     <xs:simpleContent>
252       <xs:extension base="PartyID_String-base">
253         <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
254 use="required" />
255       </xs:extension>
256     </xs:simpleContent>
257   </xs:complexType>
258   <xs:simpleType name="MarketRoleKind_String"
259 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
260     <xs:restriction base="cl:RoleTypeList" />
261   </xs:simpleType>
262   <xs:simpleType name="ESMP_DateTime"
263 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
264     <xs:restriction base="xs:dateTime">
265       <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|12)[0-
266 9]|3[01])|([0-9]{4})[\-](0[469])|(11))[\-](0[1-9]|12)[0-9]|30))T(([01][0-9]|2[0-
267 3]):[0-5][0-9]:[0-5][0-
268 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][048]
269 |02468][048][02468][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-
270 9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-5][0-
271 9]:[0-5][0-
272 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[01345789][
273 2468][1235679]|02468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][123
274 5679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-
275 8])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)" />
276     </xs:restriction>
277   </xs:simpleType>
278   <xs:simpleType name="AreaID_String-base"
279 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
280     <xs:restriction base="xs:string">
281       <xs:maxLength value="18" />
282     </xs:restriction>
283   </xs:simpleType>
284   <xs:complexType name="AreaID_String"
285 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">

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286     <xs:simpleContent>
287     <xs:extension base="AreaID_String-base">
288     <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
289 use="required" />
290     </xs:extension>
291     </xs:simpleContent>
292 </xs:complexType>
293 <xs:simpleType name="YMDHM_DateTime"
294 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
295     <xs:restriction base="xs:string">
296     <xs:pattern value="(((0-9){4})[\-](0[13578]|1[02])[\-](0[1-9]|12)[0-
297 9]|3[01])|((0-9){4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-9]|30))T((01)[0-9]|2[0-
298 3]):[0-5][0-
299 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][048]
300 |02468][048][02468][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-
301 9)[0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-5][0-
302 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[01345789][
303 2468][1235679]|02468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][123
304 5679][2468][1235679]|0-9)[0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-
305 8])T((01)[0-9]|2[0-3]):[0-5][0-9])Z)" />
306     </xs:restriction>
307 </xs:simpleType>
308 <xs:complexType name="ESMP_DateTimeInterval"
309 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
310     <xs:sequence>
311     <xs:element minOccurs="1" maxOccurs="1" name="start" type="YMDHM_DateTime"
312 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
313 cim16#DateTimeInterval.start">
314     </xs:element>
315     <xs:element minOccurs="1" maxOccurs="1" name="end" type="YMDHM_DateTime"
316 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
317 cim16#DateTimeInterval.end">
318     </xs:element>
319     </xs:sequence>
320 </xs:complexType>
321 <xs:complexType name="Publication_MarketDocument"
322 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
323     <xs:sequence>
324     <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
325 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
326 cim16#IdentifiedObject.mRID">
327     </xs:element>
328     <xs:element minOccurs="1" maxOccurs="1" name="revisionNumber"
329 type="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
330 cim16#Document.revisionNumber">
331     </xs:element>
332     <xs:element minOccurs="1" maxOccurs="1" name="type" type="MessageKind_String"
333 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type">
334     </xs:element>
335     <xs:element minOccurs="1" maxOccurs="1" name="sender_MarketParticipant.mRID"
336 type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
337 cim16#IdentifiedObject.mRID">
338     </xs:element>
339     <xs:element minOccurs="1" maxOccurs="1"
340 name="sender_MarketParticipant.marketRole.type" type="MarketRoleKind_String"
341 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
342     </xs:element>
343     <xs:element minOccurs="0" maxOccurs="1" name="receiver_MarketParticipant.mRID"
344 type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
345 cim16#IdentifiedObject.mRID">
346     </xs:element>
347     <xs:element minOccurs="0" maxOccurs="1"
348 name="receiver_MarketParticipant.marketRole.type" type="MarketRoleKind_String"
349 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
350     </xs:element>
351     <xs:element minOccurs="1" maxOccurs="1" name="createdDateTime"
352 type="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
353 cim16#Document.createdDateTime">
354     </xs:element>

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355         <xs:element minOccurs="1" maxOccurs="1" name="period.timeInterval"
356 type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
357 schema-cim16#Period.timeInterval">
358         </xs:element>
359         <xs:element minOccurs="0" maxOccurs="1" name="domain.mRID" type="AreaID_String"
360 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
361 cim16#IdentifiedObject.mRID">
362         </xs:element>
363         <xs:element minOccurs="1" maxOccurs="unbounded" name="TimeSeries"
364 type="TimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
365 cim16#MarketDocument.TimeSeries">
366         </xs:element>
367     </xs:sequence>
368 </xs:complexType>
369 <xs:simpleType name="ReasonCode_String"
370 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
371     <xs:restriction base="cl:ReasonCodeTypeList" />
372 </xs:simpleType>
373 <xs:simpleType name="ReasonText_String"
374 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
375     <xs:restriction base="xs:string">
376         <xs:maxLength value="512" />
377     </xs:restriction>
378 </xs:simpleType>
379 <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
380 schema-cim16#Reason">
381     <xs:sequence>
382         <xs:element minOccurs="1" maxOccurs="1" name="code" type="ReasonCode_String"
383 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code">
384         </xs:element>
385         <xs:element minOccurs="0" maxOccurs="1" name="text" type="ReasonText_String"
386 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text">
387         </xs:element>
388     </xs:sequence>
389 </xs:complexType>
390 <xs:complexType name="Series_Period"
391 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
392     <xs:sequence>
393         <xs:element minOccurs="1" maxOccurs="1" name="timeInterval"
394 type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
395 schema-cim16#Period.timeInterval">
396         </xs:element>
397         <xs:element minOccurs="1" maxOccurs="1" name="resolution" type="xs:duration"
398 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution">
399         </xs:element>
400         <xs:element minOccurs="1" maxOccurs="unbounded" name="Point" type="Point"
401 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point">
402         </xs:element>
403     </xs:sequence>
404 </xs:complexType>
405 <xs:simpleType name="AuctionKind_String"
406 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
407     <xs:restriction base="cl:AuctionTypeList" />
408 </xs:simpleType>
409 <xs:simpleType name="Category_String"
410 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
411     <xs:restriction base="cl:CategoryTypeList" />
412 </xs:simpleType>
413 <xs:simpleType name="BusinessKind_String"
414 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
415     <xs:restriction base="cl:BusinessTypeList" />
416 </xs:simpleType>
417 <xs:simpleType name="CapacityContractKind_String"
418 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
419     <xs:restriction base="cl:ContractTypeList" />
420 </xs:simpleType>
421 <xs:simpleType name="MeasurementUnitKind_String"
422 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
423     <xs:restriction base="cl:UnitOfMeasureTypeList" />

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424     </xs:simpleType>
425     <xs:simpleType name="CurrencyCode_String"
426 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
427     <xs:restriction base="cl:CurrencyTypeList" />
428     </xs:simpleType>
429     <xs:simpleType name="CurveType_String"
430 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
431     <xs:restriction base="cl:CurveTypeList" />
432     </xs:simpleType>
433     <xs:complexType name="TimeSeries"
434 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
435     <xs:sequence>
436     <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
437 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
438 cim16#IdentifiedObject.mRID">
439     </xs:element>
440     <xs:element minOccurs="0" maxOccurs="1" name="auction.mRID" type="ID_String"
441 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
442 cim16#IdentifiedObject.mRID">
443     </xs:element>
444     <xs:element minOccurs="0" maxOccurs="1" name="auction.type"
445 type="AuctionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
446 cim16#Auction.type">
447     </xs:element>
448     <xs:element minOccurs="0" maxOccurs="1" name="auction.category"
449 type="Category_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
450 cim16#Auction.category">
451     </xs:element>
452     <xs:element minOccurs="1" maxOccurs="1" name="businessType"
453 type="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
454 cim16#TimeSeries.businessType">
455     </xs:element>
456     <xs:element minOccurs="1" maxOccurs="1" name="in_Domain.mRID"
457 type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
458 cim16#IdentifiedObject.mRID">
459     </xs:element>
460     <xs:element minOccurs="1" maxOccurs="1" name="out_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="contract_MarketAgreement.type"
465 type="CapacityContractKind_String"
466 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type">
467     </xs:element>
468     <xs:element minOccurs="0" maxOccurs="1" name="quantity_Measure_Unit.name"
469 type="MeasurementUnitKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
470 schema-cim16#Unit.name">
471     </xs:element>
472     <xs:element minOccurs="0" maxOccurs="1" name="currency_Unit.name"
473 type="CurrencyCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
474 cim16#Unit.name">
475     </xs:element>
476     <xs:element minOccurs="0" maxOccurs="1" name="price_Measure_Unit.name"
477 type="MeasurementUnitKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
478 schema-cim16#Unit.name">
479     </xs:element>
480     <xs:element minOccurs="0" maxOccurs="1"
481 name="classificationSequence_AttributeInstanceComponent.position" type="xs:integer"
482 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
483 cim16#AttributeInstanceComponent.position">
484     </xs:element>
485     <xs:element minOccurs="0" maxOccurs="1"
486 name="participantNumber_AttributeInstanceComponent.position" type="xs:integer"
487 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
488 cim16#AttributeInstanceComponent.position">
489     </xs:element>
490     <xs:element minOccurs="0" maxOccurs="1"
491 name="winnerParticipantNumber_AttributeInstanceComponent.position" type="xs:integer"

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492 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
493 cim16#AttributeInstanceComponent.position">
494 </xs:element>
495 <xs:element minOccurs="0" maxOccurs="1" name="curveType"
496 type="CurveType_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
497 cim16#TimeSeries.curveType">
498 </xs:element>
499 <xs:element minOccurs="0" maxOccurs="unbounded" name="Period"
500 type="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
501 cim16#TimeSeries.Period">
502 </xs:element>
503 <xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason"
504 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.Reason">
505 </xs:element>
506 <xs:element minOccurs="0" maxOccurs="unbounded"
507 name="Winners_MarketParticipant" type="Winners_MarketParticipant"
508 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
509 cim16#TimeSeries.Winners_MarketParticipant">
510 </xs:element>
511 </xs:sequence>
512 </xs:complexType>
513 <xs:complexType name="Winners_MarketParticipant"
514 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketParticipant">
515 <xs:sequence>
516 <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="PartyID_String"
517 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
518 cim16#IdentifiedObject.mRID">
519 </xs:element>
520 </xs:sequence>
521 </xs:complexType>
522 </xs:schema>

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