



European Network of
Transmission System Operators
for Electricity

**RESOURCE SCHEDULE
CONFIRMATION DOCUMENT
UML MODEL AND SCHEMA**

2021-09-15
APPROVED DOCUMENT
VERSION 1.1

2

Table of Contents

3	1	Objective	6
4	2	ResourceScheduleConfirmation_MarketDocument.....	7
5	2.1	Resource schedule confirmation contextual model	7
6	2.1.1	Overview of the model	7
7	2.1.2	IsBasedOn relationships from the European style market	
8		profile	8
9	2.2	Resource schedule confirmation assembly model	9
10	2.2.1	Overview of the model	9
11	2.2.2	IsBasedOn relationships from the European style market	
12		profile	9
13	2.2.3	Detailed Resource schedule confirmation assembly model	10
14	2.2.3.1	ResourceScheduleConfirmation_MarketDocument root	
15		class	10
16	2.2.3.2	Original_MarketDocument	11
17	2.2.3.3	PlannedResource_TimeSeries	12
18	2.2.3.4	Point	13
19	2.2.3.5	Reason	13
20	2.2.3.6	Series_Period	14
21	2.2.3.7	UnavailableReserve_TimeSeries.....	14
22	2.2.4	Datatypes	16
23	2.2.5	ResourceScheduleConfirmation_MarketDocument XML	
24		schema structure	17
25	2.2.6	ResourceScheduleConfirmation_MarketDocument XML	
26		schema.....	18
27	List of figures		
28	Figure 1 - Resource schedule confirmation contextual model		7
29	Figure 2 - Resource schedule confirmation assembly model		9
30	Figure 3 - ResourceScheduleConfirmation_MarketDocument schema structure		17
31	List of tables		
32	Table 1 - IsBasedOn dependency		8
33	Table 2 - IsBasedOn dependency		9
34	Table 3 - Attributes of Resource schedule confirmation assembly		
35	model::ResourceScheduleConfirmation_MarketDocument		10
36	Table 4 - Association ends of Resource schedule confirmation assembly		
37	model::ResourceScheduleConfirmation_MarketDocument with other classes		10
38	Table 5 - Attributes of Resource schedule confirmation assembly		
39	model::Original_MarketDocument		11
40	Table 6 - Association ends of Resource schedule confirmation assembly		
41	model::Original_MarketDocument with other classes		11
42	Table 7 - Attributes of Resource schedule confirmation assembly		
43	model::PlannedResource_TimeSeries.....		12
44	Table 8 - Association ends of Resource schedule confirmation assembly		
45	model::PlannedResource_TimeSeries with other classes		13

46	Table 9 - Attributes of Resource schedule confirmation assembly model::Point.....	13
47	Table 10 - Association ends of Resource schedule confirmation assembly model::Point	
48	with other classes	13
49	Table 11 - Attributes of Resource schedule confirmation assembly model::Reason	14
50	Table 12 - Attributes of Resource schedule confirmation assembly	
51	model::Series_Period.....	14
52	Table 13 - Association ends of Resource schedule confirmation assembly	
53	model::Series_Period with other classes	14
54	Table 14 - Attributes of Resource schedule confirmation assembly	
55	model::UnavailableReserve_TimeSeries	14
56	Table 15 - Association ends of Resource schedule confirmation assembly	
57	model::UnavailableReserve_TimeSeries with other classes	15
58		

59

Copyright notice:

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

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

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

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

73

Maintenance notice:

74 **This document is maintained by the ENTSO-E CIM EG. Comments or remarks are to be**
75 **provided at cim@entsoe.eu**

76

Revision History

Version	Release	Date	Comments
0	1	2019-01-14	First draft of the document.
1	0	2019-02-12	Approved by MC.
1	1	2021-09-15	Updates in resource schedule confirmation document XSD v6.1: An optional curveType attribute was added to Timeseries class. Approved by MC.

77

78 **Objective**

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

81 The schema of the ResourceScheduleConfirmation_MarketDocument could be used in various
82 business processes.

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

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

- 87 • Description of the business process;
- 88 • Use case of the business process;
- 89 • Sequence diagrams of the business process;
- 90 • List of the schema (XSD) to be used in the business process and versions of the
91 schema;
- 92 • For each schema, dependency tables providing the necessary information for the
93 generation of the XML instances, i.e. when the optional attributes are to be used, which
94 codes from which ENTSO-E codelist are to be used.

95

96 **ResourceScheduleConfirmation_MarketDocument**

97 **2.1 Resource schedule confirmation contextual model**

98 **2.1.1 Overview of the model**

99 Figure 1 shows the model.

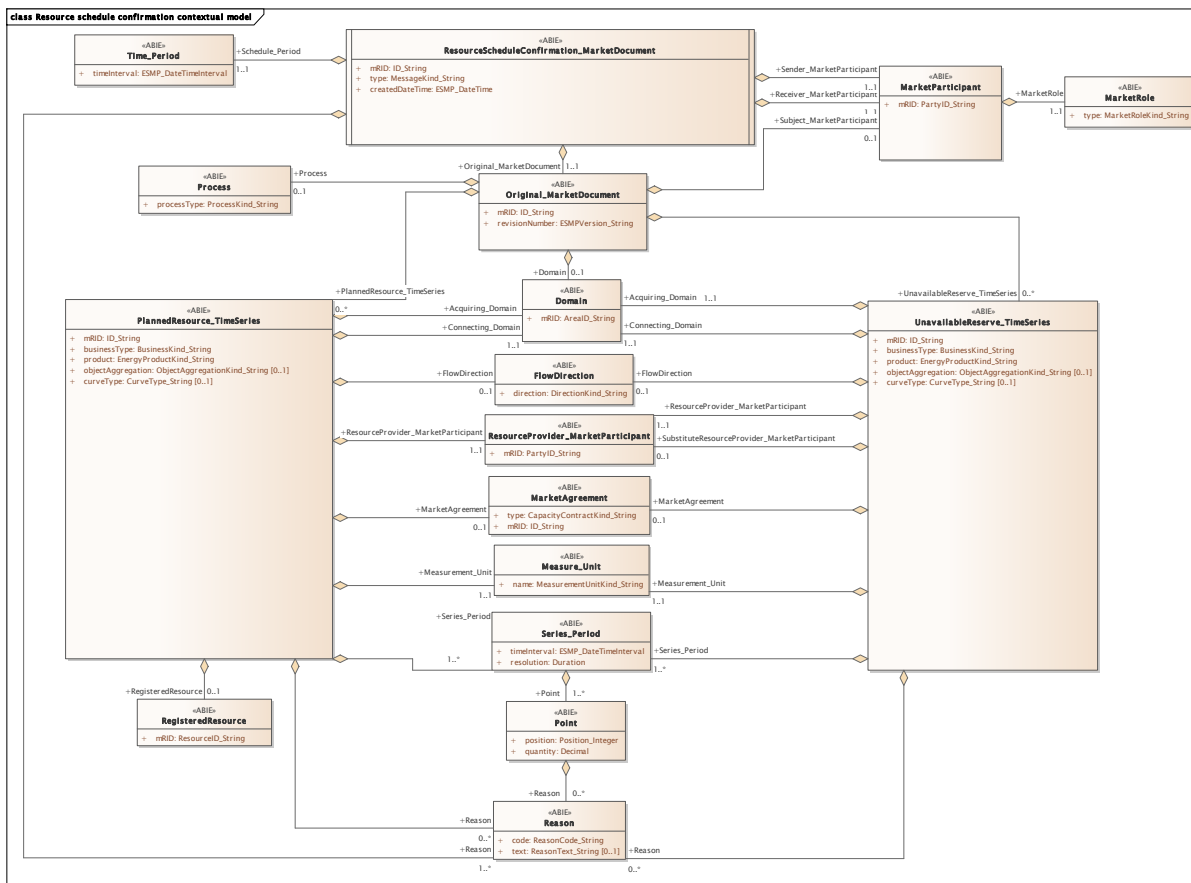


Figure 1 - Resource schedule confirmation contextual model

100

101

102

103

104 **2.1.2 IsBasedOn relationships from the European style market profile**

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

107

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Domain	TC57CIM::IEC62325::MarketManagement::Domain
FlowDirection	TC57CIM::IEC62325::MarketManagement::FlowDirection
MarketAgreement	TC57CIM::IEC62325::MarketManagement::MarketAgreement
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Original_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
PlannedResource_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
Reason	TC57CIM::IEC62325::MarketManagement::Reason
RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
ResourceProvider_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
ResourceScheduleConfirmation_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
UnavailableReserve_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

108

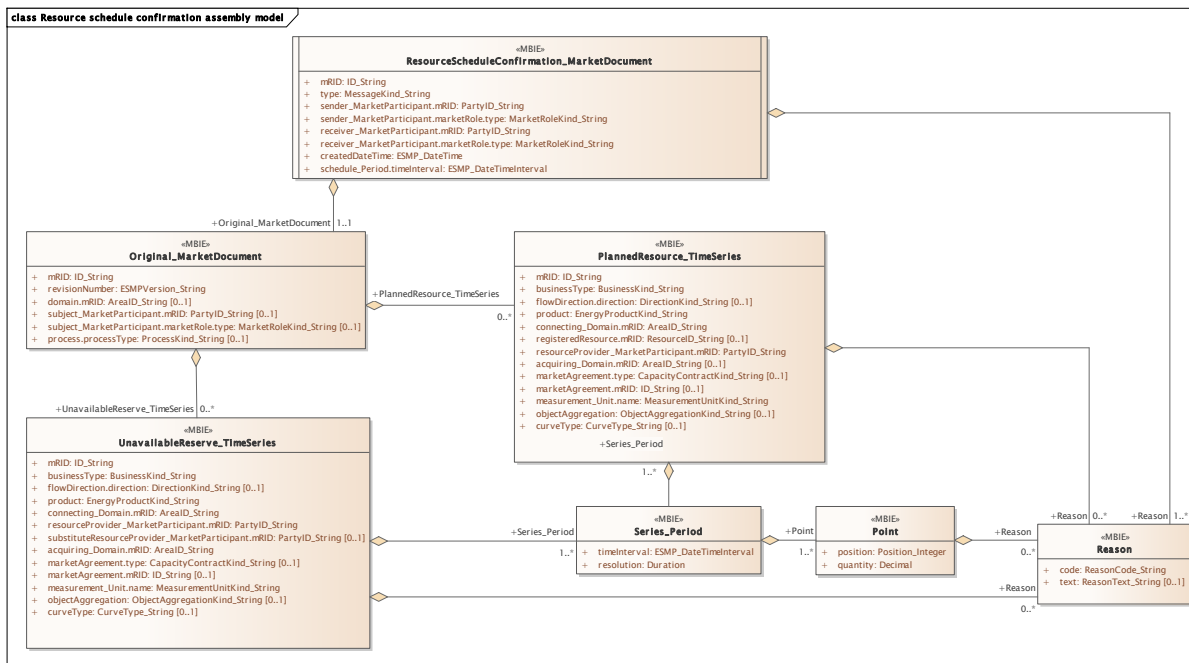
109

110

111 **2.2 Resource schedule confirmation assembly model**

112 **2.2.1 Overview of the model**

113 Figure 2 shows the model.



114

115 **Figure 2 - Resource schedule confirmation assembly model**

116 **2.2.2 IsBasedOn relationships from the European style market profile**

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

119

Table 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Original_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
PlannedResource_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
ResourceScheduleConfirmation_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
UnavailableReserve_TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

120

121

122

123 **2.2.3 Detailed Resource schedule confirmation assembly model**

124 **2.2.3.1 ResourceScheduleConfirmation_MarketDocument root class**

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

127 Table 3 shows all attributes of ResourceScheduleConfirmation_MarketDocument.

128 **Table 3 - Attributes of Resource schedule confirmation assembly**
129 **model::ResourceScheduleConfirmation_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]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
2	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document owner.
3	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document owner. --- The role associated with a MarketParticipant.
4	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document recipient.
5	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document recipient. --- The role associated with a MarketParticipant.
6	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
7	[1..1]	schedule_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval.

130

131 Table 4 shows all association ends of ResourceScheduleConfirmation_MarketDocument with
132 other classes.

133 **Table 4 - Association ends of Resource schedule confirmation assembly**
134 **model::ResourceScheduleConfirmation_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
8	[1..1]	Original_MarketDocument Original_MarketDocument	Association Based On: Resource schedule confirmation contextual model::Original_MarketDocument.Original_MarketDocument[1..1] ----- Resource schedule confirmation contextual model::ResourceScheduleConfirmation_MarketDocument.[]
9	[1..*]	Reason Reason	Association Based On: Resource schedule confirmation contextual model::Reason.Reason[1..*] ----- Resource schedule confirmation contextual model::ResourceScheduleConfirmation_MarketDocument.[]

135

136 **2.2.3.2 Original_MarketDocument**

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

139 Table 5 shows all attributes of Original_MarketDocument.

140 **Table 5 - Attributes of Resource schedule confirmation assembly**
141 **model::Original_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	[0..1]	domain.mRID AreaID_String	The unique identification of the domain.
3	[0..1]	subject_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The party that is the subject of the documents time series.
4	[0..1]	subject_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The party that is the subject of the documents time series. --- The role associated with a MarketParticipant.
5	[0..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses.

142

143 Table 6 shows all association ends of Original_MarketDocument with other classes.

144 **Table 6 - Association ends of Resource schedule confirmation assembly**
145 **model::Original_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
6	[0..*]	PlannedResource_TimeSeries PlannedResource_TimeSeries	Association Based On: Resource schedule confirmation contextual model::PlannedResource_TimeSeries.PlannedResource_TimeSeries[0..*] ----- Resource schedule confirmation contextual model::Original_MarketDocument.[]
7	[0..*]	UnavailableReserve_TimeSeries UnavailableReserve_TimeSeries	Association Based On: Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.UnavailableReserve_TimeSeries[0..*] ----- Resource schedule confirmation contextual model::Original_MarketDocument.[]

146

147 **2.2.3.3 PlannedResource_TimeSeries**

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

149 Table 7 shows all attributes of PlannedResource_TimeSeries.

150 **Table 7 - Attributes of Resource schedule confirmation assembly**
151 **model::PlannedResource_TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
2	[0..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow. --- The flow direction associated with a TimeSeries.
3	[1..1]	product EnergyProductKind_String	The identification of the nature of an energy product such as power, energy, reactive power, etc.
4	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
5	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource. --- The identification of a resource associated with a TimeSeries.
6	[1..1]	resourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries.
7	[0..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
8	[0..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract. --- The identification of an agreement associated with a TimeSeries.
9	[0..1]	marketAgreement.mRID ID_String	The unique identification of the agreement. --- The identification of an agreement associated with a TimeSeries.
10	[1..1]	measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure associated with the quantities in a TimeSeries.
11	[0..1]	objectAggregation ObjectAggregationKind_String	The identification of the domain that is the common denominator used to aggregate a time series.
12	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

152

153 Table 8 shows all association ends of PlannedResource_TimeSeries with other classes.

154
155

Table 8 - Association ends of Resource schedule confirmation assembly model::PlannedResource_TimeSeries with other classes

Order	mult.	Class name / Role	Description
13	[1..*]	Series_Period Series_Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Resource schedule confirmation contextual model::PlannedResource_TimeSeries.[] ----- Resource schedule confirmation contextual model::Series_Period.Series_Period[1..*]
14	[0..*]	Reason Reason	Association Based On: Resource schedule confirmation contextual model::Reason.Reason[0..*] ----- Resource schedule confirmation contextual model::PlannedResource_TimeSeries.[]

156

157 2.2.3.4 Point

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

159 Table 9 shows all attributes of Point.

160 **Table 9 - Attributes of Resource schedule confirmation 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.

161

162 Table 10 shows all association ends of Point with other classes.

163 **Table 10 - Association ends of Resource schedule confirmation assembly model::Point**
164 **with other classes**

Order	mult.	Class name / Role	Description
2	[0..*]	Reason Reason	The Reason information associated with a Point providing motivation information. Association Based On: Resource schedule confirmation contextual model::Point.[] ----- Resource schedule confirmation contextual model::Reason.Reason[0..*]

165

166 2.2.3.5 Reason

167 The motivation of an act.

168 Table 11 shows all attributes of Reason.

169 **Table 11 - Attributes of Resource schedule confirmation 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.

170

171 **2.2.3.6 Series_Period**

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

173 Table 12 shows all attributes of Series_Period.

174 **Table 12 - Attributes of Resource schedule confirmation assembly**
175 **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.

176

177 Table 13 shows all association ends of Series_Period with other classes.

178 **Table 13 - Association ends of Resource schedule confirmation assembly**
179 **model::Series_Period with other classes**

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	The Point information associated with a given Series_Period.within a TimeSeries. Association Based On: Resource schedule confirmation contextual model::Series_Period.[] ----- Resource schedule confirmation contextual model::Point.Point[1..*]

180

181 **2.2.3.7 UnavailableReserve_TimeSeries**

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

183 Table 14 shows all attributes of UnavailableReserve_TimeSeries.

184 **Table 14 - Attributes of Resource schedule confirmation assembly**
185 **model::UnavailableReserve_TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.

Order	mult.	Attribute name / Attribute type	Description
2	[0..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow. --- The flow direction associated with a TimeSeries.
3	[1..1]	product EnergyProductKind_String	The identification of the nature of an energy product such as power, energy, reactive power, etc.
4	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
5	[1..1]	resourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries.
6	[0..1]	substituteResourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of a market participant associated with a TimeSeries.
7	[1..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The domain associated with a TimeSeries.
8	[0..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract. --- The identification of an agreement associated with a TimeSeries.
9	[0..1]	marketAgreement.mRID ID_String	The unique identification of the agreement. --- The identification of an agreement associated with a TimeSeries.
10	[1..1]	measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure associated with the quantities in a TimeSeries.
11	[0..1]	objectAggregation ObjectAggregationKind_String	The identification of the domain that is the common denominator used to aggregate a time series.
12	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

186

187 Table 15 shows all association ends of UnavailableReserve_TimeSeries with other classes.

188 **Table 15 - Association ends of Resource schedule confirmation assembly**
189 **model::UnavailableReserve_TimeSeries with other classes**

Order	mult.	Class name / Role	Description
13	[1..*]	Series_Period Series_Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.[] ----- Resource schedule confirmation contextual model::Series_Period.Series_Period[1..*]

Order	mult.	Class name / Role	Description
14	[0..*]	Reason Reason	Association Based On: Resource schedule confirmation contextual model::Reason.Reason[0..*] ----- Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.[]

190

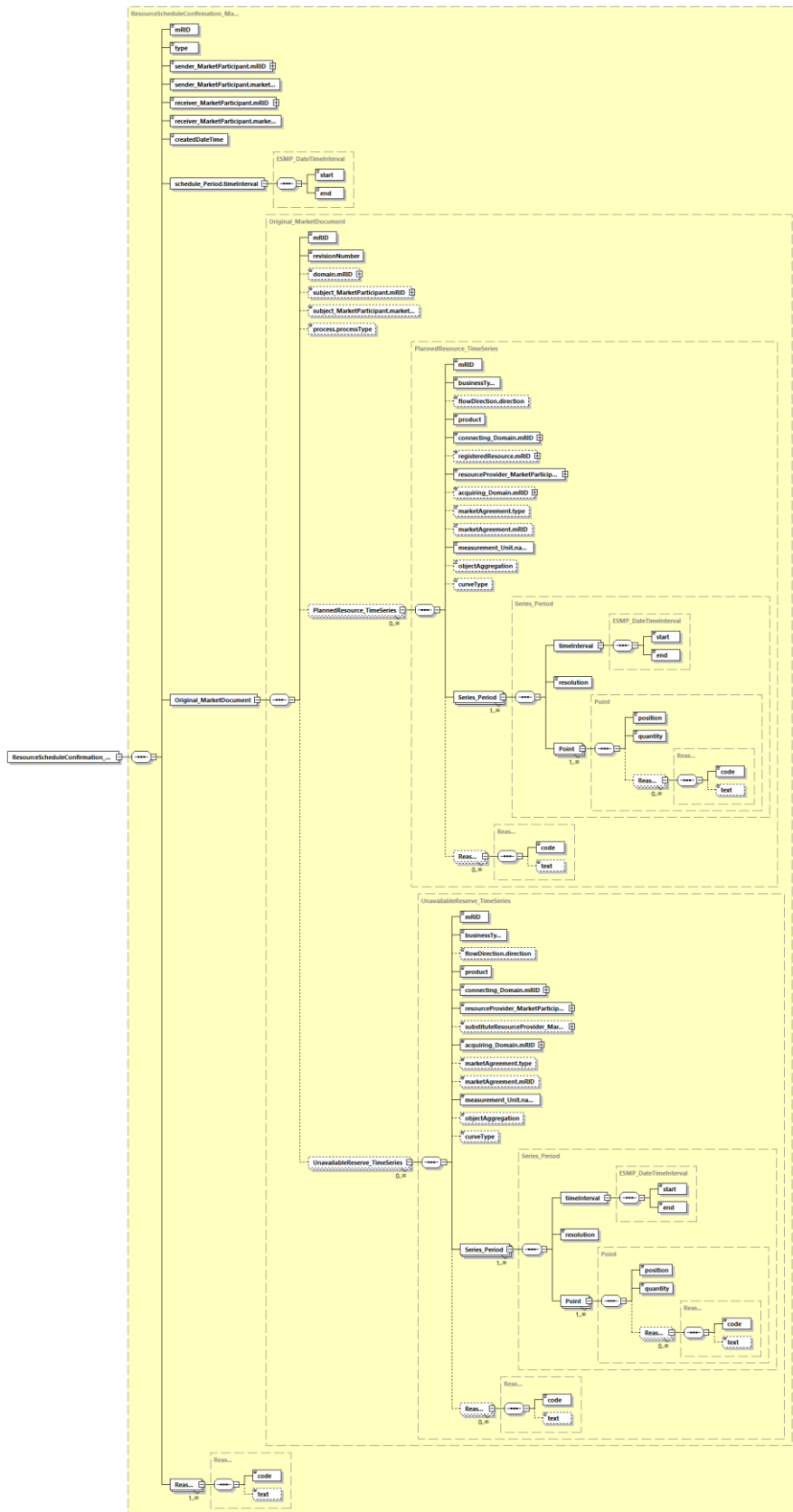
191 2.2.4 Datatypes

192 The list of datatypes used for the Resource schedule confirmation assembly model is as follows:

- 193 • ESMP_DateTimeInterval compound
- 194 • AreaID_String datatype, codelist CodingSchemeTypeList
- 195 • BusinessKind_String datatype, codelist BusinessTypeList
- 196 • CapacityContractKind_String datatype, codelist ContractTypeList
- 197 • CurveType_String datatype, codelist CurveTypeList
- 198 • DirectionKind_String datatype, codelist DirectionTypeList
- 199 • EnergyProductKind_String datatype, codelist EnergyProductTypeList
- 200 • ESMP_DateTime datatype
- 201 • ESMPVersion_String datatype
- 202 • ID_String datatype
- 203 • MarketRoleKind_String datatype, codelist RoleTypeList
- 204 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 205 • MessageKind_String datatype, codelist MessageTypeList
- 206 • ObjectAggregationKind_String datatype, codelist ObjectAggregationTypeList
- 207 • PartyID_String datatype, codelist CodingSchemeTypeList
- 208 • Position_Integer datatype
- 209 • ProcessKind_String datatype, codelist ProcessTypeList
- 210 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 211 • ReasonText_String datatype
- 212 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 213 • YMDHM_DateTime datatype

214

215 2.2.5 ResourceScheduleConfirmation_MarketDocument XML schema structure



216
 217

Figure 3 - ResourceScheduleConfirmation_MarketDocument schema structure

218 2.2.6 ResourceScheduleConfirmation_MarketDocument XML schema

219

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

221 urn:iec62325.351:tc57wg16:451-7:resourcescheduleconfirmationdocument:6:1

```
222 <?xml version="1.0" encoding="utf-8"?>
223 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
224 xmlns="urn:iec62325.351:tc57wg16:451-7:resourcescheduleconfirmationdocument:6:1"
225 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
226 xmlns:cimp="http://www.iec.ch/cimprofile"
227 xmlns:xs="http://www.w3.org/2001/XMLSchema"
228 targetNamespace="urn:iec62325.351:tc57wg16:451-
229 7:resourcescheduleconfirmationdocument:6:1" elementFormDefault="qualified"
230 attributeFormDefault="unqualified">
231   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
232 entsoe-eu-wgedi-codelists.xsd"/>
233   <xs:element name="ResourceScheduleConfirmation_MarketDocument"
234 type="ResourceScheduleConfirmation_MarketDocument"/>
235   <xs:simpleType name="ID_String"
236 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
237     <xs:restriction base="xs:string">
238       <xs:maxLength value="60"/>
239     </xs:restriction>
240   </xs:simpleType>
241   <xs:simpleType name="ESMPVersion_String"
242 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
243     <xs:restriction base="xs:string">
244       <xs:pattern value="[1-9]([0-9]){0,2}"/>
245     </xs:restriction>
246   </xs:simpleType>
247   <xs:simpleType name="AreaID_String-base"
248 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
249     <xs:restriction base="xs:string">
250       <xs:maxLength value="18"/>
251     </xs:restriction>
252   </xs:simpleType>
253   <xs:complexType name="AreaID_String"
254 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
255     <xs:simpleContent>
256       <xs:extension base="AreaID_String-base">
257         <xs:attribute name="codingScheme"
258 type="ecl:CodingSchemeTypeList" use="required"/>
259       </xs:extension>
260     </xs:simpleContent>
261   </xs:complexType>
262   <xs:simpleType name="PartyID_String-base"
263 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
264     <xs:restriction base="xs:string">
265       <xs:maxLength value="16"/>
266     </xs:restriction>
267   </xs:simpleType>
268   <xs:complexType name="PartyID_String"
269 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
270     <xs:simpleContent>
```

```
271         <xs:extension base="PartyID_String-base">
272             <xs:attribute name="codingScheme"
273 type="ecl:CodingSchemeTypeList" use="required"/>
274         </xs:extension>
275     </xs:simpleContent>
276 </xs:complexType>
277 <xs:simpleType name="MarketRoleKind_String"
278 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
279     <xs:restriction base="ecl:RoleTypeList"/>
280 </xs:simpleType>
281 <xs:simpleType name="ProcessKind_String"
282 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
283     <xs:restriction base="ecl:ProcessTypeList"/>
284 </xs:simpleType>
285 <xs:complexType name="Original_MarketDocument"
286 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
287     <xs:sequence>
288         <xs:element name="mRID" type="ID_String" minOccurs="1"
289 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
290 cim16#IdentifiedObject.mRID"/>
291         <xs:element name="revisionNumber" type="ESMPVersion_String"
292 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
293 schema-cim16#Document.revisionNumber"/>
294         <xs:element name="domain.mRID" type="AreaID_String"
295 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
296 schema-cim16#IdentifiedObject.mRID"/>
297         <xs:element name="subject_MarketParticipant.mRID"
298 type="PartyID_String" minOccurs="0" maxOccurs="1"
299 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
300 cim16#IdentifiedObject.mRID"/>
301         <xs:element name="subject_MarketParticipant.marketRole.type"
302 type="MarketRoleKind_String" minOccurs="0" maxOccurs="1"
303 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
304         <xs:element name="process.processType"
305 type="ProcessKind_String" minOccurs="0" maxOccurs="1"
306 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
307 cim16#Process.processType"/>
308         <xs:element name="PlannedResource_TimeSeries"
309 type="PlannedResource_TimeSeries" minOccurs="0" maxOccurs="unbounded"
310 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
311 cim16#MarketDocument.PlannedResource_TimeSeries"/>
312         <xs:element name="UnavailableReserve_TimeSeries"
313 type="UnavailableReserve_TimeSeries" minOccurs="0" maxOccurs="unbounded"
314 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
315 cim16#MarketDocument.UnavailableReserve_TimeSeries"/>
316     </xs:sequence>
317 </xs:complexType>
318 <xs:simpleType name="BusinessKind_String"
319 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
320     <xs:restriction base="ecl:BusinessTypeList"/>
321 </xs:simpleType>
322 <xs:simpleType name="DirectionKind_String"
323 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
324     <xs:restriction base="ecl:DirectionTypeList"/>
325 </xs:simpleType>
```

```
326     <xs:simpleType name="EnergyProductKind_String"
327 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
328     <xs:restriction base="ecl:EnergyProductTypeList"/>
329 </xs:simpleType>
330     <xs:simpleType name="ResourceID_String-base"
331 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
332     <xs:restriction base="xs:string">
333     <xs:maxLength value="60"/>
334     </xs:restriction>
335 </xs:simpleType>
336     <xs:complexType name="ResourceID_String"
337 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
338     <xs:simpleContent>
339     <xs:extension base="ResourceID_String-base">
340     <xs:attribute name="codingScheme"
341 type="ecl:CodingSchemeTypeList" use="required"/>
342     </xs:extension>
343     </xs:simpleContent>
344 </xs:complexType>
345     <xs:simpleType name="CapacityContractKind_String"
346 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
347     <xs:restriction base="ecl:ContractTypeList"/>
348 </xs:simpleType>
349     <xs:simpleType name="MeasurementUnitKind_String"
350 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
351     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
352 </xs:simpleType>
353     <xs:simpleType name="ObjectAggregationKind_String"
354 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
355     <xs:restriction base="ecl:ObjectAggregationTypeList"/>
356 </xs:simpleType>
357     <xs:simpleType name="CurveType_String"
358 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
359     <xs:restriction base="ecl:CurveTypeList"/>
360 </xs:simpleType>
361     <xs:complexType name="PlannedResource_TimeSeries"
362 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
363     <xs:sequence>
364     <xs:element name="mRID" type="ID_String" minOccurs="1"
365 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
366 cim16#IdentifiedObject.mRID"/>
367     <xs:element name="businessType" type="BusinessKind_String"
368 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
369 schema-cim16#TimeSeries.businessType"/>
370     <xs:element name="flowDirection.direction"
371 type="DirectionKind_String" minOccurs="0" maxOccurs="1"
372 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
373 cim16#FlowDirection.direction"/>
374     <xs:element name="product" type="EnergyProductKind_String"
375 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
376 schema-cim16#TimeSeries.product"/>
377     <xs:element name="connecting_Domain.mRID" type="AreaID_String"
378 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
379 schema-cim16#IdentifiedObject.mRID"/>
380     <xs:element name="registeredResource.mRID"
381 type="ResourceID_String" minOccurs="0" maxOccurs="1"
```

```
382 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
383 cim16#IdentifiedObject.mRID"/>
384     <xs:element name="resourceProvider_MarketParticipant.mRID"
385 type="PartyID_String" minOccurs="1" maxOccurs="1"
386 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
387 cim16#IdentifiedObject.mRID"/>
388     <xs:element name="acquiring_Domain.mRID" type="AreaID_String"
389 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
390 schema-cim16#IdentifiedObject.mRID"/>
391     <xs:element name="marketAgreement.type"
392 type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
393 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
394     <xs:element name="marketAgreement.mRID" type="ID_String"
395 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
396 schema-cim16#IdentifiedObject.mRID"/>
397     <xs:element name="measurement_Unit.name"
398 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
399 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
400     <xs:element name="objectAggregation"
401 type="ObjectAggregationKind_String" minOccurs="0" maxOccurs="1"
402 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
403 cim16#TimeSeries.objectAggregation"/>
404     <xs:element name="curveType" type="CurveType_String"
405 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
406 schema-cim16#TimeSeries.curveType"/>
407     <xs:element name="Series_Period" type="Series_Period"
408 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
409 cim16#TimeSeries.Series_Period"/>
410     <xs:element name="Reason" type="Reason" minOccurs="0"
411 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
412 cim16#TimeSeries.Reason"/>
413 </xs:sequence>
414 </xs:complexType>
415 <xs:simpleType name="Position_Integer"
416 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
417     <xs:restriction base="xs:integer">
418         <xs:maxInclusive value="999999"/>
419         <xs:minInclusive value="1"/>
420     </xs:restriction>
421 </xs:simpleType>
422 <xs:complexType name="Point"
423 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
424     <xs:sequence>
425         <xs:element name="position" type="Position_Integer"
426 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
427 schema-cim16#Point.position"/>
428         <xs:element name="quantity" type="xs:decimal" minOccurs="1"
429 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
430 cim16#Point.quantity"/>
431         <xs:element name="Reason" type="Reason" minOccurs="0"
432 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
433 cim16#Point.Reason"/>
434     </xs:sequence>
435 </xs:complexType>
436 <xs:simpleType name="ReasonCode_String"
437 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
```



```
438         <xs:restriction base="ecl:ReasonCodeTypeList"/>
439     </xs:simpleType>
440     <xs:simpleType name="ReasonText_String"
441 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
442         <xs:restriction base="xs:string">
443             <xs:maxLength value="512"/>
444         </xs:restriction>
445     </xs:simpleType>
446     <xs:complexType name="Reason"
447 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
448         <xs:sequence>
449             <xs:element name="code" type="ReasonCode_String" minOccurs="1"
450 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
451 cim16#Reason.code"/>
452             <xs:element name="text" type="ReasonText_String" minOccurs="0"
453 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
454 cim16#Reason.text"/>
455         </xs:sequence>
456     </xs:complexType>
457     <xs:simpleType name="MessageKind_String"
458 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
459         <xs:restriction base="ecl:MessageTypeList"/>
460     </xs:simpleType>
461     <xs:simpleType name="ESMP_DateTime"
462 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
463         <xs:restriction base="xs:dateTime">
464             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
465 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
466 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
467 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][0
468 48]|02468)[048][02468][048]|02468)[1235679](0)[48]|02468)[1235679][2468][048]|[
469 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
470 5][0-9]:[0-5][0-
471 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[0134578
472 9][2468][1235679]|02468)[048][02468][1235679]|02468)[1235679](0)[01235679]|0246
473 8)[1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
474 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
475         </xs:restriction>
476     </xs:simpleType>
477     <xs:simpleType name="YMDHM_DateTime"
478 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
479         <xs:restriction base="xs:string">
480             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
481 9]|[12][0-9]|3[01]))|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
482 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
483 9])Z)|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][0
484 48]|02468)[048][02468][048]|02468)[1235679](0)[48]|02468)[1235679][2468][048]|[
485 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
486 5][0-
487 9])Z)|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[0134578
488 9][2468][1235679]|02468)[048][02468][1235679]|02468)[1235679](0)[01235679]|0246
489 8)[1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
490 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
491         </xs:restriction>
492     </xs:simpleType>
```

```
493     <xs:complexType name="ESMP_DateTimeInterval"
494 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
495     <xs:sequence>
496         <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
497 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
498 cim16#DateTimeInterval.start"/>
499         <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
500 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
501 cim16#DateTimeInterval.end"/>
502     </xs:sequence>
503 </xs:complexType>
504     <xs:complexType name="ResourceScheduleConfirmation_MarketDocument"
505 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
506     <xs:sequence>
507         <xs:element name="mRID" type="ID_String" minOccurs="1"
508 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
509 cim16#IdentifiedObject.mRID"/>
510         <xs:element name="type" type="MessageKind_String" minOccurs="1"
511 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
512 cim16#Document.type"/>
513         <xs:element name="sender_MarketParticipant.mRID"
514 type="PartyID_String" minOccurs="1" maxOccurs="1"
515 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
516 cim16#IdentifiedObject.mRID"/>
517         <xs:element name="sender_MarketParticipant.marketRole.type"
518 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
519 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
520         <xs:element name="receiver_MarketParticipant.mRID"
521 type="PartyID_String" minOccurs="1" maxOccurs="1"
522 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
523 cim16#IdentifiedObject.mRID"/>
524         <xs:element name="receiver_MarketParticipant.marketRole.type"
525 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
526 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
527         <xs:element name="createdDateTime" type="ESMP_DateTime"
528 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
529 schema-cim16#Document.createdDateTime"/>
530         <xs:element name="schedule_Period.timeInterval"
531 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
532 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
533 cim16#Period.timeInterval"/>
534         <xs:element name="Original_MarketDocument"
535 type="Original_MarketDocument" minOccurs="1" maxOccurs="1"
536 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
537 cim16#MarketDocument.Original_MarketDocument"/>
538         <xs:element name="Reason" type="Reason" minOccurs="1"
539 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
540 cim16#MarketDocument.Reason"/>
541     </xs:sequence>
542 </xs:complexType>
543     <xs:complexType name="Series_Period"
544 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
545     <xs:sequence>
546         <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
547 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
548 schema-cim16#Period.timeInterval"/>
```

```
549         <xs:element name="resolution" type="xs:duration" minOccurs="1"
550 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
551 cim16#Period.resolution"/>
552         <xs:element name="Point" type="Point" minOccurs="1"
553 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
554 cim16#Period.Point"/>
555     </xs:sequence>
556 </xs:complexType>
557 <xs:complexType name="UnavailableReserve_TimeSeries"
558 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
559     <xs:sequence>
560         <xs:element name="mRID" type="ID_String" minOccurs="1"
561 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
562 cim16#IdentifiedObject.mRID"/>
563         <xs:element name="businessType" type="BusinessKind_String"
564 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
565 schema-cim16#TimeSeries.businessType"/>
566         <xs:element name="flowDirection.direction"
567 type="DirectionKind_String" minOccurs="0" maxOccurs="1"
568 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
569 cim16#FlowDirection.direction"/>
570         <xs:element name="product" type="EnergyProductKind_String"
571 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
572 schema-cim16#TimeSeries.product"/>
573         <xs:element name="connecting_Domain.mRID" type="AreaID_String"
574 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
575 schema-cim16#IdentifiedObject.mRID"/>
576         <xs:element name="resourceProvider_MarketParticipant.mRID"
577 type="PartyID_String" minOccurs="1" maxOccurs="1"
578 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
579 cim16#IdentifiedObject.mRID"/>
580     <xs:element
581 name="substituteResourceProvider_MarketParticipant.mRID" type="PartyID_String"
582 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
583 schema-cim16#IdentifiedObject.mRID"/>
584     <xs:element name="acquiring_Domain.mRID" type="AreaID_String"
585 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
586 schema-cim16#IdentifiedObject.mRID"/>
587     <xs:element name="marketAgreement.type"
588 type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
589 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
590     <xs:element name="marketAgreement.mRID" type="ID_String"
591 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
592 schema-cim16#IdentifiedObject.mRID"/>
593     <xs:element name="measurement_Unit.name"
594 type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
595 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
596     <xs:element name="objectAggregation"
597 type="ObjectAggregationKind_String" minOccurs="0" maxOccurs="1"
598 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
599 cim16#TimeSeries.objectAggregation"/>
600     <xs:element name="curveType" type="CurveType_String"
601 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
602 schema-cim16#TimeSeries.curveType"/>
603     <xs:element name="Series_Period" type="Series_Period"
604 minOccurs="1" maxOccurs="unbounded"/>
```



```
605 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
606 cim16#TimeSeries.Series_Period"/>
607     <xs:element name="Reason" type="Reason" minOccurs="0"
608 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
609 cim16#TimeSeries.Reason"/>
610         </xs:sequence>
611     </xs:complexType>
612 </xs:schema>
613
```