RESERVE BID DOCUMENT
UML MODEL AND SCHEMA

2024-01-17
AGREED DOCUMENT
VERSION 1.5
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This document is maintained by the ENTSO-E CIM WG. Comments or remarks are to be provided at cim@entso.eu
## Revision History

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<tr>
<th>Version</th>
<th>Release</th>
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<th>Comments</th>
</tr>
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<td>2016-12-02</td>
<td>First drafting of the document.</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>2018-01-10</td>
<td>First drafting of the document. XSD: V7.1: difference with V7.0: Added optional attribute MarketProduct Added optional attribute ValidityPeriod</td>
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<tr>
<td>1</td>
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<td>2018-03-08</td>
<td>XSD: V7.1 Added two new relations between MarketProduct and BidTimeSeries Version approved by MC</td>
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<tr>
<td>1</td>
<td>2</td>
<td>2020-12-15</td>
<td>XSD: V7.2 Added new class called Linked_BidTimeSeries associated with existing BidTimeSeries with cardinality 0..* New ProcuredFor_MarketParticipant and SharedWith_MarketParticipant attributes are added to BidTimeSeries with cardinality 0..1 Available MBA_Domain changed to AvailableBiddingZone_domain Approved by MC</td>
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<tr>
<td>1</td>
<td>3</td>
<td>2022-02-01</td>
<td>XSD: 7.3 Quantity_Measure_Unit.name &amp; Price_Measure_Unit.name &amp; EnergyPrice_Measure_Unit.name attributes were renamed to Quantity_Measurement_Unit.name &amp; Price_Measurement_Unit.name &amp; EnergyPrice_Measurement_Unit.name to be compliant with the ESMP Approved by MC</td>
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<tr>
<td>1</td>
<td>4</td>
<td>2022-10-18</td>
<td>XSD: 7.4 • New optional mktPSRType.psrType and inclusiveBidsIdentification attributes added at BidTimeSeries Agreed by CIM EG</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>2024-01-17</td>
<td>XSD 7.5 New optional quality attribute added at Point class Agreed by CIM WG</td>
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ENTSO-E Reserve Bid document – UML model and schema

European Network of Transmission System Operators for Electricity
1. Objective

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

The schema of the ReserveBid_MarketDocument could be used in various business processes. It is not the purpose of this document to describe all the use cases, sequence diagrams, business processes, etc. for which this schema is to be used.

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

- Description of the business process;
- Use case of the business process;
- Sequence diagrams of the business process;
- List of the schema (XSD) to be used in the business process and versions of the schema;
- For each schema, dependency tables providing the necessary information for the generation of the XML instances, i.e. when the optional attributes are to be used, which codes from which ENTSO-E codelist are to be used.
2. Reserve bid model

2.1 Reserve bid contextual model

2.1.1 Overview of the model

Figure 1 shows the model.

2.1.2 IsBasedOn relationships from the European style market profile

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Complete IsBasedOn Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auction</td>
<td>TC57CIM::Market::MarketManagement::Auction</td>
</tr>
<tr>
<td>BiddingZone_Domain</td>
<td>TC57CIM::Market::MarketManagement::Domain</td>
</tr>
<tr>
<td>BidTimeSeries</td>
<td>TC57CIM::Market::MarketManagement::BidTimeSeries</td>
</tr>
<tr>
<td>ConstraintDuration</td>
<td>TC57CIM::Market::MarketManagement::ConstraintDuration</td>
</tr>
<tr>
<td>Currency_Unit</td>
<td>TC57CIM::Market::MarketManagement::Unit</td>
</tr>
<tr>
<td>Domain</td>
<td>TC57CIM::Market::MarketManagement::Domain</td>
</tr>
<tr>
<td>FlowDirection</td>
<td>TC57CIM::Market::MarketManagement::FlowDirection</td>
</tr>
<tr>
<td>Linked_BidTimeSeries</td>
<td>TC57CIM::Market::MarketManagement::BidTimeSeries</td>
</tr>
<tr>
<td>MarketAgreement</td>
<td>TC57CIM::Market::MarketManagement::MarketAgreement</td>
</tr>
<tr>
<td>MarketParticipant</td>
<td>TC57CIM::Market::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>MarketProduct</td>
<td>TC57CIM::Market::MarketCommon::MarketProduct</td>
</tr>
<tr>
<td>MarketRole</td>
<td>TC57CIM::Market::MarketCommon::MarketRole</td>
</tr>
<tr>
<td>Measure_Unit</td>
<td>TC57CIM::Market::MarketManagement::Unit</td>
</tr>
<tr>
<td>MktPSRType</td>
<td>TC57CIM::Market::MarketManagement::MktPSRType</td>
</tr>
<tr>
<td>Origin_MarketParticipant</td>
<td>TC57CIM::Market::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>Point</td>
<td>TC57CIM::Market::MarketManagement::Point</td>
</tr>
<tr>
<td>Price</td>
<td>TC57CIM::Market::MarketManagement::Price</td>
</tr>
<tr>
<td>Process</td>
<td>TC57CIM::Market::MarketManagement::Process</td>
</tr>
<tr>
<td>Provider_MarketParticipant</td>
<td>TC57CIM::Market::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>Quantity</td>
<td>TC57CIM::Market::MarketManagement::Quantity</td>
</tr>
<tr>
<td>Reason</td>
<td>TC57CIM::Market::MarketManagement::Reason</td>
</tr>
<tr>
<td>RegisteredResource</td>
<td>TC57CIM::Market::MarketCommon::RegisteredResource</td>
</tr>
<tr>
<td>ReserveBid_MarketDocument</td>
<td>TC57CIM::Market::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>Series_Period</td>
<td>TC57CIM::Market::MarketManagement::Period</td>
</tr>
<tr>
<td>Time_Period</td>
<td>TC57CIM::Market::MarketManagement::Period</td>
</tr>
</tbody>
</table>
2.2 Reserve bid assembly model

2.2.1 Overview of the model

Figure 2 shows the model.
2.2.2 IsBasedOn relationships from the European style market profile

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Complete IsBasedOn Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>BiddingZone_Domain</td>
<td>TC57CIM::Market::MarketManagement::Domain</td>
</tr>
<tr>
<td>BidTimeSeries</td>
<td>TC57CIM::Market::MarketManagement::BidTimeSeries</td>
</tr>
<tr>
<td>Linked_BidTimeSeries</td>
<td>TC57CIM::Market::MarketManagement::BidTimeSeries</td>
</tr>
<tr>
<td>Origin_MarketParticipant</td>
<td>TC57CIM::Market::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>Point</td>
<td>TC57CIM::Market::MarketManagement::Point</td>
</tr>
<tr>
<td>Reason</td>
<td>TC57CIM::Market::MarketManagement::Reason</td>
</tr>
<tr>
<td>ReserveBid_MarketDocument</td>
<td>TC57CIM::Market::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>Series_Period</td>
<td>TC57CIM::Market::MarketManagement::Period</td>
</tr>
</tbody>
</table>

2.2.3 Detailed Reserve bid assembly model

2.2.3.1 ReserveBid_MarketDocument root class

A bid document contains a set of bids (a bid is represented by a time series). There may be several bids submitted by the sender for the same bid period and subject party.

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

Table 3 shows all attributes of ReserveBid_MarketDocument.

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>mRID ID_String</td>
<td>The unique identification of the document being exchanged within a business process flow.</td>
</tr>
<tr>
<td>1</td>
<td>[1..1]</td>
<td>revisionNumber ESMPVersion_String</td>
<td>The identification of the version that distinguishes one evolution of a document from another.</td>
</tr>
<tr>
<td>3</td>
<td>[0..1]</td>
<td>process.processType ProcessKind_String</td>
<td>The identification of the nature of process that the document addresses.</td>
</tr>
<tr>
<td>4</td>
<td>[1..1]</td>
<td>sender_MarketParticipant.mRID PartyID_String</td>
<td>The identification of a party in the energy market. Document owner.</td>
</tr>
<tr>
<td>5</td>
<td>[1..1]</td>
<td>sender_MarketParticipant.marketRole.type MarketRoleKind_String</td>
<td>The identification of the role played by a market player. Document owner.</td>
</tr>
<tr>
<td>6</td>
<td>[1..1]</td>
<td>receiver_MarketParticipant.mRID PartyID_String</td>
<td>The identification of a party in the energy market. Document recipient.</td>
</tr>
<tr>
<td>7</td>
<td>[1..1]</td>
<td>receiver_MarketParticipant.marketRole.type MarketRoleKind_String</td>
<td>The identification of the role played by a market player. Document recipient.</td>
</tr>
</tbody>
</table>
Table 4 shows all association ends of ReserveBid_MarketDocument with other classes.

### Table 4 - Association ends of Reserve bid assembly model::ReserveBid_MarketDocument with other classes

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Class name / Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>[0..*]</td>
<td>BidTimeSeries Bid_TimeSeries</td>
<td>The timeseries contains the bids that are submitted to the auction. Association Based On: Reserve bid contextual model::BidTimeSeries.Bid_TimeSeries[0..*] ...... Reserve bid contextual model::ReserveBid_MarketDocument[].</td>
</tr>
</tbody>
</table>

2.2.3.2 BiddingZone_Domain

A domain covering a number of related objects, such as market balance area, grid area, borders etc.

Table 5 shows all attributes of BiddingZone_Domain.

### Table 5 - Attributes of Reserve bid assembly model::BiddingZone_Domain

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>mRID AreaID_String</td>
<td>The unique identification of the domain. In the ESMP context, the &quot;model authority&quot; 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.</td>
</tr>
<tr>
<td>1</td>
<td>[0..1]</td>
<td>name String</td>
<td>The name is any free human readable and possibly non unique text naming the object.</td>
</tr>
</tbody>
</table>
### 2.2.3.3 BidTimeSeries

The formal specification of specific characteristics related to a bid.

Table 6 shows all attributes of BidTimeSeries.

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>mRID ID_String</td>
<td>A unique identification of the time series.</td>
</tr>
<tr>
<td>1</td>
<td>[0..1]</td>
<td>auction.mRID ID_String</td>
<td>The unique identification of the auction. The identification linking the bid to a set of specifications created by the auction operator.</td>
</tr>
<tr>
<td>2</td>
<td>[1..1]</td>
<td>businessType BusinessKind_String</td>
<td>The identification of the nature of the time series.</td>
</tr>
<tr>
<td>3</td>
<td>[1..1]</td>
<td>acquiring_Domain.mRID AreaID_String</td>
<td>The unique identification of the domain. The area where the energy is to be put.</td>
</tr>
<tr>
<td>4</td>
<td>[1..1]</td>
<td>connecting_Domain.mRID AreaID_String</td>
<td>The unique identification of the domain. The area where the energy is coming from.</td>
</tr>
<tr>
<td>5</td>
<td>[0..1]</td>
<td>provider_MarketParticipant.mRID PartyID_String</td>
<td>The identification of a party in the energy market. The identification of a market participant associated with a TimeSeries, i.e. the provider offering the reserve.</td>
</tr>
<tr>
<td>6</td>
<td>[1..1]</td>
<td>quantity_Measurement_Unit.name MeasurementUnitKind_String</td>
<td>The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). The unit of measure in which the quantities in the time series are expressed, e.g. MAW.</td>
</tr>
<tr>
<td>7</td>
<td>[0..1]</td>
<td>currency_Unit.name CurrencyCode_String</td>
<td>The identification of the formal code for a currency (ISO 4217). The currency in which the monetary amount is expressed.</td>
</tr>
<tr>
<td>8</td>
<td>[0..1]</td>
<td>price_Measurement_Unit.name MeasurementUnitKind_String</td>
<td>The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). The unit of measure in which the price in the time series is expressed (MW, MWh, etc.).</td>
</tr>
<tr>
<td>9</td>
<td>[1..1]</td>
<td>divisible ESMPBoolean_String</td>
<td>An indication whether or not each element of the bid may be partially accepted or not.</td>
</tr>
<tr>
<td>10</td>
<td>[0..1]</td>
<td>linkedBidsIdentification ID_String</td>
<td>The unique identification used to identify associated bids with each other.</td>
</tr>
<tr>
<td>11</td>
<td>[0..1]</td>
<td>multipartBidsIdentification ID_String</td>
<td>The unique identification associated with a hierarchy of linked tenders. The identification within the set of linked tenders signifies that all tenders within the set with an inferior offer price must be accepted. This identification is defined by the tenderer and must be unique.</td>
</tr>
<tr>
<td>12</td>
<td>[0..1]</td>
<td>exclusiveBidsIdentification ID_String</td>
<td>Unique identification associated with all linked tenders. The identification of a set of tenders that are linked together signifying that only one can be accepted. This identification is defined by the tenderer and must be unique for a given auction. The exclusive bids identification is only provided if a tender is associated with the current tender. Both tenders must be cross linked to be valid.</td>
</tr>
<tr>
<td>Order</td>
<td>mult.</td>
<td>Attribute name / Attribute type</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>--------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>13</td>
<td>[0..1]</td>
<td>blockBid</td>
<td>ESMPBoolean_String</td>
</tr>
<tr>
<td>14</td>
<td>[0..1]</td>
<td>status</td>
<td>Action_Status</td>
</tr>
<tr>
<td>15</td>
<td>[0..1]</td>
<td>priority</td>
<td>Integer</td>
</tr>
<tr>
<td>16</td>
<td>[0..1]</td>
<td>registeredResource.mRID</td>
<td>ResourceID_String</td>
</tr>
<tr>
<td>17</td>
<td>[1..1]</td>
<td>flowDirection.direction</td>
<td>DirectionKind_String</td>
</tr>
<tr>
<td>18</td>
<td>[0..1]</td>
<td>stepIncrementQuantity</td>
<td>Decimal</td>
</tr>
<tr>
<td>19</td>
<td>[0..1]</td>
<td>energyPrice_Measurement_Unit.name</td>
<td>MeasurementUnitKind_String</td>
</tr>
<tr>
<td>20</td>
<td>[0..1]</td>
<td>marketAgreement.type</td>
<td>CapacityContractKind_String</td>
</tr>
<tr>
<td>21</td>
<td>[0..1]</td>
<td>marketAgreement.mRID</td>
<td>ID_String</td>
</tr>
<tr>
<td>22</td>
<td>[0..1]</td>
<td>marketAgreement.createdDateTime</td>
<td>ESMP_DateTime</td>
</tr>
<tr>
<td>23</td>
<td>[0..1]</td>
<td>activation_ConstraintDuration.duration</td>
<td>Duration</td>
</tr>
<tr>
<td>24</td>
<td>[0..1]</td>
<td>resting_ConstraintDuration.duration</td>
<td>Duration</td>
</tr>
<tr>
<td>25</td>
<td>[0..1]</td>
<td>minimum_ConstraintDuration.duration</td>
<td>Duration</td>
</tr>
<tr>
<td>26</td>
<td>[0..1]</td>
<td>maximum_ConstraintDuration.duration</td>
<td>Duration</td>
</tr>
<tr>
<td>27</td>
<td>[0..1]</td>
<td>standard_MarketProduct.marketProductType</td>
<td>MarketProductKind_String</td>
</tr>
<tr>
<td>28</td>
<td>[0..1]</td>
<td>original_MarketProduct.marketProductType</td>
<td>MarketProductKind_String</td>
</tr>
<tr>
<td>29</td>
<td>[0..1]</td>
<td>validity_Period.timeInterval</td>
<td>ESMP_DateTimeInterval</td>
</tr>
<tr>
<td>30</td>
<td>[0..1]</td>
<td>inclusiveBidsIdentification</td>
<td>ID_String</td>
</tr>
<tr>
<td>31</td>
<td>[0..1]</td>
<td>mktPSRType.psrType</td>
<td>PsrType_String</td>
</tr>
</tbody>
</table>
Table 7 shows all association ends of BidTimeSeries with other classes.

**Table 7 - Association ends of Reserve bid assembly model::BidTimeSeries with other classes**

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Class name / Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>[1..*]</td>
<td>Series_Period</td>
<td>Association Based On: Reserve bid contextual model::Series_Period.Period[1..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>33</td>
<td>[0..*]</td>
<td>BiddingZone_Domain</td>
<td>The domain associated with a TimeSeries. Association Based On: Reserve bid contextual model::BidTimeSeries.[] Reserve bid contextual model::BiddingZone_Domain.AvailableBiddingZone_Domain[0..*]</td>
</tr>
<tr>
<td>34</td>
<td>[0..*]</td>
<td>Reason</td>
<td>The reason information associated with a TimeSeries providing motivation information. Association Based On: Reserve bid contextual model::Reason.Reason[0..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>35</td>
<td>[0..*]</td>
<td>Linked_BidTimeSeries</td>
<td>The Reserve Bid to which the current Reserve Bid is linked Association Based On: Reserve bid contextual model::Linked_BidTimeSeries.Linked_BidTimeSeries[0..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>36</td>
<td>[0..1]</td>
<td>Origin_MarketParticipant</td>
<td>The identification of a market participant associated with a TimeSeries. The balancing capacity from which the bid originates has been purchased on behalf of this Market Participant Association Based On: Reserve bid contextual model::Origin_MarketParticipant.ProcuredFor_MarketParticipant[0..1] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>37</td>
<td>[0..*]</td>
<td>Origin_MarketParticipant</td>
<td>The identification of a market participant associated with a TimeSeries. The balancing capacity from which the bid originates is shared with this market participant Association Based On: Reserve bid contextual model::Origin_MarketParticipant.SharedWith_MarketParticipant[0..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>38</td>
<td>[0..*]</td>
<td>Origin_MarketParticipant</td>
<td>The identification of a market participant associated with a TimeSeries. The balancing capacity from which the bid originates is exchanged with this market participant Association Based On: Reserve bid contextual model::Origin_MarketParticipant.ExchangedWith_MarketParticipant[0..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
</tbody>
</table>
2.2.3.4 Linked_BidTimeSeries
The Reserve Bid to which the Reserve Bid is linked.
The formal specification of specific characteristics related to a bid.
Table 8 shows all attributes of Linked_BidTimeSeries.

Table 8 - Attributes of Reserve bid assembly model::Linked_BidTimeSeries

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>mRID ID_String</td>
<td>A unique identification of the time series. In the ESMP context, the &quot;model authority&quot; 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.</td>
</tr>
<tr>
<td>1</td>
<td>[0..1]</td>
<td>status Action_Status</td>
<td>The information about the status of the bid, such as &quot;shared&quot;, &quot;restricted&quot;, ...</td>
</tr>
</tbody>
</table>

2.2.3.5 Origin_MarketParticipant
The identification of the party participating in energy market business processes.
Table 9 shows all attributes of Origin_MarketParticipant.

Table 9 - Attributes of Reserve bid assembly model::Origin_MarketParticipant

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>mRID PartyID_String</td>
<td>The identification of a party in the energy market. In the ESMP context, the &quot;model authority&quot; 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.</td>
</tr>
</tbody>
</table>

2.2.3.6 Point
The quantity that is bid for the interval in question.
The identification of the values being addressed within a specific interval of time.
Table 10 shows all attributes of Point.
Table 10 - Attributes of Reserve bid assembly model::Point

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>position</td>
<td>A sequential value representing the relative position within a given time interval.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Position_Integer</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>[1..1]</td>
<td>quantity.quantity</td>
<td>The quantity value. The association role provides the information about what is expressed. Either the maximum quantity (when there is a minimum quantity) or the quantity that can be activated at a given time position. The Quantity information associated with a given Point.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decimal</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>[0..1]</td>
<td>quality</td>
<td>The quality of the information being provided. This quality may be estimated, not available, as provided, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality_String</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>[0..1]</td>
<td>minimum_Quantity.quantity</td>
<td>The quantity value. The association role provides the information about what is expressed. The minimum quantity of energy that can be activated at a given time position. The Quantity information associated with a given Point.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decimal</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>[0..1]</td>
<td>price.amount</td>
<td>A number of monetary units specified in a unit of currency. The price expressed for each unit of quantity. The price amount is mandatory in the case of capacity auctions and shall not be provided in the case of rule based allocations depending on local market rules (for example &quot;first come first serve&quot;).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amount_Decimal</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>[0..1]</td>
<td>energy_Price.amount</td>
<td>A number of monetary units specified in a unit of currency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amount_Decimal</td>
<td></td>
</tr>
</tbody>
</table>

2.2.3.7 Reason

The motivation of an act.

Table 11 shows all attributes of Reason.

Table 11 - Attributes of Reserve bid assembly model::Reason

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>code</td>
<td>The motivation of an act in coded form.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ReasonCode_String</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>[0..1]</td>
<td>text</td>
<td>The textual explanation corresponding to the reason code.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ReasonText_String</td>
<td></td>
</tr>
</tbody>
</table>

2.2.3.8 Series_Period

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

Table 12 shows all attributes of Series_Period.

Table 12 - Attributes of Reserve bid assembly model::Series_Period

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>[1..1]</td>
<td>timeInterval</td>
<td>The start and end time of the period.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESMP_DateTimeInterval</td>
<td></td>
</tr>
<tr>
<td>Order</td>
<td>mult.</td>
<td>Class name / Role</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
<td>[1..1]</td>
<td>resolution Duration</td>
<td>The definition of the number of units of time that compose an individual step within a period.</td>
</tr>
</tbody>
</table>

Table 13 shows all association ends of Series_Period with other classes. **Table 13 - Association ends of Reserve bid assembly model::Series_Period with other classes**

2.2.4 Datatypes

The list of datatypes used for the Reserve bid assembly model is as follows:

- Action_Status compound
- ESMP_DateTimeInterval compound
- Amount_Decimal datatype
- AreaID_String datatype, codelist CodingSchemeTypeList
- BusinessKind_String datatype, codelist BusinessTypeList
- CapacityContractKind_String datatype, codelist ContractTypeList
- CurrencyCode_String datatype, codelist CurrencyTypeList
- DirectionKind_String datatype, codelist DirectionTypeList
- ESMP_DateTime datatype
- ESMPBoolean_String datatype, codelist IndicatorTypeList
- ESMPVersion_String datatype
- ID_String datatype
- MarketProductKind_String datatype, codelist MarketProductTypeList
- MarketRoleKind_String datatype, codelist RoleTypeList
- MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList
- MessageKind_String datatype, codelist MessageTypeList
- PartyID_String datatype, codelist CodingSchemeTypeList
- Position_Integer datatype
- ProcessKind_String datatype, codelist ProcessTypeList
- PsrType_String datatype, codelist AssetTypeList
- Quality_String datatype, codelist QualityTypeList
- ReasonCode_String datatype, codelist ReasonCodeTypeList
- ReasonText_String datatype
- ResourceID_String datatype, codelist CodingSchemeTypeList
- Status_String datatype, codelist StatusTypeList
- YMDHM_DateTime datatype
2.2.5. ReserveBid_MarketDocument XML schema structure

Figure 3 - ReserveBid_MarketDocument XML schema structure
2.2.6. ReserveBid_MarketDocument XML schema

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

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
    xmlns="urn:iec62325.351:tc57wg16:451"
    xmlns:sawsdl="http://www.w3.org/2001/XMLSchema"
    targetNamespace="urn:iec62325.351:tc57wg16:451:7:reservebiddocument:7:5"
    elementFormDefault="qualified"
    attributeFormDefault="unqualified"
>
<xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd"/>
<xs:element name="ReserveBid_MarketDocument"
    type="ReserveBid_MarketDocument"/>
<xs:simpleType name="AreaID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
    <xs:restriction base="xs:string">
        <xs:maxLength value="18"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
    <xs:simpleContent>
        <xs:extension base="AreaID_String-base">
            <xs:attribute name="codingScheme" type="ecl:CodingSchemeTypeList" use="required"/>
        </xs:extension>
    </xs:simpleContent>
</xs:complexType>
<xs:complexType name="BiddingZone_Domain" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Domain">
    <xs:sequence>
        <xs:element name="mRID" type="AreaID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
        <xs:element name="name" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.name"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
    <xs:restriction base="xs:string">
        <xs:maxLength value="60"/>
    </xs:restriction>
</xs:complexType>
<xs:complexType name="BusinessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
    <xs:restriction base="ecl:BusinessTypeList"/>
</xs:complexType>
<xs:complexType name="PartyID_String-base" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
    <xs:restriction base="xs:string"/>
</xs:complexType>
```
<xs:complexType name="MarketProductKind_String" sawsd1:modelReference="sawsdl:modelReference">
  <xs:restriction base="ecl:MarketProductTypeList"/>
</xs:complexType>

<xs:complexType name="Status_String" sawsd1:modelReference="sawsdl:modelReference">
  <xs:restriction base="ecl:AssetTypeList"/>
</xs:complexType>

<xs:complexType name="Action_Status" sawsd1:modelReference="sawsdl:modelReference">
  <xs:sequence>
    <xs:element name="value" type="Status_String" minOccurs="1" maxOccurs="1" sawsd1:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status_String" />
  </xs:sequence>
</xs:complexType>

<xs:complexType name="YMDHM_DateTime" sawsd1:modelReference="sawsdl:modelReference">
  <xs:restriction base="xs:string"/>
  <xs:pattern value="(((0-9){4})[-\-]([0-9]{2})[-\-]([0-9]{2})[0-9]{2})Z"/>
</xs:complexType>

<xs:complexType name="ESMP_DateTimeInterval" sawsd1:modelReference="sawsdl:modelReference">
  <xs:sequence>
    <xs:element name="start" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1" sawsd1:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.start" />
    <xs:element name="end" type="YMDHM_DateTime" minOccurs="1" maxOccurs="1" sawsd1:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval.end" />
  </xs:sequence>
</xs:complexType>

<xs:complexType name="BidTimeSeries" sawsd1:modelReference="sawsdl:modelReference">
  <xs:sequence>
    <xs:element name="TimeSeries" type="DateAndTime" />
  </xs:sequence>
</xs:complexType>
<xs:sequence>
  <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  <xs:element name="auction.mRID" type="ID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  <xs:element name="businessType" type="BusinessKind_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.businessType"/>
  <xs:element name="acquiring_Domain.mRID" type="AreaID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  <xs:element name="connected_Domain.mRID" type="AreaID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  <xs:element name="provider_MarketParticipant.mRID" type="PartyID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  <xs:element name="priority" type="ESMPBoolean_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.divisible"/>
  <xs:element name="exclusiveBidsIdentification" type="ID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.exclusiveBidsIdentification"/>
  <xs:element name="multipartBidIdentification" type="ID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.multipartBidIdentification"/>
  <xs:element name="blockBid" type="ESMPBoolean_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.blockBid"/>
  <xs:element name="status" type="Action_Status" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.status"/>
  <xs:element name="priority" type="xs:integer" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.priority"/>
  <xs:element name="registeredResource.mRID" type="ResourceID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  <xs:element name="flowDirection" type="DirectionKind_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="#http://iec.ch/TC57/2013/CIM-schema-cim16#FlowDirection.direction"/>
</xs:sequence>
UML model and schema

<xs:element name="stepIncrementQuantity" type="xs:decimal"
minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.stepIncrementQuantity"/>
<xs:element name="energyPrice_Measurement_Unit.name"
type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
<xs:element name="marketAgreement.type"
type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
<xs:element name="marketAgreement.mRID" type="ID_String"
minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
<xs:element name="marketAgreement.createdDateTime"
type="ESMP_DateTime" minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.createdDateTime"/>
<xs:element name="activation_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
<xs:element name="resting_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
<xs:element name="minimum_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
<xs:element name="maximum_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
<xs:element name="standard_MarketProduct.marketProductType"
sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketProduct.marketProductType"/>
<xs:element name="original_MarketProduct.marketProductType"
minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketProduct.marketProductType"/>
<xs:element name="validity_Period.timeInterval"
type="ESMP_DateTimeInterval" minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
<xs:element name="inclusiveBidsIdentification" type="ID_String"
minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.inclusiveBidsIdentification"/>
<xs:element name="mktPSRType.psrType" type="PsrType_String"
minOccurs="0" maxOccurs="1" sawsdll:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MktPSRType.psrType"/>
<xs:element name="Period" type="Series_Period" minOccurs="1"
<xs:element name="AvailableBiddingZone_Domain"
type="BiddingZone_Domain" minOccurs="0" maxOccurs="unbounded"
<xs:element name="Reason" type="Reason" minOccurs="0"
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
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517  
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519  
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521  
522  
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528  

<xs:element name="position" type="Position_Integer"
minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
<xs:element name="quantity.quantity" type="xs:decimal"
minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
<xs:element name="quality" type="Quality_String" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quality"/>
<xs:element name="minimum.Quantity.quantity" type="xs:decimal"
minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity.quantity"/>
<xs:element name="price.amount" type="Amount_Decimal"
minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
<xs:element name="energy.Price.amount" type="Amount_Decimal"
minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
</xs:complexType>
<xs:simpleType name="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="ecl:ReasonCodeTypeList"/>
</xs:simpleType>
<xs:simpleType name="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="xs:string">
<xs:maxlength value="512"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
<xs:element name="code" type="ReasonCode_String" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
<xs:element name="text" type="ReasonText_String" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="xs:string">
<xs:pattern value="[1-9][0-9]0,2"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="MessageKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="ecl:MessageTypeList"/>
</xs:simpleType>
<xs:simpleType name="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="ecl:ProcessTypeList"/>
</xs:simpleType>
<xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
  <xs:restriction base="c1l:RoleTypeList"/>
</xs:simpleType>

  <xs:sequence>
    <xs:element name="mRID" type="ID_String" minOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
    <xs:element name="revisionNumber" type="ESMPVersion_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.revisionNumber"/>
    <xs:element name="type" type="MessageKind_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
    <xs:element name="process.processType" type="ProcessKind_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Process.processType"/>
    <xs:element name="sender_MarketParticipant.mRID" type="PartyID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
    <xs:element name="sender_MarketParticipant.marketRole.type" type="MarketRoleKind_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
    <xs:element name="receiver_MarketParticipant.mRID" type="PartyID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
    <xs:element name="receiver_MarketParticipant.marketRole.type" type="MarketRoleKind_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
    <xs:element name="createdDateTime" type="ESMP_DateTime" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.createdDateTime"/>
    <xs:element name="reserveBid_Period.timeInterval" type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
    <xs:element name="domain.mRID" type="AreaID_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
    <xs:element name="subject_MarketParticipant.mRID" type="PartyID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
    <xs:element name="subject_MarketParticipant.marketRole.type" type="MarketRoleKind_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="Series_Period" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
  <xs:sequence>
  </xs:sequence>
</xs:complexType>
<xs:element name="timeInterval" type="ESMP_DateTimeInterval"
    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/T57/2013/CIM-
    schema-cim16#Period.timeInterval"/>
<xs:element name="resolution" type="xs:duration" minOccurs="1"
    maxOccurs="1" sawsdl:modelReference="http://iec.ch/T57/2013/CIM-schema-
    cim16#Period.resolution"/>
<xs:element name="Point" type="Point" minOccurs="1"
    maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/T57/2013/CIM-schema-
    cim16#Period.Point"/>
</xs:sequence>
</xs:complexType>
</xs:schema>