



European Network of  
Transmission System Operators  
for Electricity

---

**RESERVE ALLOCATION RESULT  
DOCUMENT  
UML MODEL AND SCHEMA**

---

2019-02-12  
APPROVED DOCUMENT  
VERSION 1.0

2

## Table of Contents

3	1	Objective .....	5
4	2	ReserveAllocationResult_MarketDocument.....	6
5	2.1	Reserve allocation result contextual model .....	6
6	2.1.1	Overview of the model .....	6
7	2.1.2	IsBasedOn relationships from the European style market profile .....	7
8			
9	2.2	Reserve allocation result assembly model.....	8
10	2.2.1	Overview of the model .....	8
11	2.2.2	IsBasedOn relationships from the European style market profile .....	9
12			
13	2.2.3	Detailed Reserve allocation result assembly model.....	9
14	2.2.3.1	ReserveAllocationResult_MarketDocument root class .....	9
15	2.2.3.2	Point .....	10
16	2.2.3.3	Reason .....	11
17	2.2.3.4	Series_Period .....	11
18	2.2.3.5	TimeSeries .....	11
19	2.2.4	Datatypes .....	14
20	2.2.5	ReserveAllocationResult_MarketDocument XML schema structure .....	15
21			
22	2.2.6	ReserveAllocation_MarketDocument XML schema .....	16

### 23 List of figures

24	Figure 1 - Reserve allocation result contextual model .....	6
25	Figure 2 - Reserve allocation result assembly model .....	8
26	Figure 3 - ReserveAllocationResult_MarketDocument schema structure .....	15

### 27 List of tables

28	Table 1 - IsBasedOn dependency .....	7
29	Table 2 - IsBasedOn dependency .....	9
30	Table 3 - Attributes of Reserve allocation result assembly model::ReserveAllocationResult_MarketDocument .....	9
31		
32	Table 4 - Association ends of Reserve allocation result assembly model::ReserveAllocationResult_MarketDocument with other classes .....	10
33		
34	Table 5 - Attributes of Reserve allocation result assembly model::Point .....	10
35	Table 6 - Association ends of Reserve allocation result assembly model::Point with other classes .....	11
36		
37	Table 7 - Attributes of Reserve allocation result assembly model::Reason .....	11
38	Table 8 - Attributes of Reserve allocation result assembly model::Series_Period .....	11
39	Table 9 - Association ends of Reserve allocation result assembly model::Series_Period with other classes .....	11
40		
41	Table 10 - Attributes of Reserve allocation result assembly model::TimeSeries .....	12
42	Table 11 - Association ends of Reserve allocation result assembly model::TimeSeries with other classes .....	14
43		
44		

45

## Copyright notice:

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

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

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

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

59

## Maintenance notice:

60 This document is maintained by the ENTSO-E CIM EG. Comments or remarks are to be  
61 provided at [cim@entsoe.eu](mailto:cim@entsoe.eu)

62

## Revision History

Version	Release	Date	Comments
0	1	2019-01-14	First draft of the document.
1	0	2019-02-12	Approved by MC.

63

## 64 1 Objective

65 The purpose of this document is to provide the contextual and assembly UML models and the  
66 schema of the ReserveAllocationResult\_MarketDocument.

67 The schema of the ReserveAllocationResult\_MarketDocument could be used in various  
68 business processes.

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

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

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

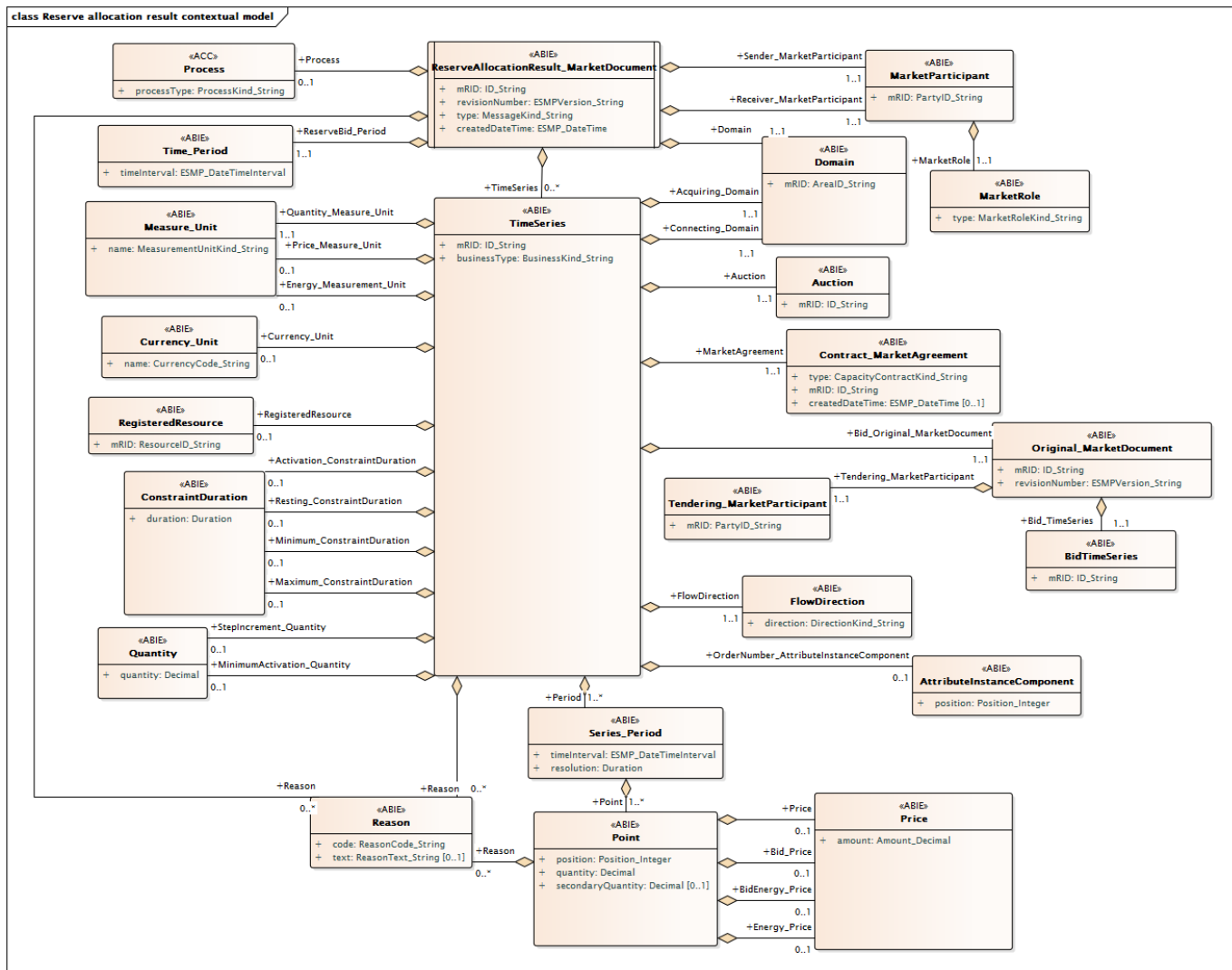
81

82 **2 ReserveAllocationResult\_MarketDocument**

83 **2.1 Reserve allocation result contextual model**

84 **2.1.1 Overview of the model**

85 Figure 1 shows the model.



86

87

**Figure 1 - Reserve allocation result contextual model**

88

89

90 **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
AttributeInstanceComponent	TC57CIM::IEC62325::MarketManagement::AttributeInstanceComponent
Auction	TC57CIM::IEC62325::MarketManagement::Auction
BidTimeSeries	TC57CIM::IEC62325::MarketManagement::BidTimeSeries
ConstraintDuration	TC57CIM::IEC62325::MarketManagement::ConstraintDuration
Contract_MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
Currency_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Domain	TC57CIM::IEC62325::MarketManagement::Domain
FlowDirection	TC57CIM::IEC62325::MarketManagement::FlowDirection
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Original_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Point	TC57CIM::IEC62325::MarketManagement::Point
Price	TC57CIM::IEC62325::MarketManagement::Price
Process	TC57CIM::IEC62325::MarketManagement::Process
Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
Reason	TC57CIM::IEC62325::MarketManagement::Reason
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
ReserveAllocationResult_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Tendering_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

94

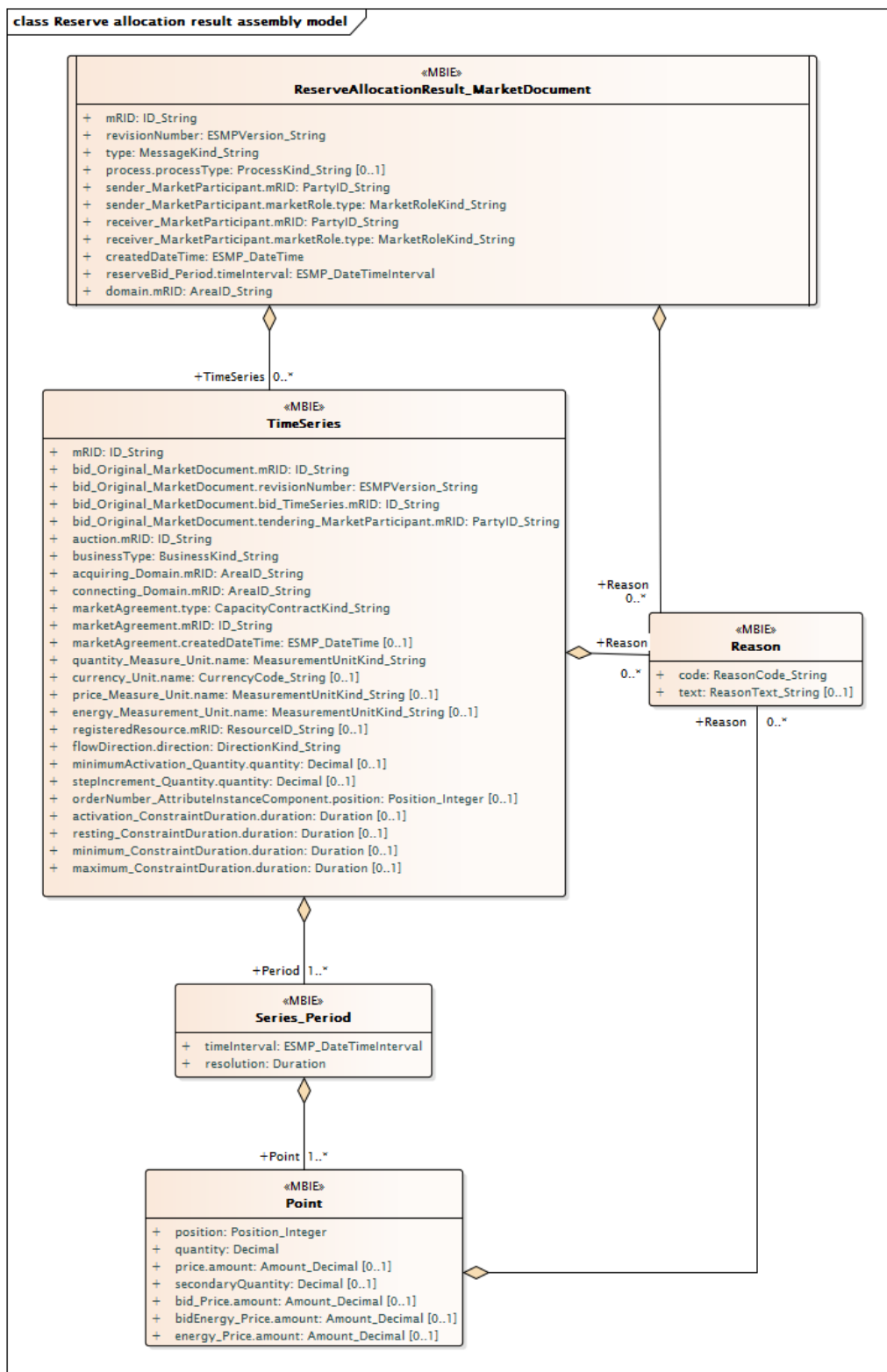
95

96

97 2.2 Reserve allocation result assembly model

98 2.2.1 Overview of the model

99 Figure 2 shows the model.



100

101

Figure 2 - Reserve allocation result assembly model



102

103 **2.2.2 IsBasedOn relationships from the European style market profile**

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

106

**Table 2 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
ReserveAllocationResult_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

107

108 **2.2.3 Detailed Reserve allocation result assembly model**

109 **2.2.3.1 ReserveAllocationResult\_MarketDocument root class**

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

112 Table 3 shows all attributes of ReserveAllocationResult\_MarketDocument.

113

**Table 3 - Attributes of Reserve allocation result assembly  
model::ReserveAllocationResult\_MarketDocument**

114

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	[0..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document owner.
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document owner.
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient.
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	reserveBid_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.
10	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the document.

115

116 Table 4 shows all association ends of ReserveAllocationResult\_MarketDocument with other  
117 classes.

118 **Table 4 - Association ends of Reserve allocation result assembly**  
119 **model::ReserveAllocationResult\_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
11	[0..*]	TimeSeries TimeSeries	Association Based On: Reserve allocation result contextual model::TimeSeries.TimeSeries[0..*] ----- Reserve allocation result contextual model::ReserveAllocationResult_MarketDocument.[]
12	[0..*]	Reason Reason	Association Based On: Reserve allocation result contextual model::Reason.Reason[0..*] ----- Reserve allocation result contextual model::ReserveAllocationResult_MarketDocument.[]

120

### 121 2.2.3.2 Point

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

123 Table 5 shows all attributes of Point.

124 **Table 5 - Attributes of Reserve allocation result 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 quantity that has been allocated or resold in the auction. 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 original price expressed in the original bid or resale for each unit of quantity requested.
3	[0..1]	secondaryQuantity Decimal	The quantity that was in the original bid or resale document. The secondary quantity identified for a point.
4	[0..1]	bid_Price.amount Amount_Decimal	A number of monetary units specified in a unit of currency. --- The price expressed for each unit of quantity allocated.
5	[0..1]	bidEnergy_Price.amount Amount_Decimal	A number of monetary units specified in a unit of currency.
6	[0..1]	energy_Price.amount Amount_Decimal	A number of monetary units specified in a unit of currency.

125

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

127 **Table 6 - Association ends of Reserve allocation result assembly model::Point with**  
128 **other classes**

Order	mult.	Class name / Role	Description
7	[0..*]	Reason Reason	Association Based On: Reserve allocation result contextual model::Reason.Reason[0..*] ----- Reserve allocation result contextual model::Point.[]

129

### 130 2.2.3.3 Reason

131 The motivation of an act.

132 Table 7 shows all attributes of Reason.

133 **Table 7 - Attributes of Reserve allocation result assembly model::Reason**

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

134

### 135 2.2.3.4 Series\_Period

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

137 Table 8 shows all attributes of Series\_Period.

138 **Table 8 - Attributes of Reserve allocation result 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.

139

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

141 **Table 9 - Association ends of Reserve allocation result assembly model::Series\_Period**  
142 **with other classes**

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

143

### 144 2.2.3.5 TimeSeries

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

146 For each time series in the document, the identification shall be a unique number assigned by  
147 the auction office.

148 Table 10 shows all attributes of TimeSeries.

149 **Table 10 - Attributes of Reserve allocation result 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]	bid_Original_MarketDocument.mRID ID_String	The unique identification of the document being exchanged within a business process flow. --- The identification of the document that contains the bids or resales referenced in the BidTimeSeries.
2	[1..1]	bid_Original_MarketDocument.revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another. --- The identification of the document that contains the bids or resales referenced in the BidTimeSeries.
3	[1..1]	bid_Original_MarketDocument.bid_TimeSeries.mRID ID_String	A unique identification of the time series. --- The identification of the document that contains the bids or resales referenced in the BidTimeSeries. --- The identification of the time series that was used in the original bid or resale. This is the unique number that is assigned by the bidder when he made his original bid or resale.
4	[1..1]	bid_Original_MarketDocument.tendering_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of the document that contains the bids or resales referenced in the BidTimeSeries.
5	[1..1]	auction.mRID ID_String	The unique identification of the auction. --- The identification linking the allocation to a set of specifications created by the auction operator.
6	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
7	[1..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
8	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
9	[1..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract.
10	[1..1]	marketAgreement.mRID ID_String	The unique identification of the agreement.

Order	mult.	Attribute name / Attribute type	Description
11	[0..1]	marketAgreement.createdDateTime ESMP_DateTime	The date and time of the creation of the agreement.
12	[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 that is applied to the quantities in which the time series is expressed, e.g. MAW.
13	[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.
14	[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
15	[0..1]	energy_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20).
16	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource. --- The identification of a resource associated with a TimeSeries.
17	[1..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow.
18	[0..1]	minimumActivation_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed.
19	[0..1]	stepIncrement_Quantity.quantity Decimal	The quantity value. The association role provides the information about what is expressed.
20	[0..1]	orderNumber_AttributeInstanceComponent.position Position_Integer	A sequential value representing a relative sequence number. --- A specific characteristic associated with a TimeSeries.
21	[0..1]	activation_ConstraintDuration.duration Duration	The duration of the constraint.
22	[0..1]	resting_ConstraintDuration.duration Duration	The duration of the constraint.
23	[0..1]	minimum_ConstraintDuration.duration Duration	The duration of the constraint.
24	[0..1]	maximum_ConstraintDuration.duration Duration	The duration of the constraint.

150

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

152 **Table 11 - Association ends of Reserve allocation result assembly model::TimeSeries**  
153 **with other classes**

Order	mult.	Class name / Role	Description
25	[1..*]	Series_Period Period	Association Based On: Reserve allocation result contextual model::Series_Period.Period[1..*] ----- Reserve allocation result contextual model::TimeSeries.[]
26	[0..*]	Reason Reason	Association Based On: Reserve allocation result contextual model::Reason.Reason[0..*] ----- Reserve allocation result contextual model::TimeSeries.[]

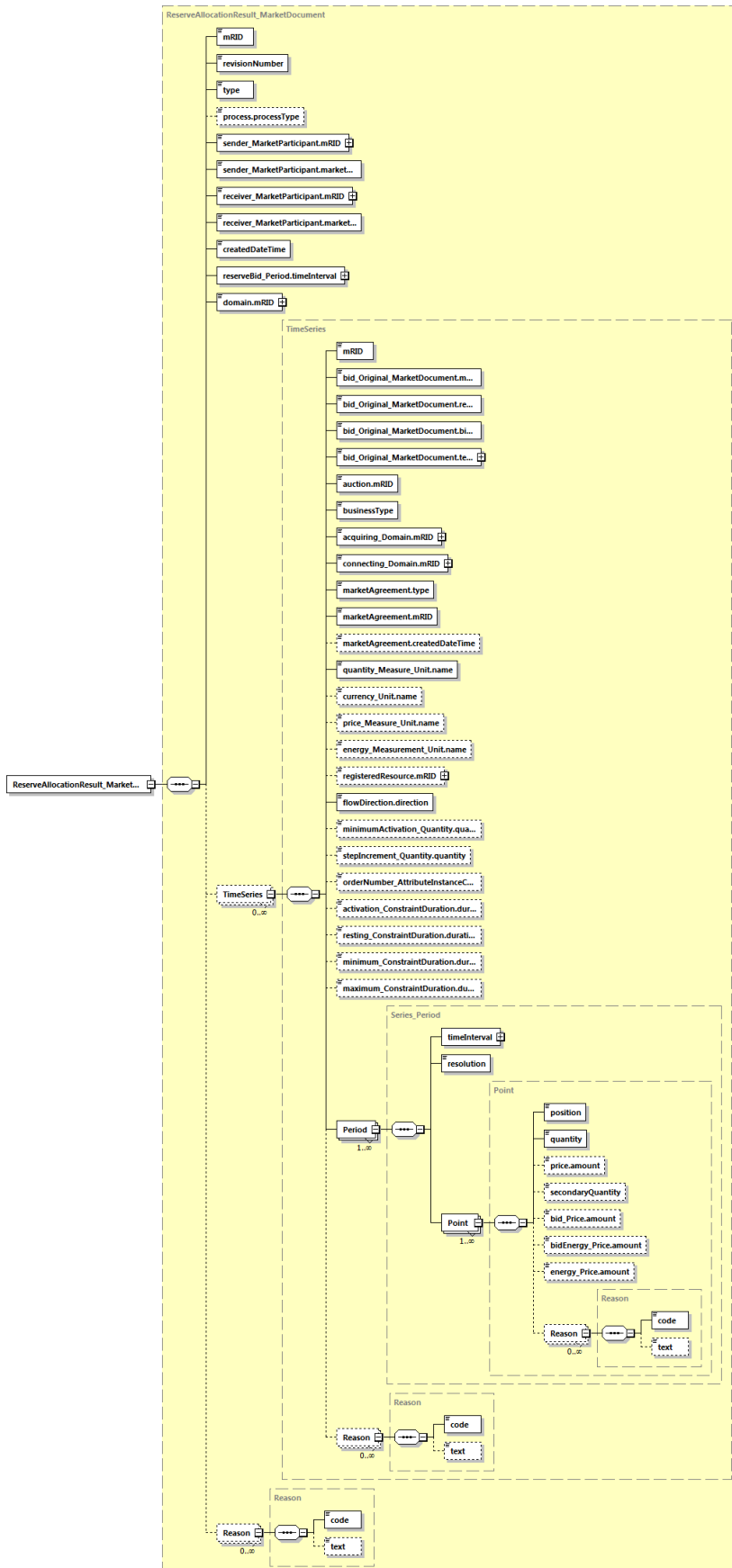
154

#### 155 **2.2.4 Datatypes**

156 The list of datatypes used for the Reserve allocation result assembly model is as follows:

- 157 • ESMP\_DateTimeInterval compound
- 158 • Amount\_Decimal datatype
- 159 • ArealD\_String datatype, codelist CodingSchemeTypeList
- 160 • BusinessKind\_String datatype, codelist BusinessTypeList
- 161 • CapacityContractKind\_String datatype, codelist ContractTypeList
- 162 • CurrencyCode\_String datatype, codelist CurrencyTypeList
- 163 • DirectionKind\_String datatype, codelist DirectionTypeList
- 164 • ESMP\_DateTime datatype
- 165 • ESMPVersion\_String datatype
- 166 • ID\_String datatype
- 167 • MarketRoleKind\_String datatype, codelist RoleTypeList
- 168 • MeasurementUnitKind\_String datatype, codelist UnitOfMeasureTypeList
- 169 • MessageKind\_String datatype, codelist MessageTypeList
- 170 • PartyID\_String datatype, codelist CodingSchemeTypeList
- 171 • Position\_Integer datatype
- 172 • ProcessKind\_String datatype, codelist ProcessTypeList
- 173 • ReasonCode\_String datatype, codelist ReasonCodeTypeList
- 174 • ReasonText\_String datatype
- 175 • ResourceID\_String datatype, codelist CodingSchemeTypeList
- 176 • YMDHM\_DateTime datatype
- 177

178 2.2.5 ReserveAllocationResult\_MarketDocument XML schema structure



179  
180

Figure 3 - ReserveAllocationResult\_MarketDocument schema structure

## 181 2.2.6 ReserveAllocationResult\_MarketDocument XML schema

182

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

184 urn:iec62325.351:tc57wg16:451-7:reserveallocationresultdocument:6:0

185

```

186 <?xml version="1.0" encoding="utf-8"?>
187 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists" xmlns="urn:iec62325.351:tc57wg16:451-
188 7:reserveallocationresultdocument:6:0" xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
189 xmlns:cimp="http://www.iec.ch/cimprofile" xmlns:xs="http://www.w3.org/2001/XMLSchema"
190 targetNamespace="urn:iec62325.351:tc57wg16:451-7:reserveallocationresultdocument:6:0"
191 elementFormDefault="qualified" attributeFormDefault="unqualified">
192   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-
193 codelists.xsd"/>
194   <xs:element name="ReserveAllocationResult_MarketDocument"
195 type="ReserveAllocationResult_MarketDocument"/>
196   <xs:simpleType name="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
197 schema-cim16#Integer">
198     <xs:restriction base="xs:integer">
199       <xs:maxInclusive value="999999"/>
200       <xs:minInclusive value="1"/>
201     </xs:restriction>
202   </xs:simpleType>
203   <xs:simpleType name="Amount_Decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
204 cim16#Decimal">
205     <xs:restriction base="xs:decimal">
206       <xs:totalDigits value="17"/>
207     </xs:restriction>
208   </xs:simpleType>
209   <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
210 cim16#Point">
211     <xs:sequence>
212       <xs:element name="position" type="Position_Integer" minOccurs="1"
213 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
214       <xs:element name="quantity" type="xs:decimal" minOccurs="1" maxOccurs="1"
215 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
216       <xs:element name="price.amount" type="Amount_Decimal" minOccurs="0"
217 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
218       <xs:element name="secondaryQuantity" type="xs:decimal" minOccurs="0"
219 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
220 cim16#Point.secondaryQuantity"/>
221       <xs:element name="bid.Price.amount" type="Amount_Decimal" minOccurs="0"
222 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
223       <xs:element name="bidEnergy.Price.amount" type="Amount_Decimal" minOccurs="0"
224 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
225       <xs:element name="energy.Price.amount" type="Amount_Decimal" minOccurs="0"
226 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
227       <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
228 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.Reason"/>
229     </xs:sequence>
230   </xs:complexType>
231   <xs:simpleType name="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
232 schema-cim16#String">
233     <xs:restriction base="ecl:ReasonCodeTypeList"/>
234   </xs:simpleType>
235   <xs:simpleType name="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
236 schema-cim16#String">
237     <xs:restriction base="xs:string">
238       <xs:maxLength value="512"/>
239     </xs:restriction>
240   </xs:simpleType>
241   <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
242 cim16#Reason">
243     <xs:sequence>
244       <xs:element name="code" type="ReasonCode_String" minOccurs="1" maxOccurs="1"
245 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
246       <xs:element name="text" type="ReasonText_String" minOccurs="0" maxOccurs="1"
247 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
248     </xs:sequence>
249   </xs:complexType>

```



```

250     <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
251 cim16#String">
252         <xs:restriction base="xs:string">
253             <xs:maxLength value="35"/>
254         </xs:restriction>
255     </xs:simpleType>
256     <xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
257 schema-cim16#String">
258         <xs:restriction base="xs:string">
259             <xs:pattern value="[1-9]([0-9]){0,2}"/>
260         </xs:restriction>
261     </xs:simpleType>
262     <xs:simpleType name="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
263 schema-cim16#String">
264         <xs:restriction base="ecl:MessageTypeList"/>
265     </xs:simpleType>
266     <xs:simpleType name="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
267 schema-cim16#String">
268         <xs:restriction base="ecl:ProcessTypeList"/>
269     </xs:simpleType>
270     <xs:simpleType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
271 schema-cim16#String">
272         <xs:restriction base="xs:string">
273             <xs:maxLength value="16"/>
274         </xs:restriction>
275     </xs:simpleType>
276     <xs:complexType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
277 schema-cim16#String">
278         <xs:simpleContent>
279             <xs:extension base="PartyID_String-base">
280                 <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
281 use="required"/>
282             </xs:extension>
283         </xs:simpleContent>
284     </xs:complexType>
285     <xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
286 schema-cim16#String">
287         <xs:restriction base="ecl:RoleTypeList"/>
288     </xs:simpleType>
289     <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
290 cim16#DateTime">
291         <xs:restriction base="xs:dateTime">
292             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
293 9]|3[01])|([0-9]{4})[\-](0[469]|(11))[\-](0[1-9]|[12][0-9]|30))T((01[0-9]|2[0-3]):[0-5][0-9]:[0-
294 5][0-
295 9])Z)|(((13579)[26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][048]|[02468][048][0246
296 8][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[0-9][0-9][13579][26])[\-](02)[\-](0[1-
297 9]|1[0-9]|2[0-9])T((01[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
298 9])Z)|(((13579)[26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][01345789][2468][1235679]|02
299 468][048][02468][1235679]|[02468][1235679](0)[01235679]|[02468][1235679][2468][1235679]|0[0-9][0-
300 9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-8])T((01[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
301         </xs:restriction>
302     </xs:simpleType>
303     <xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
304 schema-cim16#String">
305         <xs:restriction base="xs:string">
306             <xs:maxLength value="18"/>
307         </xs:restriction>
308     </xs:simpleType>
309     <xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
310 cim16#String">
311         <xs:simpleContent>
312             <xs:extension base="AreaID_String-base">
313                 <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
314 use="required"/>
315             </xs:extension>
316         </xs:simpleContent>
317     </xs:complexType>
318     <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
319 cim16#DateTime">
320         <xs:restriction base="xs:string">
321             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
322 9]|3[01])|([0-9]{4})[\-](0[469]|(11))[\-](0[1-9]|[12][0-9]|30))T((01[0-9]|2[0-3]):[0-5][0-
323 9])Z)|(((13579)[26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][048]|[02468][048][0246
324 8][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[0-9][0-9][13579][26])[\-](02)[\-](0[1-

```

```

325 9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-5][0-
326 9])Z)|((([13579][26][02468][1235679]|([13579][01345789])(0)[01235679]|([13579][01345789][2468][1235679]|([02
327 468][048][02468][1235679]|([02468][1235679])(0)[01235679]|([02468][1235679][2468][1235679]|([0-9][0-
328 9][13579][01345789])[\-])(02)[\-])([0-9]|1[0-9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
329     </xs:restriction>
330   </xs:simpleType>
331   <xs:complexType name="ESMP_DateTimeInterval"
332 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
333     <xs:sequence>
334       <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
335 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start"/>
336       <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
337 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end"/>
338     </xs:sequence>
339   </xs:complexType>
340   <xs:complexType name="ReserveAllocationResult_MarketDocument"
341 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
342     <xs:sequence>
343       <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
344 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
345       <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1"
346 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
347 cim16#Document.revisionNumber"/>
348       <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1"
349 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
350       <xs:element name="process.processType" type="ProcessKind_String" minOccurs="0"
351 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Process.processType"/>
352       <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String"
353 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
354 cim16#IdentifiedObject.mRID"/>
355       <xs:element name="sender_MarketParticipant.marketRole.type"
356 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
357 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
358       <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String"
359 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
360 cim16#IdentifiedObject.mRID"/>
361       <xs:element name="receiver_MarketParticipant.marketRole.type"
362 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
363 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
364       <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1"
365 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
366 cim16#Document.createdDateTime"/>
367       <xs:element name="reserveBid_Period.timeInterval" type="ESMP_DateTimeInterval"
368 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
369 cim16#Period.timeInterval"/>
370       <xs:element name="domain.mRID" type="AreaID_String" minOccurs="1"
371 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
372       <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
373 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
374 cim16#MarketDocument.TimeSeries"/>
375       <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
376 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument.Reason"/>
377     </xs:sequence>
378   </xs:complexType>
379   <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
380 cim16#Period">
381     <xs:sequence>
382       <xs:element name="timeInterval" type="ESMP_DateTimeInterval" minOccurs="1"
383 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
384       <xs:element name="resolution" type="xs:duration" minOccurs="1" maxOccurs="1"
385 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution"/>
386       <xs:element name="Point" type="Point" minOccurs="1" maxOccurs="unbounded"
387 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
388     </xs:sequence>
389   </xs:complexType>
390   <xs:simpleType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
391 schema-cim16#String">
392     <xs:restriction base="ecl:BusinessTypeList"/>
393   </xs:simpleType>
394   <xs:simpleType name="CapacityContractKind_String"
395 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
396     <xs:restriction base="ecl:ContractTypeList"/>
397   </xs:simpleType>
398   <xs:simpleType name="MeasurementUnitKind_String"
399 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">

```

```

400         <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
401     </xs:simpleType>
402     <xs:simpleType name="CurrencyCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
403 schema-cim16#String">
404         <xs:restriction base="ecl:CurrencyTypeList"/>
405     </xs:simpleType>
406     <xs:simpleType name="ResourceID_String-base"
407 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
408         <xs:restriction base="xs:string">
409             <xs:maxLength value="60"/>
410         </xs:restriction>
411     </xs:simpleType>
412     <xs:complexType name="ResourceID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
413 schema-cim16#String">
414         <xs:simpleContent>
415             <xs:extension base="ResourceID_String-base">
416                 <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
417 use="required"/>
418             </xs:extension>
419         </xs:simpleContent>
420     </xs:complexType>
421     <xs:simpleType name="DirectionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
422 schema-cim16#String">
423         <xs:restriction base="ecl:DirectionTypeList"/>
424     </xs:simpleType>
425     <xs:complexType name="TimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
426 cim16#TimeSeries">
427         <xs:sequence>
428             <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
429 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
430             <xs:element name="bid_Original_MarketDocument.mRID" type="ID_String"
431 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
432 cim16#IdentifiedObject.mRID"/>
433             <xs:element name="bid_Original_MarketDocument.revisionNumber"
434 type="ESMPVersion_String" minOccurs="1" maxOccurs="1"
435 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.revisionNumber"/>
436             <xs:element name="bid_Original_MarketDocument.bid_TimeSeries.mRID"
437 type="ID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
438 cim16#IdentifiedObject.mRID"/>
439             <xs:element
440 name="bid_Original_MarketDocument.tendering_MarketParticipant.mRID" type="PartyID_String" minOccurs="1"
441 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
442             <xs:element name="auction.mRID" type="ID_String" minOccurs="1" maxOccurs="1"
443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
444             <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
445 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
446 cim16#TimeSeries.businessType"/>
447             <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="1"
448 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
449             <xs:element name="connecting_Domain.mRID" type="AreaID_String" minOccurs="1"
450 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
451             <xs:element name="marketAgreement.type" type="CapacityContractKind_String"
452 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
453 cim16#Document.type"/>
454             <xs:element name="marketAgreement.mRID" type="ID_String" minOccurs="1"
455 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
456             <xs:element name="marketAgreement.createdDateTime" type="ESMP_DateTime"
457 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
458 cim16#Document.createdDateTime"/>
459             <xs:element name="quantity_Measure_Unit.name"
460 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
461 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
462             <xs:element name="currency_Unit.name" type="CurrencyCode_String" minOccurs="0"
463 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
464             <xs:element name="price_Measure_Unit.name" type="MeasurementUnitKind_String"
465 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
466 cim16#Unit.name"/>
467             <xs:element name="energy_Measurement_Unit.name"
468 type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
469 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
470             <xs:element name="registeredResource.mRID" type="ResourceID_String"
471 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
472 cim16#IdentifiedObject.mRID"/>

```

```
473         <xs:element name="flowDirection.direction" type="DirectionKind_String"
474 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
475 cim16#FlowDirection.direction"/>
476         <xs:element name="minimumActivation_Quantity.quantity" type="xs:decimal"
477 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
478 cim16#Quantity.quantity"/>
479         <xs:element name="stepIncrement_Quantity.quantity" type="xs:decimal"
480 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
481 cim16#Quantity.quantity"/>
482         <xs:element name="orderNumber_AttributeInstanceComponent.position"
483 type="Position_Integer" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
484 schema-cim16#AttributeInstanceComponent.position"/>
485         <xs:element name="activation_ConstraintDuration.duration" type="xs:duration"
486 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
487 cim16#ConstraintDuration.duration"/>
488         <xs:element name="resting_ConstraintDuration.duration" type="xs:duration"
489 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
490 cim16#ConstraintDuration.duration"/>
491         <xs:element name="minimum_ConstraintDuration.duration" type="xs:duration"
492 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
493 cim16#ConstraintDuration.duration"/>
494         <xs:element name="maximum_ConstraintDuration.duration" type="xs:duration"
495 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
496 cim16#ConstraintDuration.duration"/>
497         <xs:element name="Period" type="Series_Period" minOccurs="1"
498 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
499 cim16#TimeSeries.Period"/>
500         <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
501 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.Reason"/>
502         </xs:sequence>
503     </xs:complexType>
504 </xs:schema>
505
```