



European Network of
Transmission System Operators
for Electricity

ACTIVATION DOCUMENT UML MODEL AND SCHEMA

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APPROVED DOCUMENT
VERSION 1.0

2

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Revision History

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

60

61 **1 Objective**

62 The purpose of this document is to provide the contextual and assembly UML models and the
63 schema of the Activation_MarketDocument.

64 The schema of the Activation_MarketDocument could be used in various business processes.

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

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

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

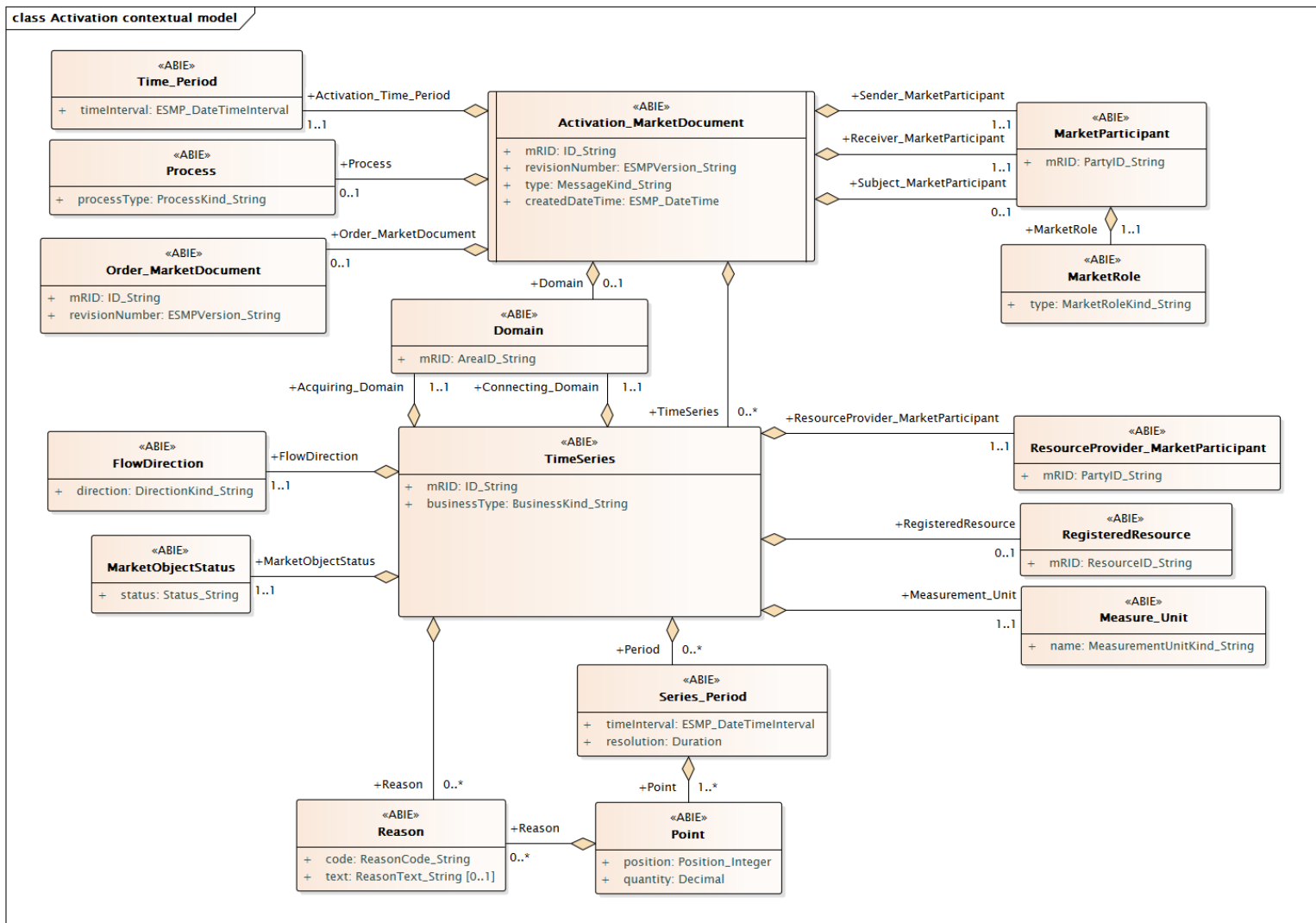
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78 **2 Activation_MarketDocument**

79 **2.1 Activation contextual model**

80 **2.1.1 Overview of the model**

81 Figure 1 shows the model.



82

83

Figure 1 - Activation contextual model

84

85

86 **2.1.2 IsBasedOn relationships from the European style market profile**

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

89

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Activation_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Domain	TC57CIM::IEC62325::MarketManagement::Domain
FlowDirection	TC57CIM::IEC62325::MarketManagement::FlowDirection
MarketObjectStatus	TC57CIM::IEC62325::MarketManagement::MarketObjectStatus
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Order_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
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
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries

90

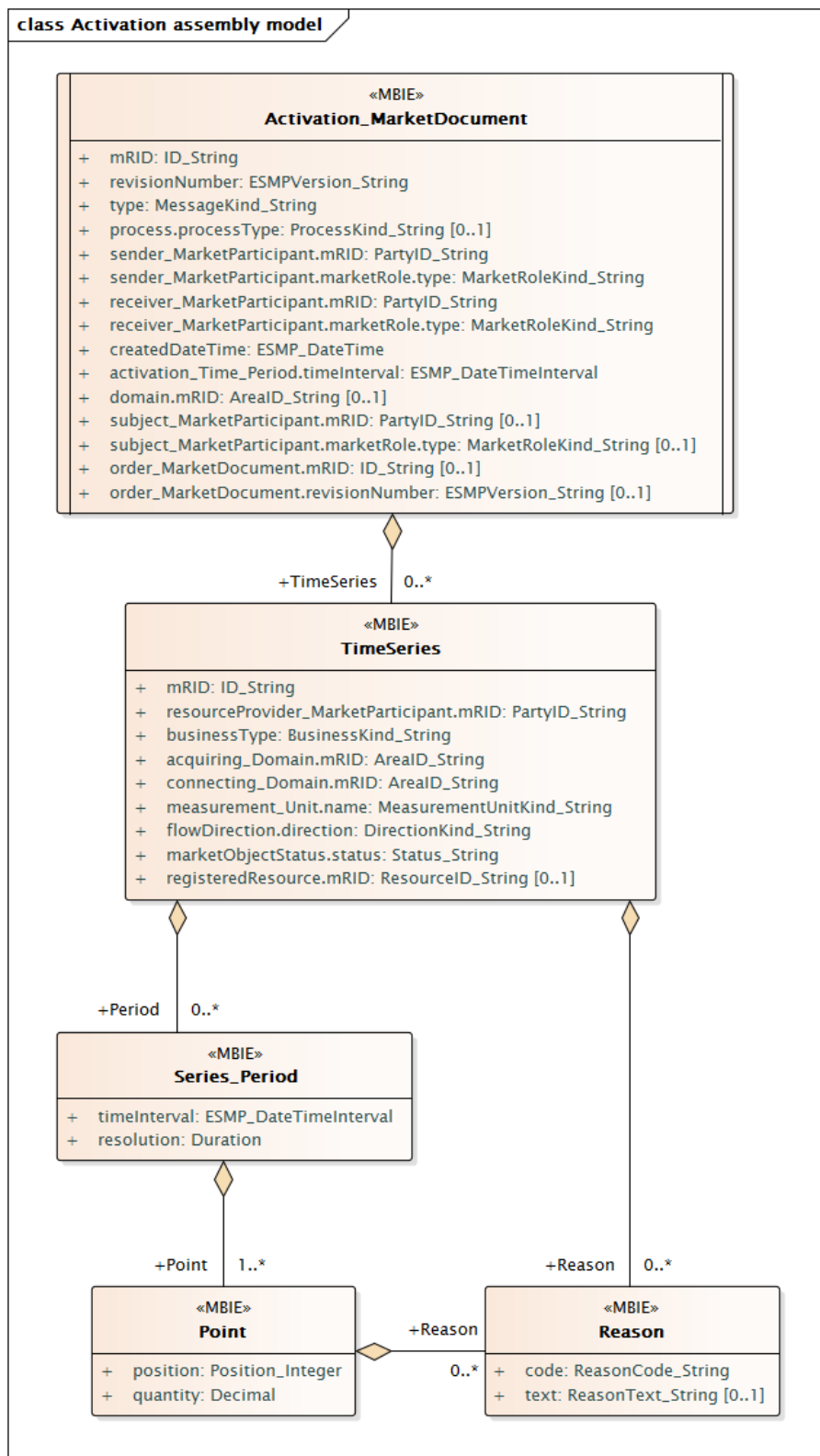
91

92

93 2.2 Activation assembly model

94 2.2.1 Overview of the model

95 Figure 2 shows the model.



96

97

Figure 2 - Activation assembly model

98

99 **2.2.2 IsBasedOn relationships from the European style market profile**

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

102 **Table 2 - IsBasedOn dependency**

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

103

104 **2.2.3 Detailed Activation assembly model**

105 **2.2.3.1 Activation_MarketDocument root class**

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

108 Table 3 shows all attributes of Activation_MarketDocument.

109 **Table 3 - Attributes of Activation assembly model::Activation_MarketDocument**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The unique identification of the document being exchanged within a business process flow.
1	[1..1]	revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
3	[0..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses. --- The process dealt with in the document.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document owner.
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document owner. --- The role associated with a MarketParticipant.
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- Document recipient.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- Document recipient. --- The role associated with a MarketParticipant.
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	activation_Time_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- This information provides the start and end date and time of the activation time interval.

Order	mult.	Attribute name / Attribute type	Description
10	[0..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The identification of the domain that is covered in the document.
11	[0..1]	subject_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market.
12	[0..1]	subject_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- --- The role associated with a MarketParticipant.
13	[0..1]	order_MarketDocument.mRID ID_String	The unique identification of the document being exchanged within a business process flow.
14	[0..1]	order_MarketDocument.revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.

110

111 Table 4 shows all association ends of Activation_MarketDocument with other classes.

112 **Table 4 - Association ends of Activation assembly model::Activation_MarketDocument**
113 **with other classes**

Order	mult.	Class name / Role	Description
15	[0..*]	TimeSeries TimeSeries	The time series that is associated with an electronic document. Association Based On: Activation contextual model::Activation_MarketDocument.[] ----- Activation contextual model::TimeSeries.TimeSeries[0..*]

114

115 2.2.3.2 Point

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

117 Table 5 shows all attributes of Point.

118 **Table 5 - Attributes of Activation 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.

119

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

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

Order	mult.	Class name / Role	Description
2	[0..*]	Reason Reason	At the Point level the reason code is used to identify the nature of a curtailment that has been imposed on the specified quantity. The Reason information associated with a Point providing motivation information. Association Based On: Activation contextual model::Point.[] ----- Activation contextual model::Reason.Reason[0..*]

122

123 **2.2.3.3 Reason**

124 The motivation of an act.

125 Table 7 shows all attributes of Reason.

126

Table 7 - Attributes of Activation 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.

127

128 **2.2.3.4 Series_Period**

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

130 Table 8 shows all attributes of Series_Period.

131

Table 8 - Attributes of Activation assembly model::Series_Period

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

132

133 Table 9 shows all association ends of Series_Period with other classes.

Table 9 - Association ends of Activation assembly model::Series_Period with other classes

135

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: Activation contextual model::Series_Period.[] ----- Activation contextual model::Point.Point[1..*]

136

137 **2.2.3.5 TimeSeries**

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

139 Table 10 shows all attributes of TimeSeries.

140

Table 10 - Attributes of Activation assembly model::TimeSeries

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

Order	mult.	Attribute name / Attribute type	Description
1	[1..1]	resourceProvider_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The identification of the party putting the product into the in area.
2	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
3	[1..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the product is being delivered.
4	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the product is being extracted.
5	[1..1]	measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measurement used for the quantities expressed within the time series.
6	[1..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow.
7	[1..1]	marketObjectStatus.status Status_String	The coded condition or position of an object with regard to its standing.
8	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource. --- The identification of a resource associated with a TimeSeries.

141

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

143 **Table 11 - Association ends of Activation assembly model::TimeSeries with other**
144 **classes**

Order	mult.	Class name / Role	Description
9	[0..*]	Series_Period Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Activation contextual model::TimeSeries.[] ----- Activation contextual model::Series_Period.Period[0..*]
10	[0..*]	Reason Reason	Association Based On: Activation contextual model::TimeSeries.[] ----- Activation contextual model::Reason.Reason[0..*]

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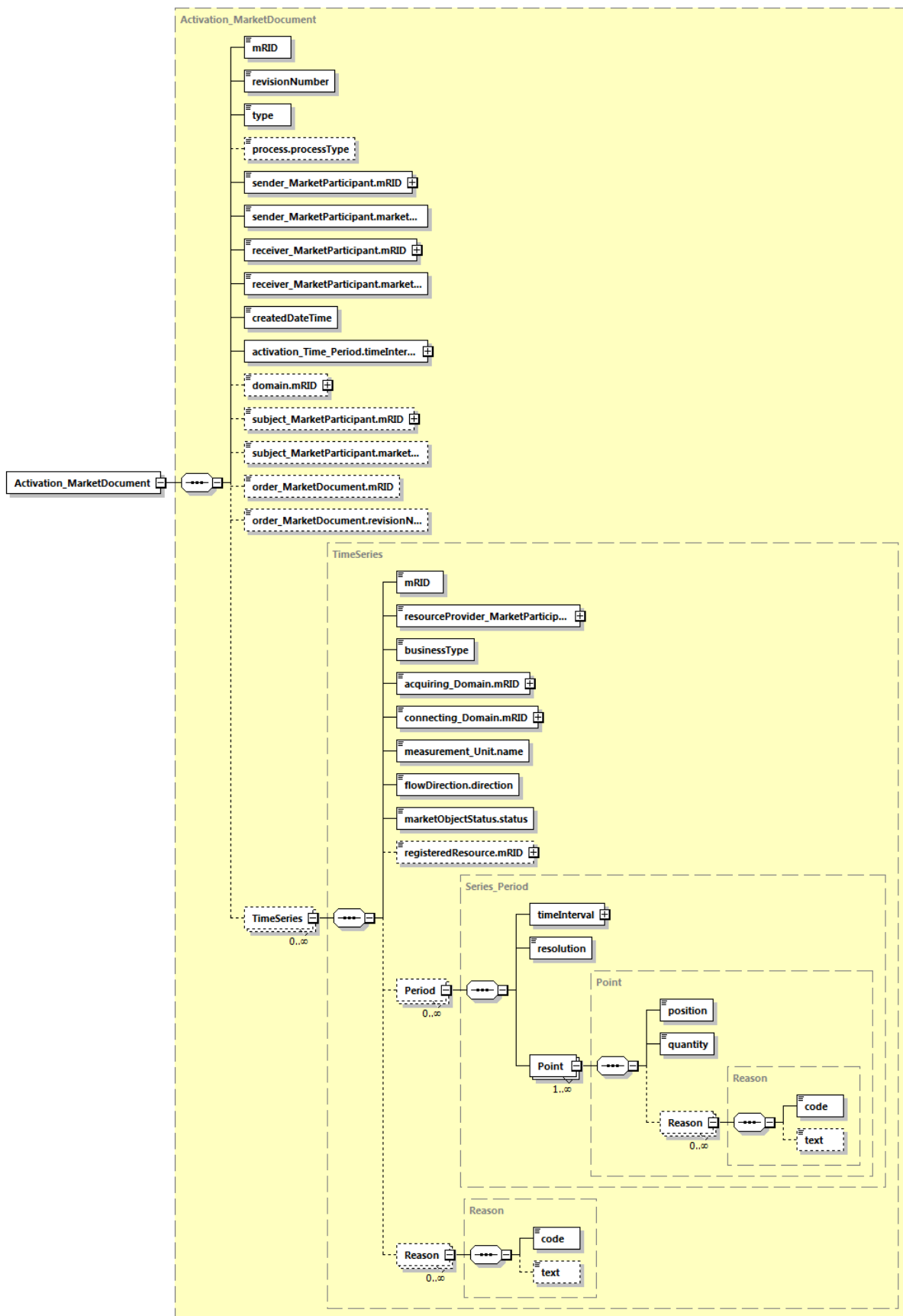
147

148 **2.2.4 Datatypes**

149 The list of datatypes used for the Activation assembly model is as follows:

- 150 • ESMP_DateTimeInterval compound
- 151 • AreaID_String datatype, codelist CodingSchemeTypeList
- 152 • BusinessKind_String datatype, codelist BusinessTypeList
- 153 • DirectionKind_String datatype, codelist DirectionTypeList
- 154 • ESMP_DateTime datatype
- 155 • ESMPVersion_String datatype
- 156 • ID_String datatype
- 157 • MarketRoleKind_String datatype, codelist RoleTypeList
- 158 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 159 • MessageKind_String datatype, codelist MessageTypeList
- 160 • PartyID_String datatype, codelist CodingSchemeTypeList
- 161 • Position_Integer datatype
- 162 • ProcessKind_String datatype, codelist ProcessTypeList
- 163 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 164 • ReasonText_String datatype
- 165 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 166 • Status_String datatype, codelist StatusTypeList
- 167 • YMDHM_DateTime datatype
- 168

169 2.2.5 Activation_MarketDocument XML schema structure



Generated by XMLSpy

www.altova.com

Figure 3 - Activation_MarketDocument schema structure

170
 171

172 2.2.6 Activation_MarketDocument XML schema

173

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

175 urn:iec62325.351:tc57wg16:451-7:activationdocument:6:1

```

176 <?xml version="1.0" encoding="utf-8"?>
177 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists" xmlns="urn:iec62325.351:tc57wg16:451-
178 7:activationdocument:6:1" xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
179 xmlns:cimp="http://www.iec.ch/cimprofile" xmlns:xs="http://www.w3.org/2001/XMLSchema"
180 targetNamespace="urn:iec62325.351:tc57wg16:451-7:activationdocument:6:1" elementFormDefault="qualified"
181 attributeFormDefault="unqualified">
182   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-
183 codelists.xsd"/>
184   <xs:element name="Activation_MarketDocument" type="Activation_MarketDocument"/>
185   <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
186 cim16#String">
187     <xs:restriction base="xs:string">
188       <xs:maxLength value="35"/>
189     </xs:restriction>
190   </xs:simpleType>
191   <xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
192 schema-cim16#String">
193     <xs:restriction base="xs:string">
194       <xs:pattern value="[1-9]([0-9]){0,2}"/>
195     </xs:restriction>
196   </xs:simpleType>
197   <xs:simpleType name="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
198 schema-cim16#String">
199     <xs:restriction base="ecl:MessageTypeList"/>
200   </xs:simpleType>
201   <xs:simpleType name="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
202 schema-cim16#String">
203     <xs:restriction base="ecl:ProcessTypeList"/>
204   </xs:simpleType>
205   <xs:simpleType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
206 schema-cim16#String">
207     <xs:restriction base="xs:string">
208       <xs:maxLength value="16"/>
209     </xs:restriction>
210   </xs:simpleType>
211   <xs:complexType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
212 schema-cim16#String">
213     <xs:simpleContent>
214       <xs:extension base="PartyID_String-base">
215         <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
216 use="required"/>
217       </xs:extension>
218     </xs:simpleContent>
219   </xs:complexType>
220   <xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
221 schema-cim16#String">
222     <xs:restriction base="ecl:RoleTypeList"/>
223   </xs:simpleType>
224   <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
225 cim16#DateTime">
226     <xs:restriction base="xs:dateTime">
227       <xs:pattern value="((([0-9]{4})[\-]([013578]|1[02]))[\-]([01-9])|[12][0-
228 9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-]([01-9]|12)[0-9]|30)T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-
229 5][0-
230 9])Z|(((13579)[26][02468][048]|13579)[01345789](0)[48]|13579)[01345789][2468][048]|02468][048][0246
231 8][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[\-]([02])[\-]([01-
232 9]|1[0-9]|2[0-9])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
233 9])Z|(((13579)[26][02468][1235679]|13579)[01345789](0)[01235679]|13579)[01345789][2468][1235679]|02
234 468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
235 9][13579][01345789])[\-]([02])[\-]([01-9]|1[0-9]|2[0-8])T((01)[0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z"/>
236     </xs:restriction>
237   </xs:simpleType>
238   <xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
239 schema-cim16#String">
240     <xs:restriction base="xs:string">
241       <xs:maxLength value="18"/>
242     </xs:restriction>

```



```

243         </xs:simpleType>
244         <xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
245 cim16#String">
246             <xs:simpleContent>
247                 <xs:extension base="AreaID_String-base">
248                     <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
249 use="required"/>
250                 </xs:extension>
251             </xs:simpleContent>
252         </xs:complexType>
253         <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
254 cim16#DateTime">
255             <xs:restriction base="xs:string">
256                 <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
257 9]|[3][01])|([0-9]{4})[\-](0[469])|(11))[\-](0[1-9]|12)[0-9]|30))T((([01][0-9]|2[0-3]):[0-5][0-
258 9])[048]|([02468][1235679])(0)[48]|([13579][01345789])(0)[48]|([13579][01345789][2468][048]|([02468][048][0246
259 8][048]|([02468][1235679])(0)[48]|([02468][1235679][2468][048]|([0-9][0-9][13579][26])[\-](02)[\-](0[1-
260 9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-5][0-
261 9])Z)|((([13579][26][02468][1235679]|([13579][01345789])(0)[01235679]|([13579][01345789][2468][1235679]|([02
262 468][048][02468][1235679]|([02468][1235679])(0)[01235679]|([02468][1235679][2468][1235679]|([0-9][0-
263 9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-9]|2[0-8])T((([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
264             </xs:restriction>
265         </xs:simpleType>
266         <xs:complexType name="ESMP_DateTimeInterval"
267 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
268             <xs:sequence>
269                 <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start"/>
271                 <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
272 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end"/>
273             </xs:sequence>
274         </xs:complexType>
275         <xs:complexType name="Activation_MarketDocument"
276 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
277             <xs:sequence>
278                 <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
279 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
280                 <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1"
281 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
282 cim16#Document.revisionNumber"/>
283                 <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1"
284 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
285                 <xs:element name="process.processType" type="ProcessKind_String" minOccurs="0"
286 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Process.processType"/>
287                 <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String"
288 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
289 cim16#IdentifiedObject.mRID"/>
290                 <xs:element name="sender_MarketParticipant.marketRole.type"
291 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
292 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
293                 <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String"
294 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
295 cim16#IdentifiedObject.mRID"/>
296                 <xs:element name="receiver_MarketParticipant.marketRole.type"
297 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
298 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
299                 <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1"
300 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
301 cim16#Document.createdDateTime"/>
302                 <xs:element name="activation_Time_Period.timeInterval"
303 type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
304 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
305                 <xs:element name="domain.mRID" type="AreaID_String" minOccurs="0"
306 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
307                 <xs:element name="subject_MarketParticipant.mRID" type="PartyID_String"
308 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
309 cim16#IdentifiedObject.mRID"/>
310                 <xs:element name="subject_MarketParticipant.marketRole.type"
311 type="MarketRoleKind_String" minOccurs="0" maxOccurs="1"
312 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
313                 <xs:element name="order_MarketDocument.mRID" type="ID_String" minOccurs="0"
314 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
315                 <xs:element name="order_MarketDocument.revisionNumber"
316 type="ESMPVersion_String" minOccurs="0" maxOccurs="1"
317 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.revisionNumber"/>

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318         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
319 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
320 cim16#MarketDocument.TimeSeries"/>
321     </xs:sequence>
322 </xs:complexType>
323 <xs:simpleType name="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
324 schema-cim16#Integer">
325     <xs:restriction base="xs:integer">
326         <xs:maxInclusive value="999999"/>
327         <xs:minInclusive value="1"/>
328     </xs:restriction>
329 </xs:simpleType>
330 <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
331 cim16#Point">
332     <xs:sequence>
333         <xs:element name="position" type="Position_Integer" minOccurs="1"
334 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
335         <xs:element name="quantity" type="xs:decimal" minOccurs="1" maxOccurs="1"
336 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
337         <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
338 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.Reason"/>
339     </xs:sequence>
340 </xs:complexType>
341 <xs:simpleType name="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
342 schema-cim16#String">
343     <xs:restriction base="ecl:ReasonCodeTypeList"/>
344 </xs:simpleType>
345 <xs:simpleType name="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
346 schema-cim16#String">
347     <xs:restriction base="xs:string">
348         <xs:maxLength value="512"/>
349     </xs:restriction>
350 </xs:simpleType>
351 <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
352 cim16#Reason">
353     <xs:sequence>
354         <xs:element name="code" type="ReasonCode_String" minOccurs="1" maxOccurs="1"
355 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
356         <xs:element name="text" type="ReasonText_String" minOccurs="0" maxOccurs="1"
357 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
358     </xs:sequence>
359 </xs:complexType>
360 <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
361 cim16#Period">
362     <xs:sequence>
363         <xs:element name="timeInterval" type="ESMP_DateTimeInterval" minOccurs="1"
364 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
365         <xs:element name="resolution" type="xs:duration" minOccurs="1" maxOccurs="1"
366 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution"/>
367         <xs:element name="Point" type="Point" minOccurs="1" maxOccurs="unbounded"
368 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
369     </xs:sequence>
370 </xs:complexType>
371 <xs:simpleType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
372 schema-cim16#String">
373     <xs:restriction base="ecl:BusinessTypeList"/>
374 </xs:simpleType>
375 <xs:simpleType name="MeasurementUnitKind_String"
376 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
377     <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
378 </xs:simpleType>
379 <xs:simpleType name="DirectionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
380 schema-cim16#String">
381     <xs:restriction base="ecl:DirectionTypeList"/>
382 </xs:simpleType>
383 <xs:simpleType name="Status_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
384 cim16#String">
385     <xs:restriction base="ecl:StatusTypeList"/>
386 </xs:simpleType>
387 <xs:simpleType name="ResourceID_String-base"
388 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
389     <xs:restriction base="xs:string">
390         <xs:maxLength value="60"/>
391     </xs:restriction>
392 </xs:simpleType>

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393     <xs:complexType name="ResourceID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
394 schema-cim16#String">
395         <xs:simpleContent>
396             <xs:extension base="ResourceID_String-base">
397                 <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList"
398 use="required"/>
399             </xs:extension>
400         </xs:simpleContent>
401     </xs:complexType>
402     <xs:complexType name="TimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
403 cim16#TimeSeries">
404         <xs:sequence>
405             <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
406 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
407             <xs:element name="resourceProvider_MarketParticipant.mRID"
408 type="PartyID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
409 schema-cim16#IdentifiedObject.mRID"/>
410             <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
411 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
412 cim16#TimeSeries.businessType"/>
413             <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="1"
414 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
415             <xs:element name="connecting_Domain.mRID" type="AreaID_String" minOccurs="1"
416 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
417             <xs:element name="measurement_Unit.name" type="MeasurementUnitKind_String"
418 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
419 cim16#Unit.name"/>
420             <xs:element name="flowDirection.direction" type="DirectionKind_String"
421 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
422 cim16#FlowDirection.direction"/>
423             <xs:element name="marketObjectStatus.status" type="Status_String"
424 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
425 cim16#MarketObjectStatus.status"/>
426             <xs:element name="registeredResource.mRID" type="ResourceID_String"
427 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
428 cim16#IdentifiedObject.mRID"/>
429             <xs:element name="Period" type="Series_Period" minOccurs="0"
430 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
431 cim16#TimeSeries.Period"/>
432             <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
433 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.Reason"/>
434         </xs:sequence>
435     </xs:complexType>
436 </xs:schema>

```