



European Network of  
Transmission System Operators  
for Electricity

---

# BID DOCUMENT UML MODEL AND SCHEMA

---

2018-05-12  
DOCUMENT APPROVED  
VERSION 1.0

2

## Table of Contents

3	1	Objective .....	5
4	2	Bid_MarketDocument .....	6
5	2.1	Bid contextual model.....	6
6	2.1.1	Overview of the model .....	6
7	2.1.2	IsBasedOn relationships from the European style market	
8		profile .....	6
9	2.2	Bid assembly model.....	8
10	2.2.1	Overview of the model .....	8
11	2.2.2	IsBasedOn relationships from the European style market	
12		profile .....	9
13	2.2.3	Detailed Bid assembly model.....	9
14	2.2.3.1	Bid_MarketDocument root class .....	9
15	2.2.3.2	BidTimeSeries .....	10
16	2.2.3.3	Point .....	11
17	2.2.3.4	Series_Period .....	11
18	2.2.4	Datatypes .....	12
19	2.2.5	Bid_MarketDocument XML schema structure .....	13
20	2.2.6	Bid_MarketDocument XML schema.....	14
21		<b>List of figures</b>	
22		Figure 1 - Bid contextual model .....	6
23		Figure 2 - Bid assembly model.....	8
24		Figure 3 – Bid_MarketDocument schema structure .....	13
25		<b>List of tables</b>	
26		Table 1 - IsBasedOn dependency .....	6
27		Table 2 - IsBasedOn dependency .....	9
28		Table 3 - Attributes of Bid assembly model::Bid_MarketDocument .....	9
29		Table 4 - Association ends of Bid assembly model::Bid_MarketDocument with other	
30		classes .....	10
31		Table 5 - Attributes of Bid assembly model::BidTimeSeries.....	10
32		Table 6 - Association ends of Bid assembly model::BidTimeSeries with other classes .....	11
33		Table 7 - Attributes of Bid assembly model::Point .....	11
34		Table 8 - Attributes of Bid assembly model::Series_Period .....	11
35		Table 9 - Association ends of Bid assembly model::Series_Period with other classes .....	12
36			

37

## Copyright notice:

38 **Copyright © ENTSO-E. All Rights Reserved.**

39 This document and its whole translations may be copied and furnished to others, and derivative  
40 works that comment on or otherwise explain it or assist in its implementation may be prepared,  
41 copied, published and distributed, in whole or in part, without restriction of any kind, provided  
42 that the above copyright notice and this paragraph are included on all such copies and  
43 derivative works. However, this document itself may not be modified in any way, except for  
44 literal and whole translation into languages other than English and under all circumstances, the  
45 copyright notice or references to ENTSO-E may not be removed.

46 This document and the information contained herein is provided on an "as is" basis.

47 **ENTSO-E DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT**  
48 **LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT**  
49 **INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR**  
50 **FITNESS FOR A PARTICULAR PURPOSE.**

51

## Maintenance notice:

52 **This document is maintained by the ENTSO-E WG EDI. Comments or remarks are to be**  
53 **provided at [EDI.Library@entsoe.eu](mailto:EDI.Library@entsoe.eu)**

54

## Revision History

Version	Release	Date	Comments
0	1	2018-03-12	First drafting of the document.
1	0	2018-05-08	Document approved by MC

55

56 **1 Objective**

57 The purpose of this document is to provide the contextual and assembly UML models and the  
58 schema of the Bid\_MarketDocument.

59 The schema of the Bid\_MarketDocument could be used in various business processes.

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

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

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

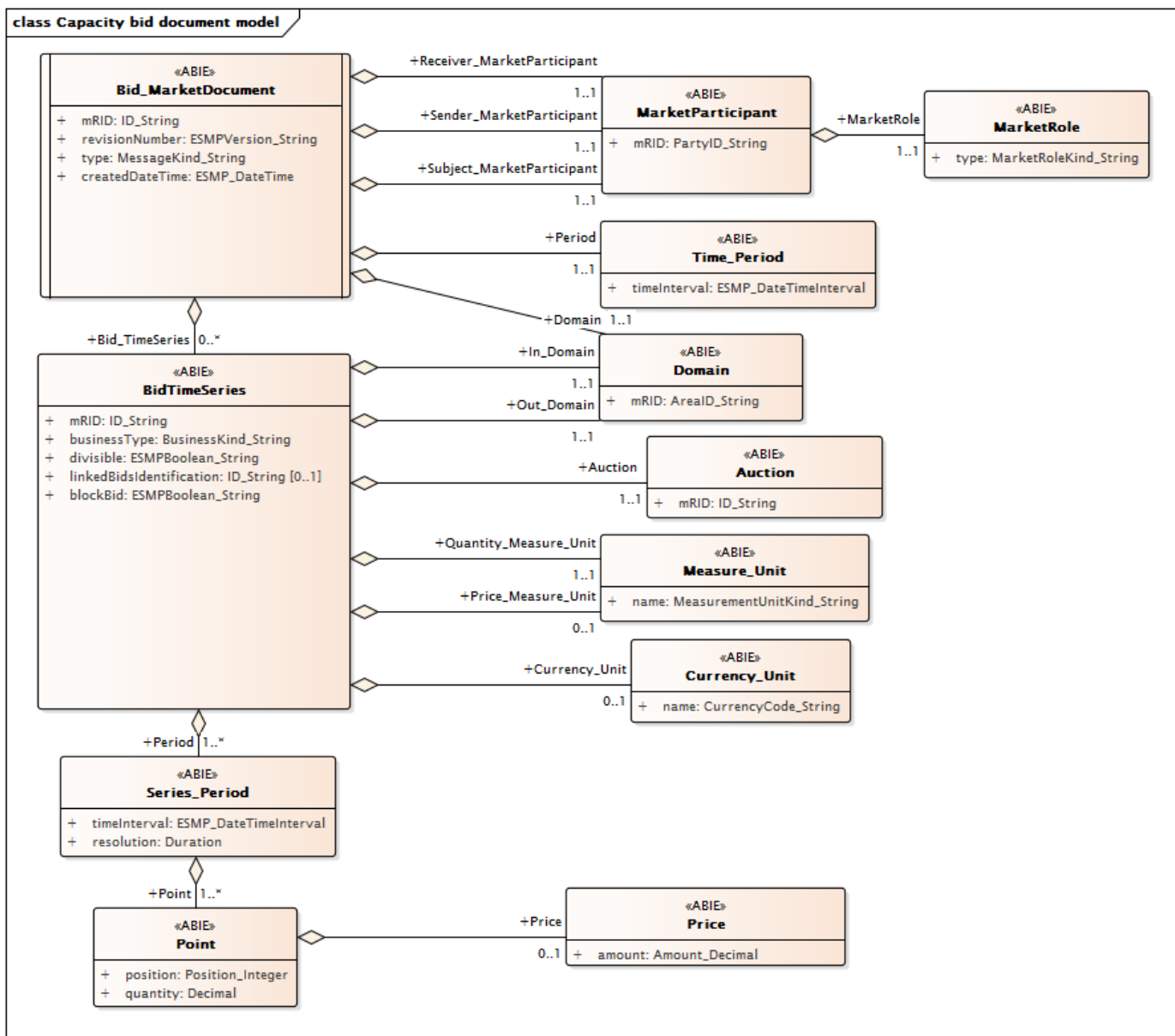
72

73 **2 Bid\_MarketDocument**

74 **2.1 Bid contextual model**

75 **2.1.1 Overview of the model**

76 Figure 1 shows the model.



77

78 **Figure 1 - Bid contextual model**

79 **2.1.2 IsBasedOn relationships from the European style market profile**

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

82 **Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Auction	TC57CIM::IEC62325::MarketManagement::Auction
Bid_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
BidTimeSeries	TC57CIM::IEC62325::MarketManagement::BidTimeSeries

Name	Complete IsBasedOn Path
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
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period

83

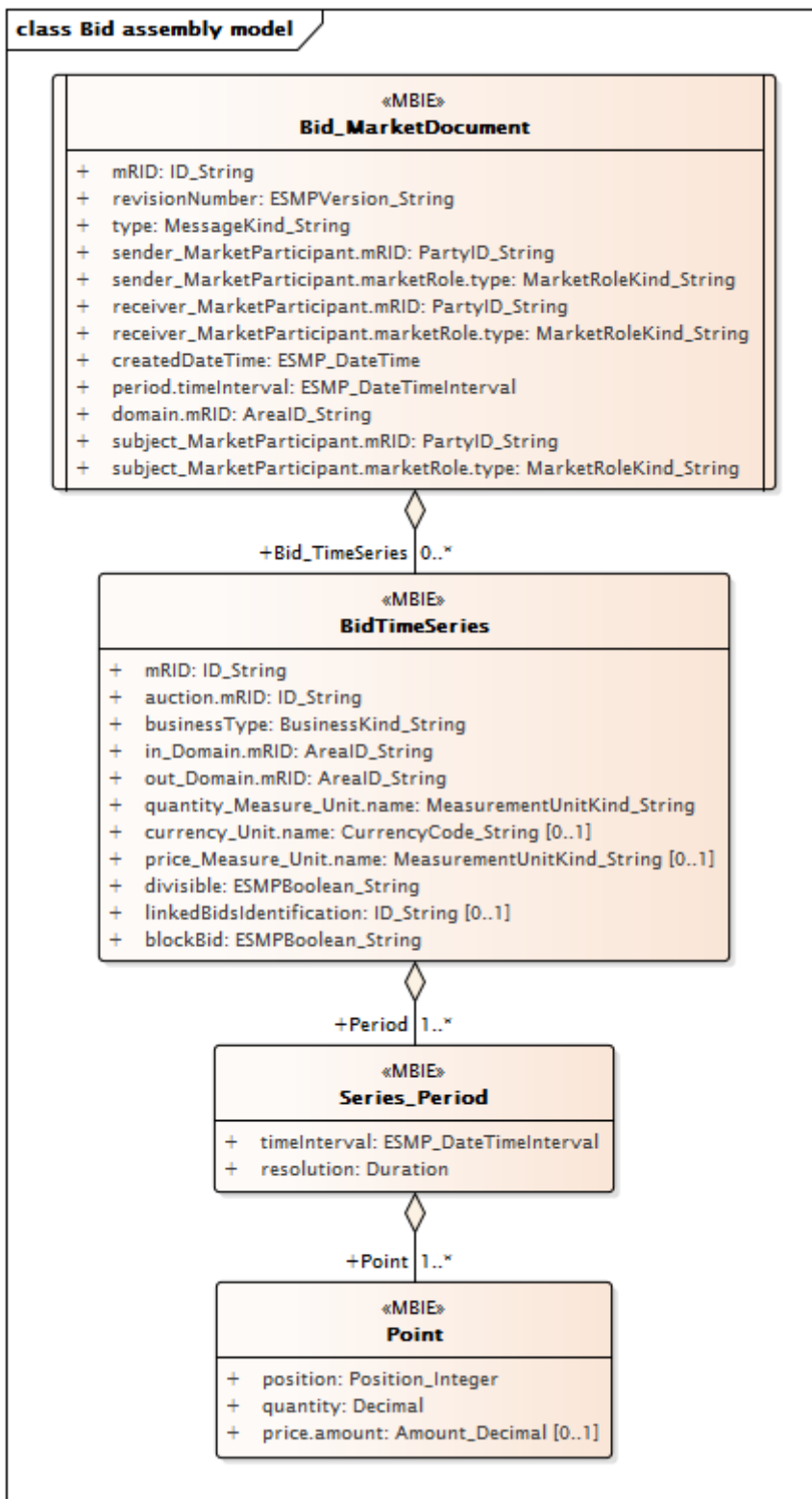
84

85

86 2.2 Bid assembly model

87 2.2.1 Overview of the model

88 Figure 2 shows the model.



89

90

Figure 2 - Bid assembly model



91 **2.2.2 IsBasedOn relationships from the European style market profile**

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

94 **Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Bid_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
BidTimeSeries	TC57CIM::IEC62325::MarketManagement::BidTimeSeries
Point	TC57CIM::IEC62325::MarketManagement::Point
Series_Period	TC57CIM::IEC62325::MarketManagement::Period

95

96 **2.2.3 Detailed Bid assembly model**

97 **2.2.3.1 Bid\_MarketDocument root class**

98 A bid document contains a set of bids (a bid is represented by a time series). There may be  
99 several bids submitted by the sender for the same bid period and subject party.

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

102 Table 3 shows all attributes of Bid\_MarketDocument.

103 **Table 3 - Attributes of Bid assembly model::Bid\_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	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.
6	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient.
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 covered by the document.
9	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the bid document, i.e. the border for which auction is done.
10	[1..1]	subject_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The party for whom the bid is being submitted.

Order	mult.	Attribute name / Attribute type	Description
11	[1..1]	subject_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The party for whom the bid is being submitted.

104

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

106 **Table 4 - Association ends of Bid assembly model::Bid\_MarketDocument with other**  
107 **classes**

Order	mult.	Class name / Role	Description
12	[0..*]	BidTimeSeries Bid_TimeSeries	The timeseries contains the bids that are submitted to the auction. Association Based On: Bid contextual model::BidTimeSeries.Bid_TimeSeries[0..*] ----- Bid contextual model::Bid_MarketDocument.[]

108

### 109 2.2.3.2 BidTimeSeries

110 The formal specification of specific characteristics related to a bid.

111 Table 5 shows all attributes of BidTimeSeries.

112 **Table 5 - Attributes of Bid assembly model::BidTimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[1..1]	auction.mRID ID_String	The unique identification of the auction. --- The identification linking the bid to a set of specifications created by the auction operator.
2	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
3	[1..1]	in_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
4	[1..1]	out_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
5	[1..1]	quantity_Measure_Unit.name 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 time series are expressed, e.g. MAW.
6	[0..1]	currency_Unit.name CurrencyCode_String	The identification of the formal code for a currency (ISO 4217). --- The currency in which the monetary amount is expressed.
7	[0..1]	price_Measure_Unit.name 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 (MW, MWh, etc.).
8	[1..1]	divisible ESMPBoolean_String	An indication whether or not each element of the bid may be partially accepted or not.
9	[0..1]	linkedBidsIdentification ID_String	The unique identification used to identify associated bids with each other.
10	[1..1]	blockBid ESMPBoolean_String	The indication that the values in the period are considered as a whole. They cannot be changed or subdivided.

113

114 Table 6 shows all association ends of BidTimeSeries with other classes.

115 **Table 6 - Association ends of Bid assembly model::BidTimeSeries with other classes**

Order	mult.	Class name / Role	Description
11	[1..*]	Series_Period Period	Association Based On: Bid contextual model::Series_Period.Period[1..*] ----- Bid contextual model::BidTimeSeries.[]

116

### 117 2.2.3.3 Point

118 The quantity that is bid for the interval in question.

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

120 Table 7 shows all attributes of Point.

121 **Table 7 - Attributes of Bid 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]	price.amount Amount_Decimal	A number of monetary units specified in a unit of currency. --- The price expressed for each unit of quantity. The price amount 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 (for example "first come first serve").

122

### 123 2.2.3.4 Series\_Period

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

125 Table 8 shows all attributes of Series\_Period.

126 **Table 8 - Attributes of Bid assembly model::Series\_Period**

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

127

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

129 **Table 9 - Association ends of Bid assembly model::Series\_Period with other classes**

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

130

131 **2.2.4 Datatypes**

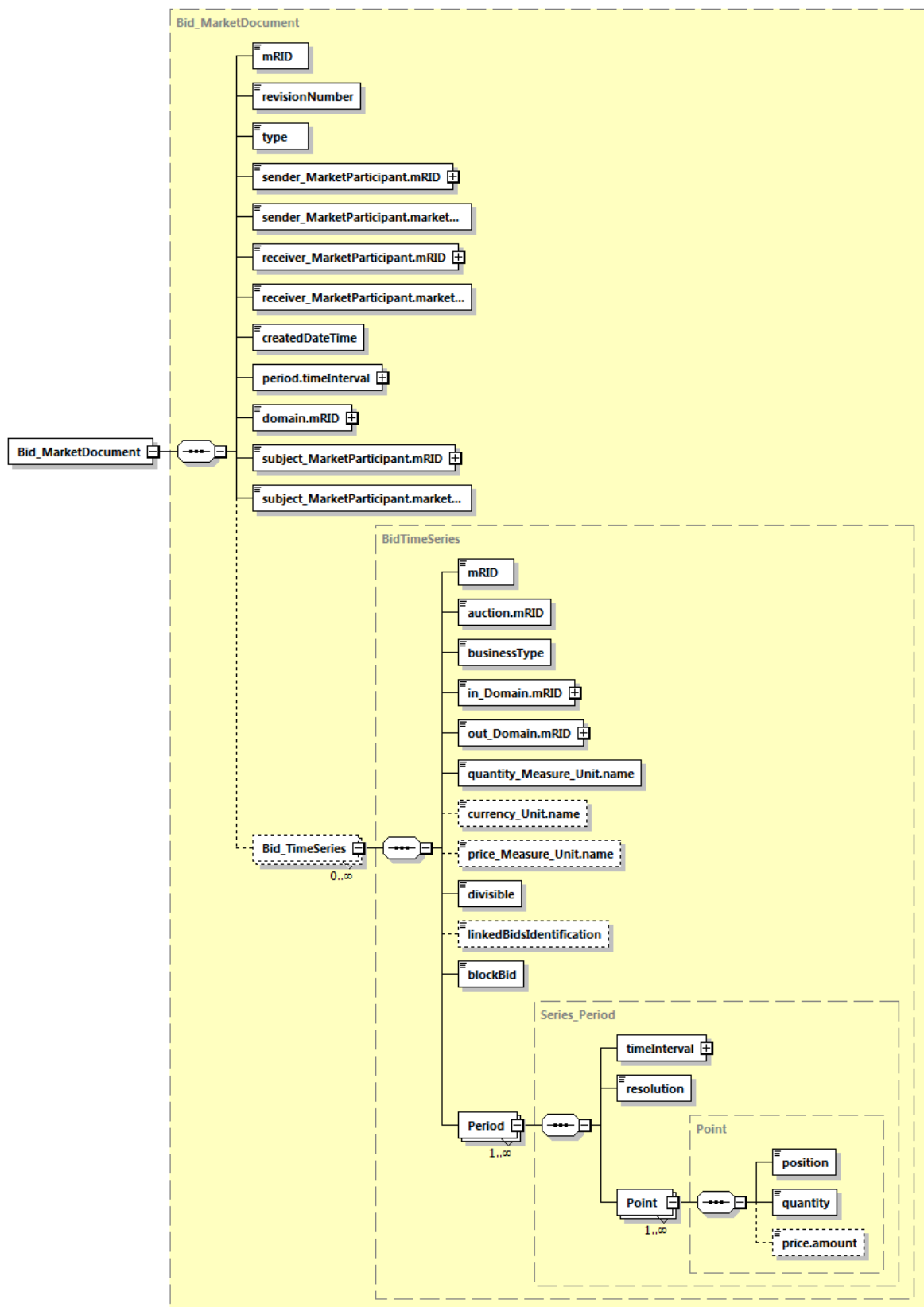
132 The list of datatypes used for the Bid assembly model is as follows:

- 133 • ESMP\_DateTimeInterval compound
- 134 • Amount\_Decimal datatype
- 135 • ArealD\_String datatype, codelist CodingSchemeTypeList
- 136 • BusinessKind\_String datatype, codelist BusinessTypeList
- 137 • CurrencyCode\_String datatype, codelist CurrencyTypeList
- 138 • ESMP\_DateTime datatype
- 139 • ESMPBoolean\_String datatype, codelist IndicatorTypeList
- 140 • ESMPVersion\_String datatype
- 141 • ID\_String datatype
- 142 • MarketRoleKind\_String datatype, codelist RoleTypeList
- 143 • MeasurementUnitKind\_String datatype, codelist UnitOfMeasureTypeList
- 144 • MessageKind\_String datatype, codelist MessageTypeList
- 145 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 146 • Position\_Integer datatype
- 147 • YMDHM\_DateTime datatype

148

149

150 **2.2.5 Bid\_MarketDocument XML schema structure**  
151



152

153

**Figure 3 – Bid\_MarketDocument schema structure**

## 154 2.2.6 Bid\_MarketDocument XML schema

155

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

157 urn:iec62325.351:tc57wg16:451-3:biddocument:7:0

```

158 <?xml version="1.0" encoding="utf-8"?>
159 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists" xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
160 xmlns="urn:iec62325.351:tc57wg16:451-3:biddocument:7:0" xmlns:cimp="http://www.iec.ch/cimprofile"
161 xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="urn:iec62325.351:tc57wg16:451-
162 3:biddocument:7:0" elementFormDefault="qualified" attributeFormDefault="unqualified">
163   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-
164 codelists.xsd"/>
165   <xs:element name="Bid_MarketDocument" type="Bid_MarketDocument"/>
166   <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
167 cim16#String">
168     <xs:restriction base="xs:string">
169       <xs:maxLength value="35"/>
170     </xs:restriction>
171   </xs:simpleType>
172   <xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
173 schema-cim16#String">
174     <xs:restriction base="xs:string">
175       <xs:pattern value="[1-9]([0-9]){0,2}"/>
176     </xs:restriction>
177   </xs:simpleType>
178   <xs:simpleType name="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
179 schema-cim16#String">
180     <xs:restriction base="ecl:MessageTypeList"/>
181   </xs:simpleType>
182   <xs:simpleType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
183 schema-cim16#String">
184     <xs:restriction base="xs:string">
185       <xs:maxLength value="16"/>
186     </xs:restriction>
187   </xs:simpleType>
188   <xs:complexType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
189 schema-cim16#String">
190     <xs:simpleContent>
191       <xs:extension base="PartyID_String-base">
192         <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
193 use="required"/>
194       </xs:extension>
195     </xs:simpleContent>
196   </xs:complexType>
197   <xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
198 schema-cim16#String">
199     <xs:restriction base="ecl:RoleTypeList"/>
200   </xs:simpleType>
201   <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
202 cim16#DateTime">
203     <xs:restriction base="xs:dateTime">
204       <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
205 9]|3[01])|([0-9]{4})[\-](0[469])|(11))[\-](0[1-9]|[12][0-9]|30))T((0[1][0-9]|2[0-3]):[0-5][0-9]:[0-
206 5][0-9])Z|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][048]|02468[048][0246
207 8][048]|02468[1235679](0)[48]|02468[1235679][2468][048]|0[0-9][0-9][13579][26])[\-](02)[\-](0[1-
208 9]|1[0-9]|2[0-9])T((0[1][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[01345789][2468][1235679]|02
209 468[048][02468][1235679]|02468[1235679](0)[01235679]|02468[1235679][2468][1235679]|0[0-9][0-
210 9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-8])T((0[1][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)/>
211     </xs:restriction>
212   </xs:simpleType>
213   <xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
214 schema-cim16#String">
215     <xs:restriction base="xs:string">
216       <xs:maxLength value="18"/>
217     </xs:restriction>
218   </xs:simpleType>
219   <xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
220 cim16#String">
221     <xs:simpleContent>
222       <xs:extension base="AreaID_String-base">
223     </xs:simpleContent>
224

```

```

225         <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
226 use="required"/>
227     </xs:extension>
228 </xs:simpleContent>
229 </xs:complexType>
230 <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
231 cim16#DateTime">
232     <xs:restriction base="xs:string">
233         <xs:pattern value="((([0-9]{4})[\-]([013578]|1[02])[\-]([01-9]|[12][0-
234 9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-]([01-9]|12|[0-9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
235 9])Z|((([13579][26][02468][048]|13579][01345789])(0)[48]|13579][01345789][2468][048]|02468][048][0246
236 8][048]|02468][1235679])(0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[\-]([02])[\-]([01-
237 9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-5][0-
238 9])Z|((([13579][26][02468][1235679]|13579][01345789])(0)[01235679]|13579][01345789][2468][1235679]|02
239 468][048][02468][1235679]|02468][1235679])(0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
240 9][13579][01345789])[\-]([02])[\-]([01-9]|1[0-9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
241     </xs:restriction>
242 </xs:simpleType>
243 <xs:complexType name="ESMP_DateTimeInterval"
244 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
245     <xs:sequence>
246         <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
247 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start"/>
248         <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
249 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end"/>
250     </xs:sequence>
251 </xs:complexType>
252 <xs:complexType name="Bid_MarketDocument" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
253 schema-cim16#MarketDocument">
254     <xs:sequence>
255         <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
256 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
257         <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1"
258 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
259 cim16#Document.revisionNumber"/>
260         <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1"
261 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
262         <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String"
263 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
264 cim16#IdentifiedObject.mRID"/>
265         <xs:element name="sender_MarketParticipant.marketRole.type"
266 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
267 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
268         <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String"
269 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
270 cim16#IdentifiedObject.mRID"/>
271         <xs:element name="receiver_MarketParticipant.marketRole.type"
272 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
273 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
274         <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1"
275 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
276 cim16#Document.createdDateTime"/>
277         <xs:element name="period.timeInterval" type="ESMP_DateTimeInterval"
278 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
279 cim16#Period.timeInterval"/>
280         <xs:element name="domain.mRID" type="AreaID_String" minOccurs="1"
281 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
282         <xs:element name="subject_MarketParticipant.mRID" type="PartyID_String"
283 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
284 cim16#IdentifiedObject.mRID"/>
285         <xs:element name="subject_MarketParticipant.marketRole.type"
286 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
287 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
288         <xs:element name="Bid_TimeSeries" type="BidTimeSeries" minOccurs="0"
289 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
290 cim16#MarketDocument.Bid_TimeSeries"/>
291     </xs:sequence>
292 </xs:complexType>
293 <xs:simpleType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
294 schema-cim16#String">
295     <xs:restriction base="ecl:BusinessTypeList"/>
296 </xs:simpleType>
297 <xs:simpleType name="MeasurementUnitKind_String"
298 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
299     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>

```



```

300         </xs:simpleType>
301         <xs:simpleType name="CurrencyCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
302 schema-cim16#String">
303             <xs:restriction base="ecl:CurrencyTypeList"/>
304         </xs:simpleType>
305         <xs:simpleType name="ESMPBoolean_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
306 schema-cim16#String">
307             <xs:restriction base="ecl:IndicatorTypeList"/>
308         </xs:simpleType>
309         <xs:complexType name="BidTimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
310 cim16#BidTimeSeries">
311             <xs:sequence>
312                 <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
313 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
314                 <xs:element name="auction.mRID" type="ID_String" minOccurs="1" maxOccurs="1"
315 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
316                 <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
317 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
318 cim16#TimeSeries.businessType"/>
319                 <xs:element name="in_Domain.mRID" type="AreaID_String" minOccurs="1"
320 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
321                 <xs:element name="out_Domain.mRID" type="AreaID_String" minOccurs="1"
322 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
323                 <xs:element name="quantity_Measure_Unit.name"
324 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
325 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
326                 <xs:element name="currency_Unit.name" type="CurrencyCode_String" minOccurs="0"
327 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
328                 <xs:element name="price_Measure_Unit.name" type="MeasurementUnitKind_String"
329 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
330 cim16#Unit.name"/>
331                 <xs:element name="divisible" type="ESMPBoolean_String" minOccurs="1"
332 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
333 cim16#BidTimeSeries.divisible"/>
334                 <xs:element name="linkedBidsIdentification" type="ID_String" minOccurs="0"
335 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
336 cim16#BidTimeSeries.linkedBidsIdentification"/>
337                 <xs:element name="blockBid" type="ESMPBoolean_String" minOccurs="1"
338 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.blockBid"/>
339                 <xs:element name="Period" type="Series_Period" minOccurs="1"
340 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
341 cim16#BidTimeSeries.Period"/>
342             </xs:sequence>
343         </xs:complexType>
344         <xs:simpleType name="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
345 schema-cim16#Integer">
346             <xs:restriction base="xs:integer">
347                 <xs:maxInclusive value="999999"/>
348                 <xs:minInclusive value="1"/>
349             </xs:restriction>
350         </xs:simpleType>
351         <xs:simpleType name="Amount_Decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
352 cim16#Decimal">
353             <xs:restriction base="xs:decimal">
354                 <xs:totalDigits value="17"/>
355             </xs:restriction>
356         </xs:simpleType>
357         <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
358 cim16#Point">
359             <xs:sequence>
360                 <xs:element name="position" type="Position_Integer" minOccurs="1"
361 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
362                 <xs:element name="quantity" type="xs:decimal" minOccurs="1" maxOccurs="1"
363 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
364                 <xs:element name="price.amount" type="Amount_Decimal" minOccurs="0"
365 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
366             </xs:sequence>
367         </xs:complexType>
368         <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
369 cim16#Period">
370             <xs:sequence>
371                 <xs:element name="timeInterval" type="ESMP_DateTimeInterval" minOccurs="1"
372 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
373                 <xs:element name="resolution" type="xs:duration" minOccurs="1" maxOccurs="1"
374 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution"/>

```



```
375         <xs:element name="Point" type="Point" minOccurs="1" maxOccurs="unbounded"
376 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
377         </xs:sequence>
378     </xs:complexType>
379 </xs:schema>
```