



European Network of
Transmission System Operators
for Electricity

**HISTORICAL ACTIVATION
DOCUMENT
UML MODEL AND SCHEMA**

2019-02-12
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.

62

63 1 Objective

64 The purpose of this document is to provide the contextual and assembly UML models and the
65 schema of the HistoricalActivation_MarketDocument.

66 The schema of the HistoricalActivation_MarketDocument could be used in various business
67 processes.

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

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

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

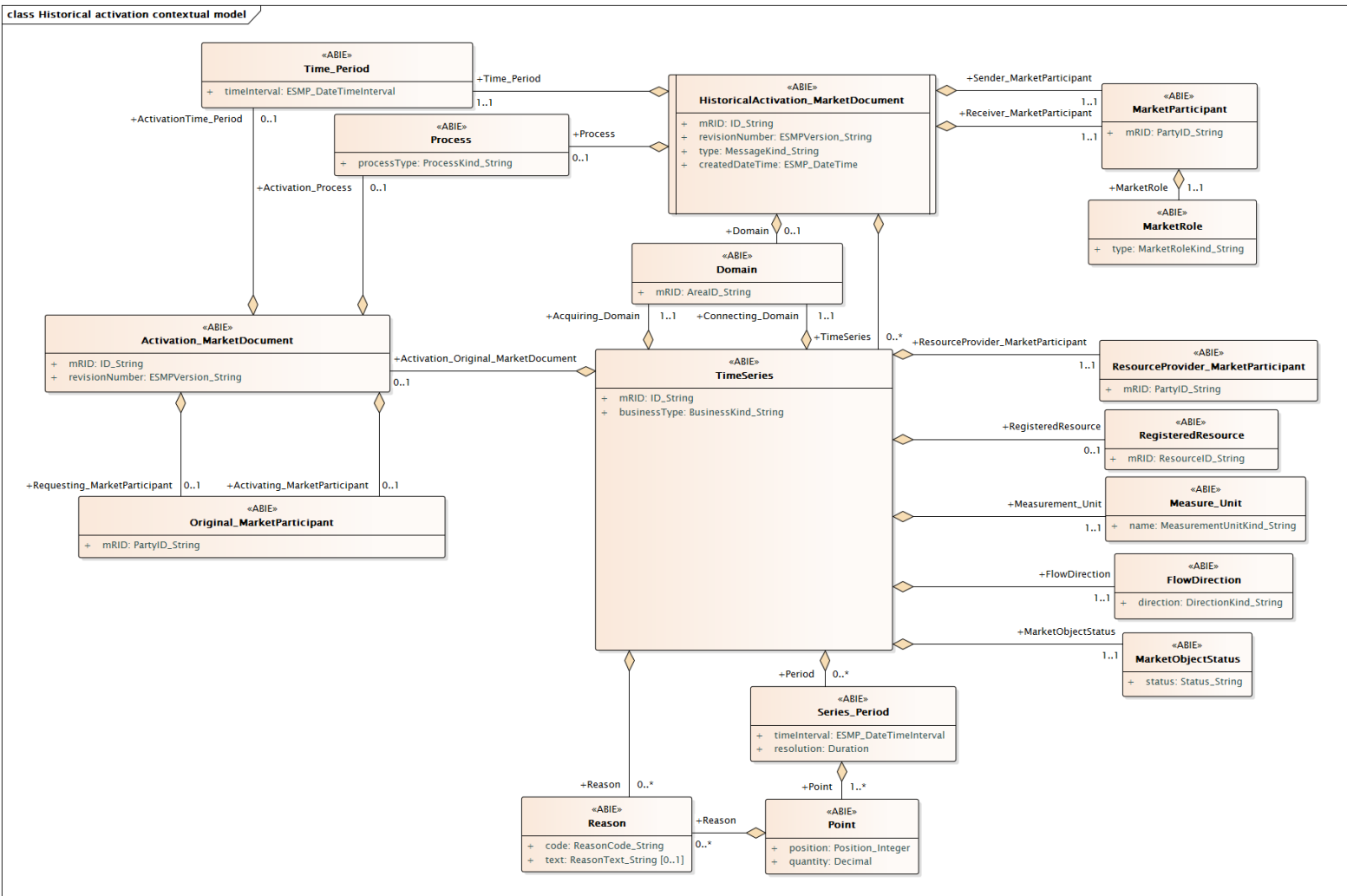
80

81 **2 HistoricalActivation_MarketDocument**

82 **2.1 Historical activation contextual model**

83 **2.1.1 Overview of the model**

84 Figure 1 shows the model.



85

86 **Figure 1 - Historical activation contextual model**

87

88

89 **2.1.2 IsBasedOn relationships from the European style market profile**

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

92

Table 1 - IsBasedOn dependency

Name	Complete IsBasedOn Path
Activation_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
Domain	TC57CIM::IEC62325::MarketManagement::Domain
FlowDirection	TC57CIM::IEC62325::MarketManagement::FlowDirection
HistoricalActivation_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument
MarketObjectStatus	TC57CIM::IEC62325::MarketManagement::MarketObjectStatus
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Original_MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
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

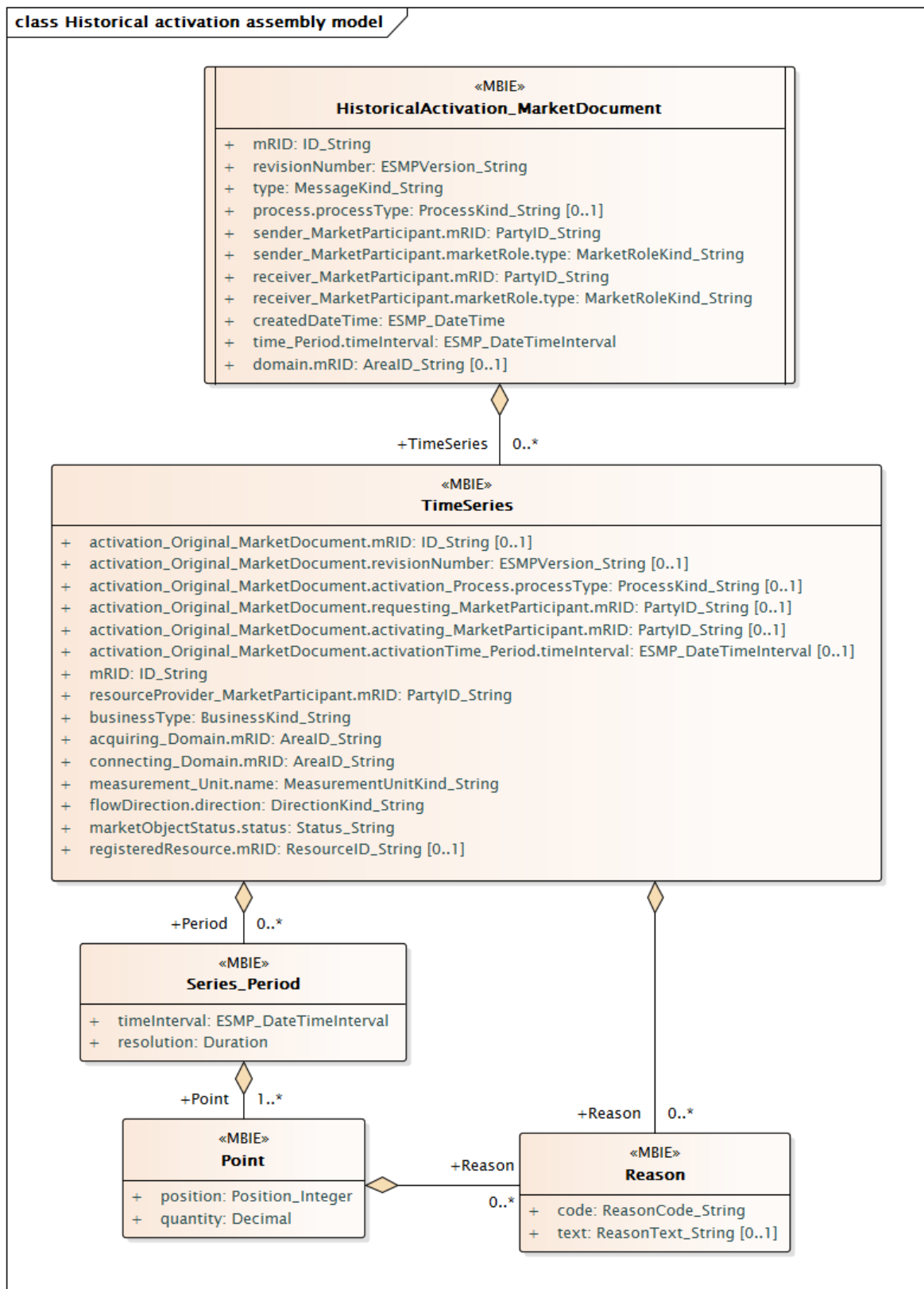
93

94

95 2.2 Historical activation assembly model

96 2.2.1 Overview of the model

97 Figure 2 shows the model.



98

99

Figure 2 - Historical activation assembly model

100

101 **2.2.2 IsBasedOn relationships from the European style market profile**

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

104

Table 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
HistoricalActivation_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

105

106 **2.2.3 Detailed Historical activation assembly model**

107 **2.2.3.1 HistoricalActivation_MarketDocument root class**

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

110 Table 3 shows all attributes of HistoricalActivation_MarketDocument.

111

Table 3 - Attributes of Historical activation assembly model::HistoricalActivation_MarketDocument

112

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]	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.

113

114 Table 4 shows all association ends of HistoricalActivation_MarketDocument with other classes.

115 **Table 4 - Association ends of Historical activation assembly**
116 **model::HistoricalActivation_MarketDocument with other classes**

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

117

118 2.2.3.2 Point

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

120 Table 5 shows all attributes of Point.

121 **Table 5 - Attributes of Historical 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.

122

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

124 **Table 6 - Association ends of Historical activation assembly model::Point with other**
125 **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: Historical activation contextual model::Point.[] ----- Historical activation contextual model::Reason.Reason[0..*]

126

127 2.2.3.3 Reason

128 The motivation of an act.

129 Table 7 shows all attributes of Reason.

130

Table 7 - Attributes of Historical 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.

131

132 2.2.3.4 Series_Period

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

134 Table 8 shows all attributes of Series_Period.

135

Table 8 - Attributes of Historical 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.

136

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

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

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

140

141 2.2.3.5 TimeSeries

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

143 Table 10 shows all attributes of TimeSeries.

144

Table 10 - Attributes of Historical activation assembly model::TimeSeries

Order	mult.	Attribute name / Attribute type	Description
0	[0..1]	activation_Original_MarketDocument.mRID ID_String	The unique identification of the document being exchanged within a business process flow.
1	[0..1]	activation_Original_MarketDocument.revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[0..1]	activation_Original_MarketDocument.activation_Process.processType ProcessKind_String	The identification of the nature of process that the document addresses.

Order	mult.	Attribute name / Attribute type	Description
3	[0..1]	activation_Original_MarketDocument.requesting_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market.
4	[0..1]	activation_Original_MarketDocument.activating_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market.
5	[0..1]	activation_Original_MarketDocument.activationTime_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval.
6	[1..1]	mRID ID_String	A unique identification of the time series.
7	[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.
8	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
9	[1..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the product is being delivered.
10	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the product is being extracted.
11	[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.
12	[1..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow.
13	[1..1]	marketObjectStatus.status Status_String	The coded condition or position of an object with regard to its standing.
14	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource.

145

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

147 **Table 11 - Association ends of Historical activation assembly model::TimeSeries with**
148 **other classes**

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

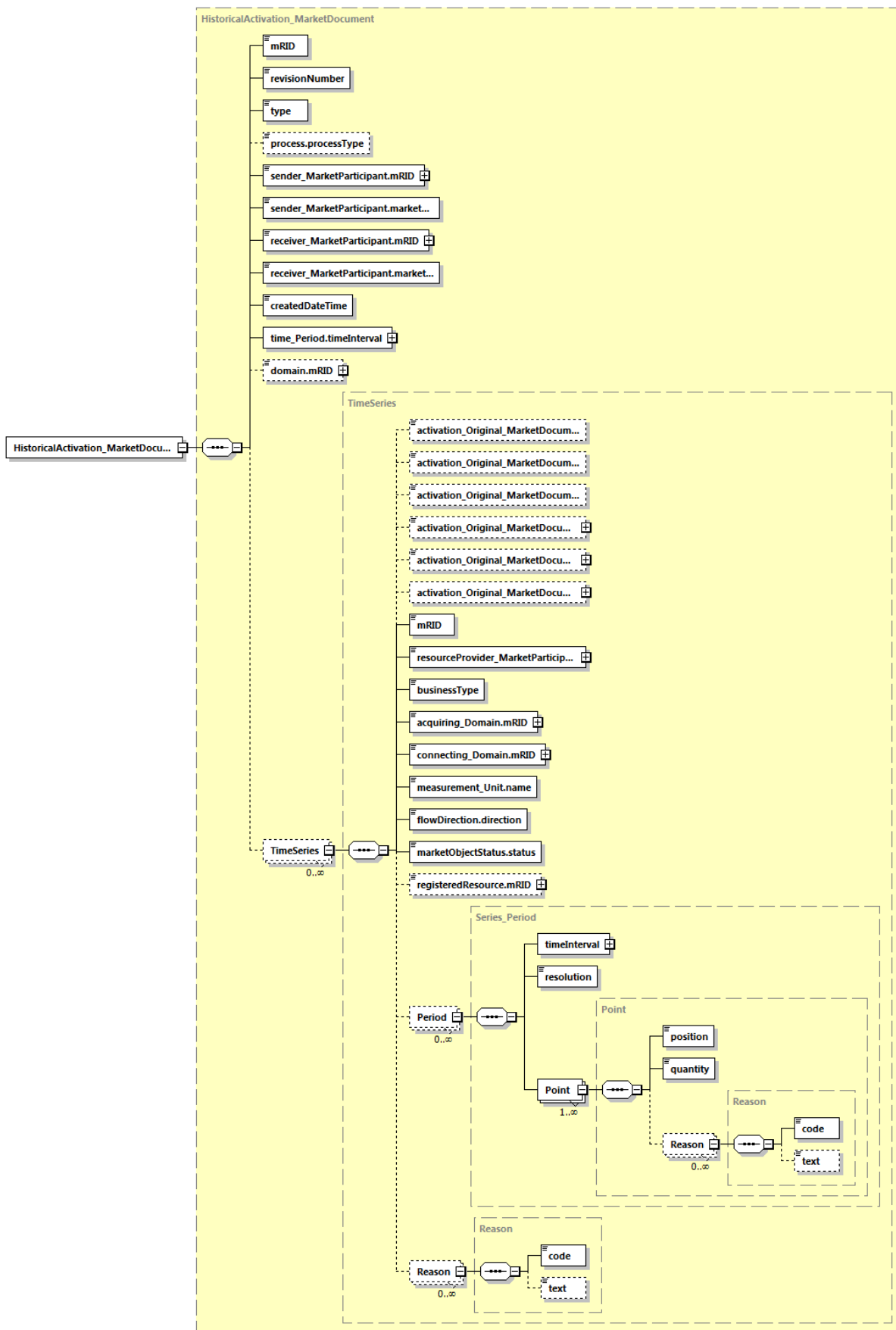
149

150 **2.2.4 Datatypes**

151 The list of datatypes used for the Historical activation assembly model is as follows:

- 152 • ESMP_DateTimeInterval compound
- 153 • AreaID_String datatype, codelist CodingSchemeTypeList
- 154 • BusinessKind_String datatype, codelist BusinessTypeList
- 155 • DirectionKind_String datatype, codelist DirectionTypeList
- 156 • ESMP_DateTime datatype
- 157 • ESMPVersion_String datatype
- 158 • ID_String datatype
- 159 • MarketRoleKind_String datatype, codelist RoleTypeList
- 160 • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- 161 • MessageKind_String datatype, codelist MessageTypeList
- 162 • PartyID_String datatype, codelist CodingSchemeTypeList
- 163 • Position_Integer datatype
- 164 • ProcessKind_String datatype, codelist ProcessTypeList
- 165 • ReasonCode_String datatype, codelist ReasonCodeTypeList
- 166 • ReasonText_String datatype
- 167 • ResourceID_String datatype, codelist CodingSchemeTypeList
- 168 • Status_String datatype, codelist StatusTypeList
- 169 • YMDHM_DateTime datatype
- 170

171 2.2.5 HistoricalActivation_MarketDocument XML schema structure



Generated by XMLSpy www.altova.com

Figure 3 - HistoricalActivation_MarketDocument schema structure

174 **2.2.6 HistoricalActivation_MarketDocument XML schema**

175

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

177 urn:iec62325.351:tc57wg16:451-7:historicalactivationdocument:6:0

```

178 <?xml version="1.0" encoding="utf-8"?>
179 <xs:schema xmlns:cl="urn:entsoe.eu:wgedi:codelists" xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
180 xmlns="urn:iec62325.351:tc57wg16:451-7:historicalactivationdocument:6:0"
181 xmlns:cimp="http://www.iec.ch/cimprofile" xmlns:xs="http://www.w3.org/2001/XMLSchema"
182 targetNamespace="urn:iec62325.351:tc57wg16:451-7:historicalactivationdocument:6:0"
183 elementFormDefault="qualified" attributeFormDefault="unqualified">
184   <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-
185 codelists.xsd"/>
186   <xs:element name="HistoricalActivation_MarketDocument"
187 type="HistoricalActivation_MarketDocument"/>
188   <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
189 cim16#String">
190     <xs:restriction base="xs:string">
191       <xs:maxLength value="35"/>
192     </xs:restriction>
193   </xs:simpleType>
194   <xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
195 schema-cim16#String">
196     <xs:restriction base="xs:string">
197       <xs:pattern value="[1-9]([0-9]){0,2}"/>
198     </xs:restriction>
199   </xs:simpleType>
200   <xs:simpleType name="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
201 schema-cim16#String">
202     <xs:restriction base="cl:MessageTypeList"/>
203   </xs:simpleType>
204   <xs:simpleType name="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
205 schema-cim16#String">
206     <xs:restriction base="cl:ProcessTypeList"/>
207   </xs:simpleType>
208   <xs:simpleType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
209 schema-cim16#String">
210     <xs:restriction base="xs:string">
211       <xs:maxLength value="16"/>
212     </xs:restriction>
213   </xs:simpleType>
214   <xs:complexType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
215 schema-cim16#String">
216     <xs:simpleContent>
217       <xs:extension base="PartyID_String-base">
218         <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
219 use="required"/>
220       </xs:extension>
221     </xs:simpleContent>
222   </xs:complexType>
223   <xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
224 schema-cim16#String">
225     <xs:restriction base="cl:RoleTypeList"/>
226   </xs:simpleType>
227   <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
228 cim16#DateTime">
229     <xs:restriction base="xs:dateTime">
230       <xs:pattern value="((([0-9]{4})[\-]([013578]|1[02])[\-]([01-9]|1[12][0-
231 9]|3[01])|([0-9]{4})[\-]([0469])|(11))[\-]([01-9]|1[12][0-9]|30))T((([01][0-9]|2[0-3]):[0-5][0-9]:[0-
232 5][0-9])Z|(((13579)[26][02468][048]|13579][01345789](0)[48]|13579][01345789][2468][048]|02468][048][0246
233 8][048]|02468][1235679](0)[48]|02468][1235679][2468][048]|0-9][0-9][13579][26])[\-]([02])[\-]([01-
234 9]|1[0-9]|2[0-9])T((([01][0-9]|2[0-3]):[0-5][0-9]):[0-5][0-9])Z|(((13579)[26][02468][1235679]|13579][01345789](0)[01235679]|13579][01345789][2468][1235679]|02
235 468][048][02468][1235679]|02468][1235679](0)[01235679]|02468][1235679][2468][1235679]|0-9][0-
236 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)"/>
237     </xs:restriction>
238   </xs:simpleType>
239   <xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
240 schema-cim16#String">
241     <xs:restriction base="xs:string">
242       <xs:maxLength value="18"/>
243     </xs:restriction>
244   </xs:simpleType>

```



```

245         </xs:restriction>
246     </xs:simpleType>
247     <xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
248 cim16#String">
249         <xs:simpleContent>
250             <xs:extension base="AreaID_String-base">
251                 <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
252 use="required"/>
253             </xs:extension>
254         </xs:simpleContent>
255     </xs:complexType>
256     <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
257 cim16#DateTime">
258         <xs:restriction base="xs:string">
259             <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-9]|[12][0-
260 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-
261 9])Z)|((13579)[26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][048]|[02468][048][0246
262 8][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[0-9][0-9][13579][26])[\-](02)[\-](0[1-
263 9]|1[0-9]|2[0-9])T((01[0-9]|2[0-3]):[0-5][0-
264 9])Z)|((13579)[26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][01345789][2468][1235679]|[02
265 468][048][02468][1235679]|[02468][1235679](0)[01235679]|[02468][1235679][2468][1235679]|[0-9][0-
266 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)"/>
267         </xs:restriction>
268     </xs:simpleType>
269     <xs:complexType name="ESMP_DateTimeInterval"
270 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
271         <xs:sequence>
272             <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
273 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start"/>
274             <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1"
275 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end"/>
276         </xs:sequence>
277     </xs:complexType>
278     <xs:complexType name="HistoricalActivation_MarketDocument"
279 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
280         <xs:sequence>
281             <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
282 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
283             <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1"
284 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
285 cim16#Document.revisionNumber"/>
286             <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1"
287 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
288             <xs:element name="process.processType" type="ProcessKind_String" minOccurs="0"
289 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Process.processType"/>
290             <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String"
291 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
292 cim16#IdentifiedObject.mRID"/>
293             <xs:element name="sender_MarketParticipant.marketRole.type"
294 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
295 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
296             <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String"
297 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
298 cim16#IdentifiedObject.mRID"/>
299             <xs:element name="receiver_MarketParticipant.marketRole.type"
300 type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
301 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
302             <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1"
303 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
304 cim16#Document.createdDateTime"/>
305             <xs:element name="time_Period.timeInterval" type="ESMP_DateTimeInterval"
306 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
307 cim16#Period.timeInterval"/>
308             <xs:element name="domain.mRID" type="AreaID_String" minOccurs="0"
309 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
310             <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
311 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
312 cim16#MarketDocument.TimeSeries"/>
313         </xs:sequence>
314     </xs:complexType>
315     <xs:simpleType name="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
316 schema-cim16#Integer">
317         <xs:restriction base="xs:integer">
318             <xs:maxInclusive value="999999"/>
319             <xs:minInclusive value="1"/>

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320         </xs:restriction>
321     </xs:simpleType>
322     <xs:complexType name="Point" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
323 cim16#Point">
324         <xs:sequence>
325             <xs:element name="position" type="Position_Integer" minOccurs="1"
326 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
327             <xs:element name="quantity" type="xs:decimal" minOccurs="1" maxOccurs="1"
328 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
329             <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
330 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.Reason"/>
331         </xs:sequence>
332     </xs:complexType>
333     <xs:simpleType name="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
334 schema-cim16#String">
335         <xs:restriction base="cl:ReasonCodeTypeList"/>
336     </xs:simpleType>
337     <xs:simpleType name="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
338 schema-cim16#String">
339         <xs:restriction base="xs:string">
340             <xs:maxLength value="512"/>
341         </xs:restriction>
342     </xs:simpleType>
343     <xs:complexType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
344 cim16#Reason">
345         <xs:sequence>
346             <xs:element name="code" type="ReasonCode_String" minOccurs="1" maxOccurs="1"
347 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
348             <xs:element name="text" type="ReasonText_String" minOccurs="0" maxOccurs="1"
349 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
350         </xs:sequence>
351     </xs:complexType>
352     <xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
353 cim16#Period">
354         <xs:sequence>
355             <xs:element name="timeInterval" type="ESMP_DateTimeInterval" minOccurs="1"
356 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
357             <xs:element name="resolution" type="xs:duration" minOccurs="1" maxOccurs="1"
358 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.resolution"/>
359             <xs:element name="Point" type="Point" minOccurs="1" maxOccurs="unbounded"
360 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
361         </xs:sequence>
362     </xs:complexType>
363     <xs:simpleType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
364 schema-cim16#String">
365         <xs:restriction base="cl:BusinessTypeList"/>
366     </xs:simpleType>
367     <xs:simpleType name="MeasurementUnitKind_String"
368 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
369         <xs:restriction base="cl:UnitOfMeasureTypeList"/>
370     </xs:simpleType>
371     <xs:simpleType name="DirectionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
372 schema-cim16#String">
373         <xs:restriction base="cl:DirectionTypeList"/>
374     </xs:simpleType>
375     <xs:simpleType name="Status_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
376 cim16#String">
377         <xs:restriction base="cl:StatusTypeList"/>
378     </xs:simpleType>
379     <xs:simpleType name="ResourceID_String-base"
380 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
381         <xs:restriction base="xs:string">
382             <xs:maxLength value="18"/>
383         </xs:restriction>
384     </xs:simpleType>
385     <xs:complexType name="ResourceID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
386 schema-cim16#String">
387         <xs:simpleContent>
388             <xs:extension base="ResourceID_String-base">
389                 <xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList"
390 use="required"/>
391             </xs:extension>
392         </xs:simpleContent>
393     </xs:complexType>

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394         <xs:complexType name="TimeSeries" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
395 cim16#TimeSeries">
396             <xs:sequence>
397                 <xs:element name="activation_Original_MarketDocument.mRID" type="ID_String"
398 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
399 cim16#IdentifiedObject.mRID"/>
400                 <xs:element name="activation_Original_MarketDocument.revisionNumber"
401 type="ESMPVersion_String" minOccurs="0" maxOccurs="1"
402 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.revisionNumber"/>
403                 <xs:element
404 name="activation_Original_MarketDocument.activation_Process.processType" type="ProcessKind_String"
405 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
406 cim16#Process.processType"/>
407                 <xs:element
408 name="activation_Original_MarketDocument.requesting_MarketParticipant.mRID" type="PartyID_String"
409 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
410 cim16#IdentifiedObject.mRID"/>
411                 <xs:element
412 name="activation_Original_MarketDocument.activating_MarketParticipant.mRID" type="PartyID_String"
413 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
414 cim16#IdentifiedObject.mRID"/>
415                 <xs:element
416 name="activation_Original_MarketDocument.activationTime_Period.timeInterval"
417 type="ESMP_DateTimeInterval" minOccurs="0" maxOccurs="1"
418 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
419                 <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"
420 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
421                 <xs:element name="resourceProvider_MarketParticipant.mRID"
422 type="PartyID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
423 schema-cim16#IdentifiedObject.mRID"/>
424                 <xs:element name="businessType" type="BusinessKind_String" minOccurs="1"
425 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
426 cim16#TimeSeries.businessType"/>
427                 <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="1"
428 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
429                 <xs:element name="connecting_Domain.mRID" type="AreaID_String" minOccurs="1"
430 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
431                 <xs:element name="measurement_Unit.name" type="MeasurementUnitKind_String"
432 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
433 cim16#Unit.name"/>
434                 <xs:element name="flowDirection.direction" type="DirectionKind_String"
435 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
436 cim16#FlowDirection.direction"/>
437                 <xs:element name="marketObjectStatus.status" type="Status_String"
438 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
439 cim16#MarketObjectStatus.status"/>
440                 <xs:element name="registeredResource.mRID" type="ResourceID_String"
441 minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
442 cim16#IdentifiedObject.mRID"/>
443                 <xs:element name="Period" type="Series_Period" minOccurs="0"
444 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
445 cim16#TimeSeries.Period"/>
446                 <xs:element name="Reason" type="Reason" minOccurs="0" maxOccurs="unbounded"
447 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.Reason"/>
448             </xs:sequence>
449         </xs:complexType>
450 </xs:schema>
    
```