



European Network of
Transmission System Operators
for Electricity

RESOURCE CAPACITY MARKET UNIT (RCMU) DOCUMENT UML MODEL AND SCHEMA

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2

Table of Contents

3	1	Objective	6
4	2	ResourceCapacityMarketUnit_MarketDocument	7
5	2.1	ResourceCapacityMarketUnit document contextual	7
6	2.1.1	Overview of the model	7
7	2.1.2	IsBasedOn relationships from the European style market profile	8
8			
9	2.2	ResourceCapacityMarketUnit document assembly	9
10	2.2.1	Overview of the model	9
11	2.2.2	IsBasedOn relationships from the European style market profile	10
12			
13	2.2.3	Detailed ResourceCapacityMarketUnit document assembly	10
14	2.2.3.1	ResourceCapacityMarketUnit_MarketDocument root class	10
15	2.2.3.2	Analog	11
16	2.2.3.3	Fuel	12
17	2.2.3.4	MarketEvaluationPoint	12
18	2.2.3.5	Point	12
19	2.2.3.6	ResourceCapacityMarketUnit_RegisteredResource	12
20	2.2.3.7	Series_Period	13
21	2.2.3.8	Time_Period	14
22	2.2.3.9	TimeSeries	14
23	2.2.3.10	Unit_RegisteredResource	17
24	2.2.4	Datatypes	19
25	2.2.5	ResourceCapacityMarketUnit_MarketDocument XML schema structure	21
26			
27	2.2.6	ResourceCapacityMarketUnit_MarketDocument XML schema	22
28	List of figures		
29	Figure 1 - ResourceCapacityMarketUnit document contextual		7
30	Figure 2 - ResourceCapacityMarketUnit document assembly		9
31	Figure 3 – ResourceCapacityMarketUnit_MarketDocument schema structure		21
32	List of tables		
33	Table 1 - IsBasedOn dependency		8
34	Table 2 - IsBasedOn dependency		10
35	Table 3 - Attributes of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_MarketDocument		10
36			
37	Table 4 - Association ends of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_MarketDocument with other classes		11
38			
39	Table 5 - Attributes of ResourceCapacityMarketUnit document assembly::Analog		11
40	Table 6 - Attributes of ResourceCapacityMarketUnit document assembly::Fuel		12
41	Table 7 - Attributes of ResourceCapacityMarketUnit document assembly::MarketEvaluationPoint		12
42			
43	Table 8 - Attributes of ResourceCapacityMarketUnit document assembly::Point		12
44	Table 9 - Attributes of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_RegisteredResource		13
45			
46	Table 10 - Association ends of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_RegisteredResource with other classes		13
47			

48	Table 11 - Attributes of ResourceCapacityMarketUnit document	
49	assembly::Series_Period	13
50	Table 12 - Association ends of ResourceCapacityMarketUnit document	
51	assembly::Series_Period with other classes	14
52	Table 13 - Attributes of ResourceCapacityMarketUnit document	
53	assembly::Time_Period.....	14
54	Table 14 - Attributes of ResourceCapacityMarketUnit document assembly::TimeSeries	14
55	Table 15 - Association ends of ResourceCapacityMarketUnit document	
56	assembly::TimeSeries with other classes	17
57	Table 16 - Attributes of ResourceCapacityMarketUnit document	
58	assembly::Unit_RegisteredResource.....	18
59	Table 17 - Association ends of ResourceCapacityMarketUnit document	
60	assembly::Unit_RegisteredResource with other classes	19
61		

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79

Revision History

Version	Release	Date	Comments
0	1	2020-11-09	First draft of the document.
0	2	2020-11-26	Comments from CIM EG were considered.
1	0	2020-12-15	Approved by MC.
1	1	2021-06-01	<p>Updates in schema 'iec62325-451-n-resourcecapacitymarketunitdocument_v1_1':</p> <ul style="list-style-type: none"> Added two optional initial registration dateAndOrTime a and registration_DateAndOrTime attributes linked to Timeseries Market participation_marketObjectStatus.status attribute was splitted in PrimaryMarketParticipation and secondaryMarket participation status attributes. An optional ClearanceNumber_Name attribute was added to the Timeseries Existing PSRType attribute was renamed to technology_PSRType A new Fuel class was linked to the Unit class with cardinality 0..* meteringPoint_AggregateNode.mRID was replaced by MarketEvaluationPoint.mRID <p>Approved by MC.</p>
1	2	2022-02-01	<p>Updates in schema 'iec62325-451-n-resourcecapacitymarketunitdocument_v1_2':</p> <ul style="list-style-type: none"> floorIdentification attribute in StreetAddress type attribute becomes optional. <p>Approved by MC.</p>

80

81 **Objective**

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

84 The schema of the ResourceCapacityMarketUnit_MarketDocument could be used in various
85 business processes.

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

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

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

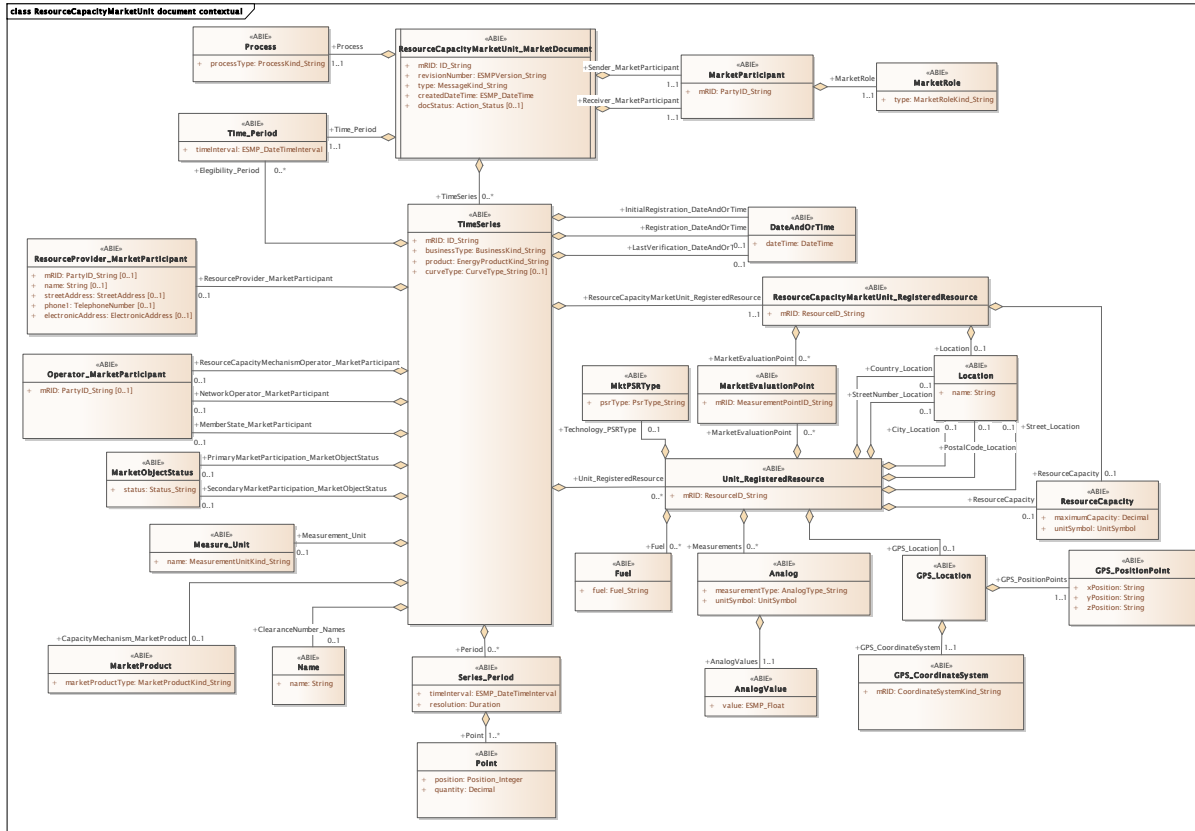
98

99 **ResourceCapacityMarketUnit_MarketDocument**

100 **2.1 ResourceCapacityMarketUnit document contextual**

101 **2.1.1 Overview of the model**

102 Figure 1 shows the model.



103

104

Figure 1 - ResourceCapacityMarketUnit document contextual

105

106

107 **2.1.2 IsBasedOn relationships from the European style market profile**

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

110

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Analog	TC57CIM::IEC61970::Base::Meas::Analog
AnalogValue	TC57CIM::IEC61970::Base::Meas::AnalogValue
DateAndOrTime	TC57CIM::IEC62325::MarketManagement::DateAndOrTime
Fuel	TC57CIM::IEC62325::MarketCommon::Fuel
GPS_CoordinateSystem	TC57CIM::IEC61968::Common::CoordinateSystem
GPS_Location	TC57CIM::IEC61968::Common::Location
GPS_PositionPoint	TC57CIM::IEC61968::Common::PositionPoint
Location	TC57CIM::IEC61968::Common::Location
MarketEvaluationPoint	TC57CIM::IEC62325::MarketManagement::MarketEvaluationPoint
MarketObjectStatus	TC57CIM::IEC62325::MarketManagement::MarketObjectStatus
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketProduct	TC57CIM::IEC62325::MarketCommon::MarketProduct
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
MktPSRType	TC57CIM::IEC62325::MarketManagement::MktPSRType
Name	TC57CIM::IEC61970::Base::Core::Name
Operator_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
ResourceCapacity	TC57CIM::IEC62325::MarketCommon::ResourceCapacity
ResourceCapacityMarketUnit_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
ResourceCapacityMarketUnit_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
ResourceProvider_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
Unit_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource

111

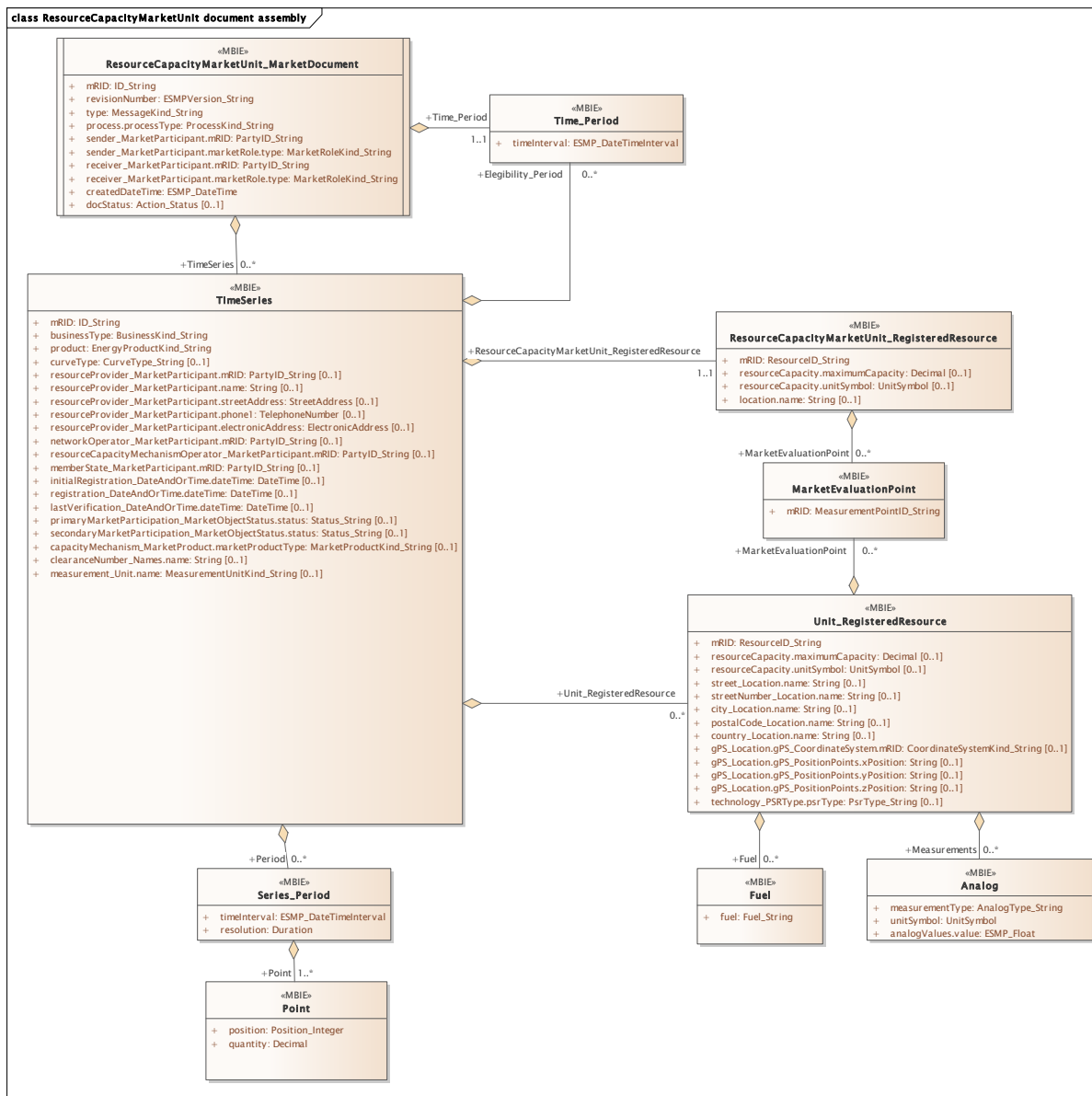
112

113

114 2.2 ResourceCapacityMarketUnit document assembly

115 2.2.1 Overview of the model

116 Figure 2 shows the model.



117

118

Figure 2 - ResourceCapacityMarketUnit document assembly

119

120

121 **2.2.2 IsBasedOn relationships from the European style market profile**

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

124

Table 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Analog	TC57CIM::IEC61970::Base::Meas::Analog
Fuel	TC57CIM::IEC62325::MarketCommon::Fuel
MarketEvaluationPoint	TC57CIM::IEC62325::MarketManagement::MarketEvaluationPoint
Point	TC57CIM::IEC62325::MarketManagement::Point
ResourceCapacityMarketUnit_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
ResourceCapacityMarketUnit_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
Unit_RegisteredResource	TC57CIM::IEC62325::MarketCommon::RegisteredResource

125

126 **2.2.3 Detailed ResourceCapacityMarketUnit document assembly**

127 **2.2.3.1 ResourceCapacityMarketUnit_MarketDocument root class**

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

130 Table 3 shows all attributes of ResourceCapacityMarketUnit_MarketDocument.

131

Table 3 - Attributes of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_MarketDocument

132

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]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses. --- The Process associated with an electronic document header that is valid for the whole document.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document owner --- The MarketParticipant associated with an electronic document header.
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The MarketParticipant associated with an electronic document header. --- The role associated with a MarketParticipant.

Order	mult.	Attribute name / Attribute type	Description
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient --- The MarketParticipant associated with an electronic document header.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The MarketParticipant associated with an electronic document header. --- The role associated with a MarketParticipant.
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
10	[0..1]	docStatus Action_Status	The identification of the condition or position of the document with regard to its standing.

133

134 Table 4 shows all association ends of ResourceCapacityMarketUnit_MarketDocument with
135 other classes.

136 **Table 4 - Association ends of ResourceCapacityMarketUnit document**
137 **assembly::ResourceCapacityMarketUnit_MarketDocument with other classes**

Order	mult.	Class name / Role	Description
9	[1..1]	Time_Period Time_Period	The time interval that is associated with an electronic document and which is valid for the whole document. Association Based On: ResourceCapacityMarketUnit document contextual::Time_Period.Time_Period[1..1] ----- ResourceCapacityMarketUnit document contextual::ResourceCapacityMarketUnit_MarketDocument.[]
11	[0..*]	TimeSeries TimeSeries	The time series that is associated with an electronic document. Association Based On: ResourceCapacityMarketUnit document contextual::TimeSeries.TimeSeries[0..*] ----- ResourceCapacityMarketUnit document contextual::ResourceCapacityMarketUnit_MarketDocument.[]

138

139 2.2.3.2 Analog

140 Analog represents an analog Measurement.

141 Table 5 shows all attributes of Analog.

142 **Table 5 - Attributes of ResourceCapacityMarketUnit document assembly::Analog**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	measurementType AnalogType_String	Specifies the type of measurement. For example, this specifies if the measurement represents an indoor temperature, outdoor temperature, bus voltage, line flow, etc.
1	[1..1]	unitSymbol UnitSymbol	The unit of measure of the measured quantity.
2	[1..1]	analogValues.value ESMP_Float	The value to supervise. --- Measurement to which this value is connected.

143

144 **2.2.3.3 Fuel**

145 A class indicating the origin of the fuel used at the related object.

146 Table 6 shows all attributes of Fuel.

147 **Table 6 - Attributes of ResourceCapacityMarketUnit document assembly::Fuel**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	fuel Fuel_String	An indication of the fuel used for the energy production, or part of the energy production, that is potentially fed into the grid at the related object.

148

149 **2.2.3.4 MarketEvaluationPoint**

150 The location where one or more products are measured. This may be a physical or virtual
151 location.

152 Table 7 shows all attributes of MarketEvaluationPoint.

153 **Table 7 - Attributes of ResourceCapacityMarketUnit document
154 assembly::MarketEvaluationPoint**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID MeasurementPointID_String	A unique identification of the measurement point. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.

155

156 **2.2.3.5 Point**

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

158 Table 8 shows all attributes of Point.

159 **Table 8 - Attributes of ResourceCapacityMarketUnit document assembly::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.

160

161 **2.2.3.6 ResourceCapacityMarketUnit_RegisteredResource**

162 A resource that is registered through the market participant registration system. Examples
163 include generating unit, load, and non-physical generator or load.

164 Table 9 shows all attributes of ResourceCapacityMarketUnit_RegisteredResource.

165
166

Table 9 - Attributes of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_RegisteredResource

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ResourceID_String	The unique identification of a resource. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.
1	[0..1]	resourceCapacity.maximumCapacity Decimal	The maximum capacity.
2	[0..1]	resourceCapacity.unitSymbol UnitSymbol	Unit selection for the capacity values.
3	[0..1]	location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this power system resource.

167

168 Table 10 shows all association ends of ResourceCapacityMarketUnit_RegisteredResource with
169 other classes.

Table 10 - Association ends of ResourceCapacityMarketUnit document assembly::ResourceCapacityMarketUnit_RegisteredResource with other classes

170
171

Order	mult.	Class name / Role	Description
4	[0..*]	MarketEvaluationPoint MarketEvaluationPoint	Association Based On: ResourceCapacityMarketUnit document contextual::MarketEvaluationPoint.MarketEvaluationPoint[0..*] ----- ResourceCapacityMarketUnit document contextual::ResourceCapacityMarketUnit_RegisteredResource.[]

172

173 2.2.3.7 Series_Period

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

175 Table 11 shows all attributes of Series_Period.

Table 11 - Attributes of ResourceCapacityMarketUnit document assembly::Series_Period

176
177

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.

178

179 Table 12 shows all association ends of Series_Period with other classes.

180
181

Table 12 - Association ends of ResourceCapacityMarketUnit document assembly::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: ResourceCapacityMarketUnit document contextual::Point.Point[1..*] ----- ResourceCapacityMarketUnit document contextual::Series_Period.[]

182

183 2.2.3.8 Time_Period

184 The identification of a time interval or a duration.

185 Table 13 shows all attributes of Time_Period.

186 **Table 13 - Attributes of ResourceCapacityMarketUnit document assembly::Time_Period**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval.

187

188 2.2.3.9 TimeSeries

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

190 In the ESMP profile, the TimeSeries provides not only time-ordered quantities but also time-ordered information.

192 Table 14 shows all attributes of TimeSeries.

193 **Table 14 - Attributes of ResourceCapacityMarketUnit document assembly::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series. In the ESMP context, the "model authority" is defined as a party (originator of the exchange) that provides a unique identification in the context of a business exchange such as time series identification, bid identification, ... Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.
1	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
2	[1..1]	product EnergyProductKind_String	The identification of the nature of an energy product such as power, energy, reactive power, etc.
4	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.

Order	mult.	Attribute name / Attribute type	Description
5	[0..1]	resourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. --- The identification of a market participant associated with a TimeSeries.
6	[0..1]	resourceProvider_MarketParticipant.name String	The name is any free human readable and possibly non unique text naming the object. --- The identification of a market participant associated with a TimeSeries.
7	[0..1]	resourceProvider_MarketParticipant.streetAddress StreetAddress	Street address. --- The identification of a market participant associated with a TimeSeries.
8	[0..1]	resourceProvider_MarketParticipant.phone1 TelephoneNumber	Phone number. --- The identification of a market participant associated with a TimeSeries.
9	[0..1]	resourceProvider_MarketParticipant.electronicAddress ElectronicAddress	Electronic address. --- The identification of a market participant associated with a TimeSeries.
10	[0..1]	networkOperator_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. --- The identification of a market participant associated with a TimeSeries.

Order	mult.	Attribute name / Attribute type	Description
11	[0..1]	resourceCapacityMechanismOperator_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. --- The identification of a market participant associated with a TimeSeries.
12	[0..1]	memberState_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. --- The identification of a market participant associated with a TimeSeries.
13	[0..1]	initialRegistration_DateAndOrTime.dateTime DateTime	Date and time as per ISO 8601 YYYY-MM-DDThh:mm:ss.sssZ. --- A date and/or time associated with a TimeSeries.
14	[0..1]	registration_DateAndOrTime.dateTime DateTime	Date and time as per ISO 8601 YYYY-MM-DDThh:mm:ss.sssZ. --- A date and/or time associated with a TimeSeries.
15	[0..1]	lastVerification_DateAndOrTime.dateTime DateTime	Date and time as per ISO 8601 YYYY-MM-DDThh:mm:ss.sssZ. --- A date and/or time associated with a TimeSeries.
16	[0..1]	primaryMarketParticipation_MarketObjectStatus.status Status_String	The coded condition or position of an object with regard to its standing. --- The status of an object associated with a TimeSeries.
17	[0..1]	secondaryMarketParticipation_MarketObjectStatus.status Status_String	The coded condition or position of an object with regard to its standing. --- The status of an object associated with a TimeSeries.
18	[0..1]	capacityMechanism_MarketProduct.marketProductType MarketProductKind_String	The Type of product on a market view

Order	mult.	Attribute name / Attribute type	Description
19	[0..1]	clearanceNumber_Names.name String	Any free text that name the object. --- All names of this identified object.
20	[0..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.

194

195 Table 15 shows all association ends of TimeSeries with other classes.

196 **Table 15 - Association ends of ResourceCapacityMarketUnit document**
197 **assembly::TimeSeries with other classes**

Order	mult.	Class name / Role	Description
3	[1..1]	ResourceCapacityMarketUnit_RegisteredResource ResourceCapacityMarketUnit_RegisteredResource	The identification of a resource associated with a TimeSeries. Association Based On: ResourceCapacityMarketUnit document contextual::ResourceCapacityMarketUnit_RegisteredResource.ResourceCapacityMarketUnit_RegisteredResource[1..1] ----- ResourceCapacityMarketUnit document contextual::TimeSeries.[]
21	[0..*]	Unit_RegisteredResource Unit_RegisteredResource	The identification of a resource associated with a TimeSeries. Association Based On: ResourceCapacityMarketUnit document contextual::Unit_RegisteredResource.Unit_RegisteredResource[0..*] ----- ResourceCapacityMarketUnit document contextual::TimeSeries.[]
22	[0..*]	Time_Period Eligibility_Period	The time interval associated with a TimeSeries within an electronic document. Association Based On: ResourceCapacityMarketUnit document contextual::TimeSeries.[] ----- ResourceCapacityMarketUnit document contextual::Time_Period.Eligibility_Period[0..*]
23	[0..*]	Series_Period Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: ResourceCapacityMarketUnit document contextual::Series_Period.Period[0..*] ----- ResourceCapacityMarketUnit document contextual::TimeSeries.[]

198

199 **2.2.3.10 Unit_RegisteredResource**

200 A resource that is registered through the market participant registration system. Examples
201 include generating unit, load, and non-physical generator or load.

202 Table 16 shows all attributes of Unit_RegisteredResource.

203
204

**Table 16 - Attributes of ResourceCapacityMarketUnit document
assembly::Unit_RegisteredResource**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ResourceID_String	The unique identification of a resource. In the ESMP context, the "model authority" is defined as an authorized issuing office that provides an agreed identification coding scheme for market participant, domain, measurement point, resources (generator, lines, substations, etc.) identification. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.
1	[0..1]	resourceCapacity.maximumCapacity Decimal	The maximum capacity.
2	[0..1]	resourceCapacity.unitSymbol UnitSymbol	Unit selection for the capacity values.
3	[0..1]	street_Location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this power system resource.
4	[0..1]	streetNumber_Location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this power system resource.
5	[0..1]	city_Location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this power system resource.
6	[0..1]	postalCode_Location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this power system resource.
7	[0..1]	country_Location.name String	The name is any free human readable and possibly non unique text naming the object. --- Location of this power system resource.
8	[0..1]	gPS_Location.gPS_CoordinateSystem.mRID CoordinateSystemKind_String	The identification of a type of coordinate system. Master resource identifier issued by a model authority. The mRID is unique within an exchange context. Global uniqueness is easily achieved by using a UUID, as specified in RFC 4122, for the mRID. The use of UUID is strongly recommended. For CIMXML data files in RDF syntax conforming to IEC 61970-552 Edition 1, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements. --- Location of this power system resource. --- Coordinate system used to describe position points of this location.
9	[0..1]	gPS_Location.gPS_PositionPoints.xPosition String	X axis position. --- Location of this power system resource. --- Sequence of position points describing this location, expressed in coordinate system 'Location.CoordinateSystem'.
10	[0..1]	gPS_Location.gPS_PositionPoints.yPosition String	Y axis position. --- Location of this power system resource. --- Sequence of position points describing this location, expressed in coordinate system 'Location.CoordinateSystem'.
11	[0..1]	gPS_Location.gPS_PositionPoints.zPosition String	(if applicable) Z axis position. --- Location of this power system resource. --- Sequence of position points describing this location, expressed in coordinate system 'Location.CoordinateSystem'.

Order	mult.	Attribute name / Attribute type	Description
12	[0..1]	technology_PSRType.psrType PsrType_String	The coded type of a power system resource. --- The identification of the type of resource associated with this RegisteredResource.

205

206 Table 17 shows all association ends of Unit_RegisteredResource with other classes.

207 **Table 17 - Association ends of ResourceCapacityMarketUnit document**
208 **assembly::Unit_RegisteredResource with other classes**

Order	mult.	Class name / Role	Description
13	[0..*]	Fuel Fuel	Association Based On: ResourceCapacityMarketUnit document contextual::Fuel.Fuel[0..*] ----- ResourceCapacityMarketUnit document contextual::Unit_RegisteredResource.[]
14	[0..*]	Analog Measurements	The power system resource that contains the measurement. Association Based On: ResourceCapacityMarketUnit document contextual::Analog.Measurements[0..*] ----- ResourceCapacityMarketUnit document contextual::Unit_RegisteredResource.[]
15	[0..*]	MarketEvaluationPoint MarketEvaluationPoint	Association Based On: ResourceCapacityMarketUnit document contextual::MarketEvaluationPoint.MarketEvaluationPoint[0..*] ----- ResourceCapacityMarketUnit document contextual::Unit_RegisteredResource.[]

209

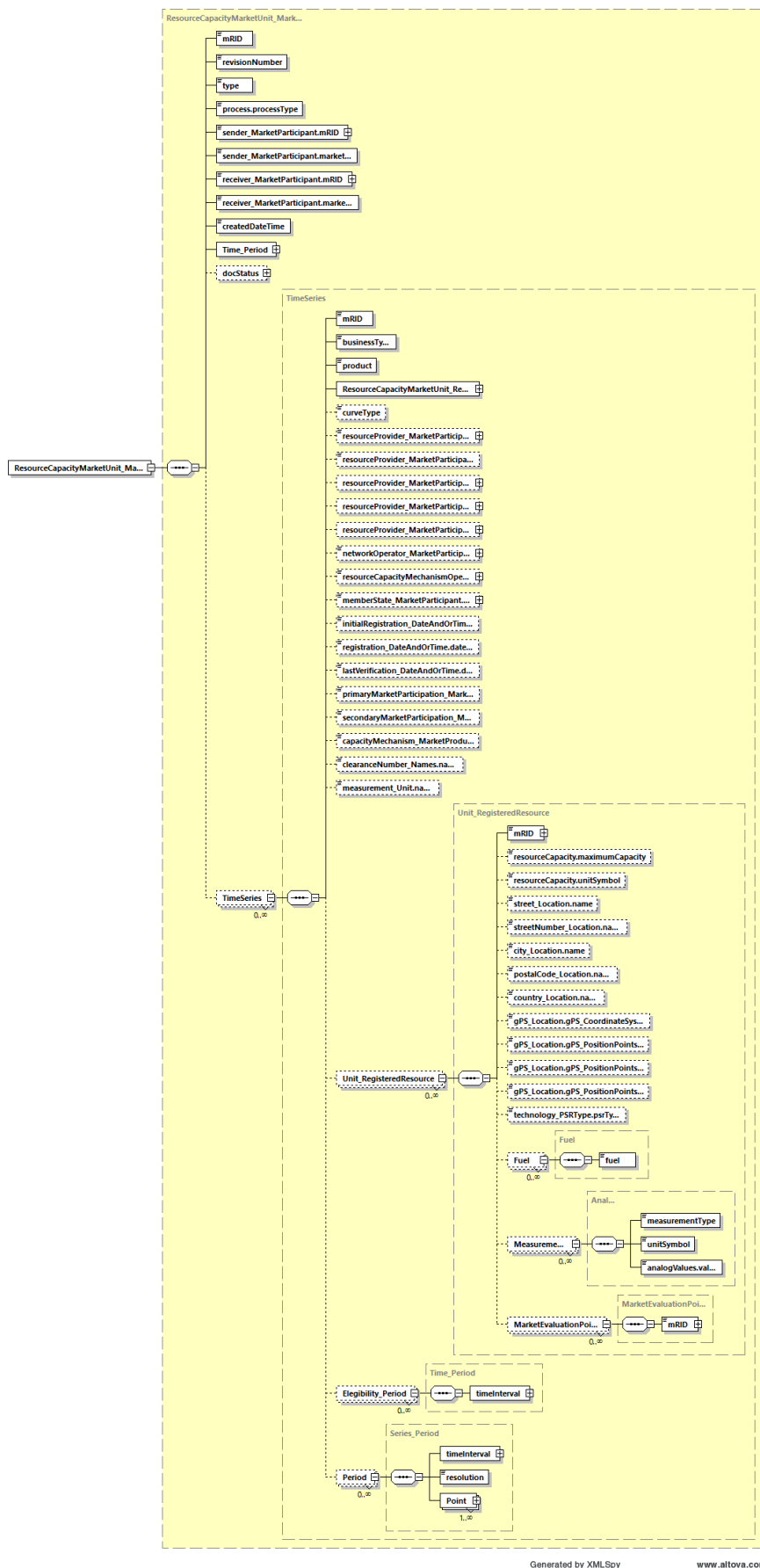
210 2.2.4 Datatypes

211 The list of datatypes used for the ResourceCapacityMarketUnit document assembly is as
212 follows:

- 213 • Action_Status compound
- 214 • ElectronicAddress compound
- 215 • ESMP_DateTimeInterval compound
- 216 • StreetAddress compound
- 217 • StreetDetail compound
- 218 • TelephoneNumber compound
- 219 • TownDetail compound
- 220 • AnalogType_String datatype, codelist AnalogTypeList
- 221 • BusinessKind_String datatype, codelist BusinessTypeList
- 222 • Characters10_String datatype
- 223 • Characters15_String datatype
- 224 • Characters2_String datatype
- 225 • Characters35_String datatype
- 226 • Characters70_String datatype
- 227 • CoordinateSystemKind_String datatype, codelist CoordinateSystemTypeList
- 228 • CurveType_String datatype, codelist CurveTypeList
- 229 • EnergyProductKind_String datatype, codelist EnergyProductTypeList
- 230 • ESMP_DateTime datatype
- 231 • ESMP_Float datatype
- 232 • ESMPVersion_String datatype
- 233 • Fuel_String datatype, codelist FuelTypeList
- 234 • ID_String datatype
- 235 • MarketProductKind_String datatype, codelist MarketProductTypeList
- 236 • MarketRoleKind_String datatype, codelist RoleTypeList
- 237 • MeasurementPointID_String datatype, codelist CodingSchemeTypeList

- 238 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 239 • MessageKind_String datatype, codelist MessageTypeList
- 240 • PartyID_String datatype, codelist CodingSchemeTypeList
- 241 • Position_Integer datatype
- 242 • ProcessKind_String datatype, codelist ProcessTypeList
- 243 • PsrType_String datatype, codelist AssetTypeList
- 244 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 245 • Status_String datatype, codelist StatusTypeList
- 246 • UnitSymbol datatype, codelist UnitSymbol
- 247 • YMDHM_DateTime datatype
- 248

249 2.2.5 ResourceCapacityMarketUnit_MarketDocument XML schema structure



250
251

Figure 3 – ResourceCapacityMarketUnit_MarketDocument schema structure

252 2.2.6 ResourceCapacityMarketUnit_MarketDocument XML schema

253

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

255 urn:iec62325.351:tc57wg16:451-n:resourcecapacitymarketunitdocument:1:2

```
256 <?xml version="1.0" encoding="utf-8"?>
257 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
258 xmlns="urn:iec62325.351:tc57wg16:451-n:resourcecapacitymarketunitdocument:1:2"
259 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
260 xmlns:cimp="http://www.iec.ch/cimprofile"
261 xmlns:xs="http://www.w3.org/2001/XMLSchema"
262 targetNamespace="urn:iec62325.351:tc57wg16:451-
263 n:resourcecapacitymarketunitdocument:1:2" elementFormDefault="qualified"
264 attributeFormDefault="unqualified">
265   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-
266 entsoe-eu-wgedi-codelists.xsd"/>
267   <xs:element name="ResourceCapacityMarketUnit_MarketDocument"
268 type="ResourceCapacityMarketUnit_MarketDocument"/>
269   <xs:simpleType name="AnalogType_String"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
271     <xs:restriction base="ecl:AnalogTypeList"/>
272   </xs:simpleType>
273   <xs:simpleType name="UnitSymbol"
274 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#UnitSymbol">
275     <xs:restriction base="ecl:UnitSymbol"/>
276   </xs:simpleType>
277   <xs:simpleType name="ESMP_Float"
278 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Float">
279     <xs:restriction base="xs:float">
280       <xs:pattern value="([0-9]*\.[0-9]*)"/>
281     </xs:restriction>
282   </xs:simpleType>
283   <xs:complexType name="Analog"
284 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Analog">
285     <xs:sequence>
286       <xs:element name="measurementType" type="AnalogType_String"
287 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
288 schema-cim16#Measurement.measurementType"/>
289       <xs:element name="unitSymbol" type="UnitSymbol" minOccurs="1"
290 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
291 cim16#Measurement.unitSymbol"/>
292       <xs:element name="analogValues.value" type="ESMP_Float"
293 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
294 schema-cim16#AnalogValue.value"/>
295     </xs:sequence>
296   </xs:complexType>
297   <xs:simpleType name="Fuel_String"
298 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Fuel_String">
299     <xs:restriction base="ecl:FuelTypeList"/>
300   </xs:simpleType>
301   <xs:complexType name="Fuel"
302 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Fuel">
303     <xs:sequence>
304       <xs:element name="fuel" type="Fuel_String" minOccurs="1"
305 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
306 cim16#Fuel.fuel"/>
307     </xs:sequence>
308   </xs:complexType>
```

```
309     <xs:simpleType name="MeasurementPointID_String-base"
310 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
311     <xs:restriction base="xs:string">
312     <xs:maxLength value="60"/>
313     </xs:restriction>
314     </xs:simpleType>
315     <xs:complexType name="MeasurementPointID_String"
316 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
317     <xs:simpleContent>
318     <xs:extension base="MeasurementPointID_String-base">
319     <xs:attribute name="codingScheme"
320 type="ecl:CodingSchemeTypeList" use="required"/>
321     </xs:extension>
322     </xs:simpleContent>
323     </xs:complexType>
324     <xs:complexType name="MarketEvaluationPoint"
325 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
326 cim16#MarketEvaluationPoint">
327     <xs:sequence>
328     <xs:element name="mRID" type="MeasurementPointID_String"
329 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
330 schema-cim16#IdentifiedObject.mRID"/>
331     </xs:sequence>
332     </xs:complexType>
333     <xs:simpleType name="Position_Integer"
334 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
335     <xs:restriction base="xs:integer">
336     <xs:maxInclusive value="999999"/>
337     <xs:minInclusive value="1"/>
338     </xs:restriction>
339     </xs:simpleType>
340     <xs:complexType name="Point"
341 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
342     <xs:sequence>
343     <xs:element name="position" type="Position_Integer"
344 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
345 schema-cim16#Point.position"/>
346     <xs:element name="quantity" type="xs:decimal" minOccurs="1"
347 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
348 cim16#Point.quantity"/>
349     </xs:sequence>
350     </xs:complexType>
351     <xs:simpleType name="ID_String"
352 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
353     <xs:restriction base="xs:string">
354     <xs:maxLength value="60"/>
355     </xs:restriction>
356     </xs:simpleType>
357     <xs:simpleType name="ESMPVersion_String"
358 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
359     <xs:restriction base="xs:string">
360     <xs:pattern value="[1-9]([0-9]){0,2}"/>
361     </xs:restriction>
362     </xs:simpleType>
363     <xs:simpleType name="MessageKind_String"
364 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
365     <xs:restriction base="ecl:MessageTypeList"/>
366     </xs:simpleType>
367     <xs:simpleType name="ProcessKind_String"
368 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
```



```

369         <xs:restriction base="ecl:ProcessTypeList"/>
370     </xs:simpleType>
371     <xs:simpleType name="PartyID_String-base"
372 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
373         <xs:restriction base="xs:string">
374             <xs:maxLength value="16"/>
375         </xs:restriction>
376     </xs:simpleType>
377     <xs:complexType name="PartyID_String"
378 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
379         <xs:simpleContent>
380             <xs:extension base="PartyID_String-base">
381                 <xs:attribute name="codingScheme"
382 type="ecl:CodingSchemeTypeList" use="required"/>
383             </xs:extension>
384         </xs:simpleContent>
385     </xs:complexType>
386     <xs:simpleType name="MarketRoleKind_String"
387 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
388         <xs:restriction base="ecl:RoleTypeList"/>
389     </xs:simpleType>
390     <xs:simpleType name="ESMP_DateTime"
391 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
392         <xs:restriction base="xs:dateTime">
393             <xs:pattern value="((([0-9]{4})[\\-](0[13578]|1[02])\\-)(0[1-
394 9]|[12][0-9]|3[01])|([0-9]{4})[\\-]((0[469])|(11))\\-)(0[1-9]|[12][0-
395 9]|30))T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
396 9])Z)|(([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
397 48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
398 0-9][0-9][13579][26])\\-)(02)\\-)(0[1-9]|1[0-9]|2[0-9])T(([01][0-9]|2[0-3]):[0-
399 5][0-9]:[0-5][0-
400 9])Z)|(([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
401 9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
402 8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])\\-)(02)\\-)(0[1-9]|1[0-
403 9]|2[0-8])T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
404         </xs:restriction>
405     </xs:simpleType>
406     <xs:simpleType name="Status_String"
407 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
408         <xs:restriction base="ecl:StatusTypeList"/>
409     </xs:simpleType>
410     <xs:complexType name="Action_Status"
411 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status">
412         <xs:sequence>
413             <xs:element name="value" type="Status_String" minOccurs="1"
414 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
415 cim16#Status.value"/>
416         </xs:sequence>
417     </xs:complexType>
418     <xs:complexType name="ResourceCapacityMarketUnit_MarketDocument"
419 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
420         <xs:sequence>
421             <xs:element name="mRID" type="ID_String" minOccurs="1"
422 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
423 cim16#IdentifiedObject.mRID"/>
424             <xs:element name="revisionNumber" type="ESMPVersion_String"
425 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
426 schema-cim16#Document.revisionNumber"/>
    
```



```
427         <xs:element name="type" type="MessageKind_String" minOccurs="1"
428 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
429 cim16#Document.type"/>
430         <xs:element name="process.processType"
431 type="ProcessKind_String" minOccurs="1" maxOccurs="1"
432 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
433 cim16#Process.processType"/>
434         <xs:element name="sender_MarketParticipant.mRID"
435 type="PartyID_String" minOccurs="1" maxOccurs="1"
436 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
437 cim16#IdentifiedObject.mRID"/>
438         <xs:element name="sender_MarketParticipant.marketRole.type"
439 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
440 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
441         <xs:element name="receiver_MarketParticipant.mRID"
442 type="PartyID_String" minOccurs="1" maxOccurs="1"
443 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
444 cim16#IdentifiedObject.mRID"/>
445         <xs:element name="receiver_MarketParticipant.marketRole.type"
446 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
447 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
448         <xs:element name="createdDateTime" type="ESMP_DateTime"
449 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
450 schema-cim16#Document.createdDateTime"/>
451         <xs:element name="Time_Period" type="Time_Period" minOccurs="1"
452 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
453 cim16#MarketDocument.Time_Period"/>
454         <xs:element name="docStatus" type="Action_Status" minOccurs="0"
455 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
456 cim16#Document.docStatus"/>
457         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
458 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
459 cim16#MarketDocument.TimeSeries"/>
460     </xs:sequence>
461 </xs:complexType>
462 <xs:simpleType name="ResourceID_String-base"
463 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
464     <xs:restriction base="xs:string">
465         <xs:maxLength value="60"/>
466     </xs:restriction>
467 </xs:simpleType>
468 <xs:complexType name="ResourceID_String"
469 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
470     <xs:simpleContent>
471         <xs:extension base="ResourceID_String-base">
472             <xs:attribute name="codingScheme"
473 type="ecl:CodingSchemeTypeList" use="required"/>
474         </xs:extension>
475     </xs:simpleContent>
476 </xs:complexType>
477 <xs:complexType name="ResourceCapacityMarketUnit_RegisteredResource"
478 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
479 cim16#RegisteredResource">
480     <xs:sequence>
481         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
482 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
483 cim16#IdentifiedObject.mRID"/>
484         <xs:element name="resourceCapacity.maximumCapacity"
485 type="xs:decimal" minOccurs="0" maxOccurs="1"/>
```

```

486 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
487 cim16#ResourceCapacity.maximumCapacity"/>
488     <xs:element name="resourceCapacity.unitSymbol"
489 type="UnitSymbol" minOccurs="0" maxOccurs="1"
490 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
491 cim16#ResourceCapacity.unitSymbol"/>
492     <xs:element name="location.name" type="xs:string" minOccurs="0"
493 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
494 cim16#IdentifiedObject.name"/>
495     <xs:element name="MarketEvaluationPoint"
496 type="MarketEvaluationPoint" minOccurs="0" maxOccurs="unbounded"
497 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
498 cim16#RegisteredResource.MarketEvaluationPoint"/>
499   </xs:sequence>
500 </xs:complexType>
501 <xs:simpleType name="YMDHM_DateTime"
502 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
503   <xs:restriction base="xs:string">
504     <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02]))[\-](0[1-
505 9]|12)[0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|12)[0-
506 9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
507 9])Z)|(((13579)[26][02468][048]|13579[01345789](0)[48]|13579[01345789][2468][0
508 48]|02468[048][02468][048]|02468[1235679](0)[48]|02468[1235679][2468][048]|[
509 0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-
510 5][0-
511 9])Z)|(((13579)[26][02468][1235679]|13579[01345789](0)[01235679]|13579[0134578
512 9][2468][1235679]|02468[048]|02468[1235679]|02468[1235679](0)[01235679]|0246
513 8][1235679][2468][1235679]|0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
514 9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
515   </xs:restriction>
516 </xs:simpleType>
517 <xs:complexType name="ESMP_DateTimeInterval"
518 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
519   <xs:sequence>
520     <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
521 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
522 cim16#DateTimeInterval.start"/>
523     <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
524 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
525 cim16#DateTimeInterval.end"/>
526   </xs:sequence>
527 </xs:complexType>
528 <xs:complexType name="Series_Period"
529 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
530   <xs:sequence>
531     <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
532 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
533 schema-cim16#Period.timeInterval"/>
534     <xs:element name="resolution" type="xs:duration" minOccurs="1"
535 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
536 cim16#Period.resolution"/>
537     <xs:element name="Point" type="Point" minOccurs="1"
538 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
539 cim16#Period.Point"/>
540   </xs:sequence>
541 </xs:complexType>
542 <xs:complexType name="Time_Period"
543 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
544   <xs:sequence>

```

```
545         <xs:element name="timeInterval" type="ESMP_DateTimeInterval"  
546 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
547 schema-cim16#Period.timeInterval"/>  
548     </xs:sequence>  
549 </xs:complexType>  
550 <xs:simpleType name="BusinessKind_String"  
551 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
552     <xs:restriction base="ecl:BusinessTypeList"/>  
553 </xs:simpleType>  
554 <xs:simpleType name="EnergyProductKind_String"  
555 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
556     <xs:restriction base="ecl:EnergyProductTypeList"/>  
557 </xs:simpleType>  
558 <xs:simpleType name="CurveType_String"  
559 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
560     <xs:restriction base="ecl:CurveTypeList"/>  
561 </xs:simpleType>  
562 <xs:simpleType name="MarketProductKind_String"  
563 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
564     <xs:restriction base="ecl:MarketProductTypeList"/>  
565 </xs:simpleType>  
566 <xs:simpleType name="MeasurementUnitKind_String"  
567 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
568     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>  
569 </xs:simpleType>  
570 <xs:simpleType name="Characters70_String"  
571 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
572     <xs:restriction base="xs:string">  
573         <xs:maxLength value="70"/>  
574     </xs:restriction>  
575 </xs:simpleType>  
576 <xs:complexType name="ElectronicAddress"  
577 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-  
578 cim16#ElectronicAddress">  
579     <xs:sequence>  
580         <xs:element name="email1" type="Characters70_String"  
581 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
582 schema-cim16#ElectronicAddress.email1"/>  
583     </xs:sequence>  
584 </xs:complexType>  
585 <xs:simpleType name="Characters15_String"  
586 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">  
587     <xs:restriction base="xs:string">  
588         <xs:maxLength value="15"/>  
589     </xs:restriction>  
590 </xs:simpleType>  
591 <xs:complexType name="TelephoneNumber"  
592 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TelephoneNumber">  
593     <xs:sequence>  
594         <xs:element name="ituPhone" type="Characters15_String"  
595 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
596 schema-cim16#TelephoneNumber.ituPhone"/>  
597     </xs:sequence>  
598 </xs:complexType>  
599 <xs:complexType name="StreetDetail"  
600 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#StreetDetail">  
601     <xs:sequence>  
602         <xs:element name="addressGeneral" type="Characters70_String"  
603 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-  
604 schema-cim16#StreetDetail.addressGeneral"/>
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605         <xs:element name="addressGeneral2" type="Characters70_String"
606 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
607 schema-cim16#StreetDetail.addressGeneral2"/>
608         <xs:element name="addressGeneral3" type="Characters70_String"
609 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
610 schema-cim16#StreetDetail.addressGeneral3"/>
611         <xs:element name="floorIdentification" type="xs:string"
612 minOccurs="0" maxOccurs="1"/>
613     </xs:sequence>
614 </xs:complexType>
615 <xs:simpleType name="Characters10_String"
616 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
617     <xs:restriction base="xs:string">
618         <xs:maxLength value="10"/>
619     </xs:restriction>
620 </xs:simpleType>
621 <xs:simpleType name="Characters35_String"
622 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
623     <xs:restriction base="xs:string">
624         <xs:maxLength value="35"/>
625     </xs:restriction>
626 </xs:simpleType>
627 <xs:simpleType name="Characters2_String"
628 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
629     <xs:restriction base="xs:string">
630         <xs:length value="2"/>
631         <xs:pattern value="[A-Z]*"/>
632     </xs:restriction>
633 </xs:simpleType>
634 <xs:complexType name="TownDetail"
635 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TownDetail">
636     <xs:sequence>
637         <xs:element name="name" type="Characters35_String"
638 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
639 schema-cim16#TownDetail.name"/>
640         <xs:element name="country" type="Characters2_String"
641 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
642 schema-cim16#TownDetail.country"/>
643     </xs:sequence>
644 </xs:complexType>
645 <xs:complexType name="StreetAddress"
646 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#StreetAddress">
647     <xs:sequence>
648         <xs:element name="streetDetail" type="StreetDetail"
649 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
650 schema-cim16#StreetAddress.streetDetail"/>
651         <xs:element name="postalCode" type="Characters10_String"
652 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
653 schema-cim16#StreetAddress.postalCode"/>
654         <xs:element name="townDetail" type="TownDetail" minOccurs="1"
655 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
656 cim16#StreetAddress.townDetail"/>
657         <xs:element name="language" type="xs:string" minOccurs="0"
658 maxOccurs="1"/>
659     </xs:sequence>
660 </xs:complexType>
661 <xs:complexType name="TimeSeries"
662 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
663     <xs:sequence>

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664         <xs:element name="mRID" type="ID_String" minOccurs="1"
665 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
666 cim16#IdentifiedObject.mRID"/>
667         <xs:element name="businessType" type="BusinessKind_String"
668 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
669 schema-cim16#TimeSeries.businessType"/>
670         <xs:element name="product" type="EnergyProductKind_String"
671 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
672 schema-cim16#TimeSeries.product"/>
673         <xs:element
674 name="ResourceCapacityMarketUnit_RegisteredResource"
675 type="ResourceCapacityMarketUnit_RegisteredResource" minOccurs="1" maxOccurs="1"
676 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
677 cim16#TimeSeries.ResourceCapacityMarketUnit_RegisteredResource"/>
678         <xs:element name="curveType" type="CurveType_String"
679 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
680 schema-cim16#TimeSeries.curveType"/>
681         <xs:element name="resourceProvider_MarketParticipant.mRID"
682 type="PartyID_String" minOccurs="0" maxOccurs="1"
683 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
684 cim16#IdentifiedObject.mRID"/>
685         <xs:element name="resourceProvider_MarketParticipant.name"
686 type="xs:string" minOccurs="0" maxOccurs="1"
687 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
688 cim16#IdentifiedObject.name"/>
689         <xs:element
690 name="resourceProvider_MarketParticipant.streetAddress" type="StreetAddress"
691 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
692 schema-cim16#Organisation.streetAddress"/>
693         <xs:element name="resourceProvider_MarketParticipant.phone1"
694 type="TelephoneNumber" minOccurs="0" maxOccurs="1"
695 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
696 cim16#Organisation.phone1"/>
697         <xs:element
698 name="resourceProvider_MarketParticipant.electronicAddress"
699 type="ElectronicAddress" minOccurs="0" maxOccurs="1"
700 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
701 cim16#Organisation.electronicAddress"/>
702         <xs:element name="networkOperator_MarketParticipant.mRID"
703 type="PartyID_String" minOccurs="0" maxOccurs="1"
704 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
705 cim16#IdentifiedObject.mRID"/>
706         <xs:element
707 name="resourceCapacityMechanismOperator_MarketParticipant.mRID"
708 type="PartyID_String" minOccurs="0" maxOccurs="1"
709 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
710 cim16#IdentifiedObject.mRID"/>
711         <xs:element name="memberState_MarketParticipant.mRID"
712 type="PartyID_String" minOccurs="0" maxOccurs="1"
713 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
714 cim16#IdentifiedObject.mRID"/>
715         <xs:element name="initialRegistration_DateAndOrTime.dateTime"
716 type="xs:dateTime" minOccurs="0" maxOccurs="1"
717 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
718 cim16#DateAndOrTime.dateTime"/>
719         <xs:element name="registration_DateAndOrTime.dateTime"
720 type="xs:dateTime" minOccurs="0" maxOccurs="1"
721 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
722 cim16#DateAndOrTime.dateTime"/>
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723         <xs:element name="lastVerification_DateAndOrTime.dateTime"
724 type="xs:dateTime" minOccurs="0" maxOccurs="1"
725 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
726 cim16#DateAndOrTime.dateTime"/>
727         <xs:element
728 name="primaryMarketParticipation_MarketObjectStatus.status" type="Status_String"
729 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
730 schema-cim16#MarketObjectStatus.status"/>
731         <xs:element
732 name="secondaryMarketParticipation_MarketObjectStatus.status" type="Status_String"
733 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
734 schema-cim16#MarketObjectStatus.status"/>
735         <xs:element
736 name="capacityMechanism_MarketProduct.marketProductType"
737 type="MarketProductKind_String" minOccurs="0" maxOccurs="1"
738 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
739 cim16#MarketProduct.marketProductType"/>
740         <xs:element name="clearanceNumber_Names.name" type="xs:string"
741 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
742 schema-cim16#Name.name"/>
743         <xs:element name="measurement_Unit.name"
744 type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
745 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
746         <xs:element name="Unit_RegisteredResource"
747 type="Unit_RegisteredResource" minOccurs="0" maxOccurs="unbounded"
748 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
749 cim16#TimeSeries.Unit_RegisteredResource"/>
750         <xs:element name="Eligibility_Period" type="Time_Period"
751 minOccurs="0" maxOccurs="unbounded"
752 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
753 cim16#TimeSeries.Elibility_Period"/>
754         <xs:element name="Period" type="Series_Period" minOccurs="0"
755 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
756 cim16#TimeSeries.Period"/>
757     </xs:sequence>
758 </xs:complexType>
759 <xs:simpleType name="CoordinateSystemKind_String"
760 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
761     <xs:restriction base="ecl:CoordinateSystemTypeList"/>
762 </xs:simpleType>
763 <xs:simpleType name="PsrType_String"
764 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
765     <xs:restriction base="ecl:AssetTypeList"/>
766 </xs:simpleType>
767 <xs:complexType name="Unit_RegisteredResource"
768 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
769 cim16#RegisteredResource">
770     <xs:sequence>
771         <xs:element name="mRID" type="ResourceID_String" minOccurs="1"
772 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
773 cim16#IdentifiedObject.mRID"/>
774         <xs:element name="resourceCapacity.maximumCapacity"
775 type="xs:decimal" minOccurs="0" maxOccurs="1"
776 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
777 cim16#ResourceCapacity.maximumCapacity"/>
778         <xs:element name="resourceCapacity.unitSymbol"
779 type="UnitSymbol" minOccurs="0" maxOccurs="1"
780 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
781 cim16#ResourceCapacity.unitSymbol"/>

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782         <xs:element name="street_Location.name" type="xs:string"
783 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
784 schema-cim16#IdentifiedObject.name"/>
785         <xs:element name="streetNumber_Location.name" type="xs:string"
786 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
787 schema-cim16#IdentifiedObject.name"/>
788         <xs:element name="city_Location.name" type="xs:string"
789 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
790 schema-cim16#IdentifiedObject.name"/>
791         <xs:element name="postalCode_Location.name" type="xs:string"
792 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
793 schema-cim16#IdentifiedObject.name"/>
794         <xs:element name="country_Location.name" type="xs:string"
795 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
796 schema-cim16#IdentifiedObject.name"/>
797         <xs:element name="gPS_Location.gPS_CoordinateSystem.mRID"
798 type="CoordinateSystemKind_String" minOccurs="0" maxOccurs="1"
799 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
800 cim16#IdentifiedObject.mRID"/>
801         <xs:element name="gPS_Location.gPS_PositionPoints.xPosition"
802 type="xs:string" minOccurs="0" maxOccurs="1"
803 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
804 cim16#PositionPoint.xPosition"/>
805         <xs:element name="gPS_Location.gPS_PositionPoints.yPosition"
806 type="xs:string" minOccurs="0" maxOccurs="1"
807 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
808 cim16#PositionPoint.yPosition"/>
809         <xs:element name="gPS_Location.gPS_PositionPoints.zPosition"
810 type="xs:string" minOccurs="0" maxOccurs="1"
811 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
812 cim16#PositionPoint.zPosition"/>
813         <xs:element name="technology_PSRTType.psrType"
814 type="PsrType_String" minOccurs="0" maxOccurs="1"
815 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
816 cim16#MktPSRTType.psrType"/>
817         <xs:element name="Fuel" type="Fuel" minOccurs="0"
818 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
819 cim16#RegisteredResource.Fuel"/>
820         <xs:element name="Measurements" type="Analog" minOccurs="0"
821 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
822 cim16#RegisteredResource.Measurements"/>
823         <xs:element name="MarketEvaluationPoint"
824 type="MarketEvaluationPoint" minOccurs="0" maxOccurs="unbounded"
825 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
826 cim16#RegisteredResource.MarketEvaluationPoint"/>
827     </xs:sequence>
828 </xs:complexType>
829 </xs:schema>
830
```