RESERVE BID DOCUMENT
UML MODEL AND SCHEMA

2017-01-10
VERSION 1.0
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<table>
<thead>
<tr>
<th>Version</th>
<th>Release</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>2016-12-02</td>
<td>First drafting of the document based on maintenance request from WG EDI.</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>2017-01-10</td>
<td>Version to be submitted to Market Committee following WG EDI meeting in March 2017.</td>
</tr>
</tbody>
</table>
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 related to the balancing market.

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 ReserveBid_MarketDocument

2.1 Reserve bid contextual model

2.1.1 Overview of the model

Figure 1 shows the model.

Figure 1 - Reserve bid contextual 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::IEC62325::MarketManagement::Auction</td>
</tr>
<tr>
<td>BidTimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::BidTimeSeries</td>
</tr>
<tr>
<td>Name</td>
<td>Complete IsBasedOn Path</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>ConstraintDuration</td>
<td>TC57CIM::IEC62325::MarketManagement::ConstraintDuration</td>
</tr>
<tr>
<td>Currency_Unit</td>
<td>TC57CIM::IEC62325::MarketManagement::Unit</td>
</tr>
<tr>
<td>Domain</td>
<td>TC57CIM::IEC62325::MarketManagement::Domain</td>
</tr>
<tr>
<td>FlowDirection</td>
<td>TC57CIM::IEC62325::MarketManagement::FlowDirection</td>
</tr>
<tr>
<td>MarketAgreement</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketAgreement</td>
</tr>
<tr>
<td>MarketParticipant</td>
<td>TC57CIM::IEC62325::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>MarketRole</td>
<td>TC57CIM::IEC62325::MarketCommon::MarketRole</td>
</tr>
<tr>
<td>MBA_Domain</td>
<td>TC57CIM::IEC62325::MarketManagement::Domain</td>
</tr>
<tr>
<td>Measure_Unit</td>
<td>TC57CIM::IEC62325::MarketManagement::Unit</td>
</tr>
<tr>
<td>Point</td>
<td>TC57CIM::IEC62325::MarketManagement::Point</td>
</tr>
<tr>
<td>Price</td>
<td>TC57CIM::IEC62325::MarketManagement::Price</td>
</tr>
<tr>
<td>Process</td>
<td>TC57CIM::IEC62325::MarketManagement::Process</td>
</tr>
<tr>
<td>Provider_MarketParticipant</td>
<td>TC57CIM::IEC62325::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>Quantity</td>
<td>TC57CIM::IEC62325::MarketManagement::Quantity</td>
</tr>
<tr>
<td>Reason</td>
<td>TC57CIM::IEC62325::MarketManagement::Reason</td>
</tr>
<tr>
<td>RegisteredResource</td>
<td>TC57CIM::IEC62325::MarketCommon::RegisteredResource</td>
</tr>
<tr>
<td>ReserveBid_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>Series_Period</td>
<td>TC57CIM::IEC62325::MarketManagement::Period</td>
</tr>
<tr>
<td>Time_Period</td>
<td>TC57CIM::IEC62325::MarketManagement::Period</td>
</tr>
</tbody>
</table>
2.2 Reserve bid assembly model

2.2.1 Overview of the model

Figure 2 shows the model.

![Reserve bid assembly model UML diagram]

Figure 2 - Reserve bid assembly 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>BidTimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::BidTimeSeries</td>
</tr>
<tr>
<td>MBA_Domain</td>
<td>TC57CIM::IEC62325::MarketManagement::Domain</td>
</tr>
<tr>
<td>Point</td>
<td>TC57CIM::IEC62325::MarketManagement::Point</td>
</tr>
<tr>
<td>Reason</td>
<td>TC57CIM::IEC62325::MarketManagement::Reason</td>
</tr>
<tr>
<td>ReserveBid_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>Series_Period</td>
<td>TC57CIM::IEC62325::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 ESPMVersion_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>
<tr>
<td>8</td>
<td>[1..1]</td>
<td>createdDateTime ESPM_DateTime</td>
<td>The date and time of the creation of the document.</td>
</tr>
<tr>
<td>9</td>
<td>[1..1]</td>
<td>reserveBid_Period.timeInterval ESPM_DateTimeInterval</td>
<td>The start and end date and time for a given interval. The beginning and ending date and time of the period covered by the document.</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</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 BidTimeSeries

The formal specification of specific characteristics related to a bid.

Table 5 shows all attributes of BidTimeSeries.

### Table 5 - Attributes of Reserve bid assembly model::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>[1..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_Measure_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_Measure_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>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>9</td>
<td>[1..1]</td>
<td>divisible</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>linkedBidIdIdentification</td>
<td>The unique identification used to identify associated bids with each other.</td>
</tr>
<tr>
<td>11</td>
<td>[0..1]</td>
<td>multipartBidIdIdentification</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>exclusiveBidIdIdentification</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>13</td>
<td>[0..1]</td>
<td>blockBid</td>
<td>The indication that the values in the period are considered as a whole. They cannot be changed or subdivided.</td>
</tr>
<tr>
<td>14</td>
<td>[0..1]</td>
<td>status</td>
<td>The information about the status of the bid, such as &quot;shared&quot;, &quot;restricted&quot;, ...</td>
</tr>
<tr>
<td>15</td>
<td>[0..1]</td>
<td>priority</td>
<td>The numeric local priority given to a bid. Lower numeric values will have higher priority.</td>
</tr>
<tr>
<td>16</td>
<td>[0..1]</td>
<td>registeredResource.mRID</td>
<td>The unique identification of a resource. --- The identification of a resource associated with a TimeSeries.</td>
</tr>
<tr>
<td>17</td>
<td>[1..1]</td>
<td>flowDirection.direction</td>
<td>The coded identification of the direction of energy flow.</td>
</tr>
<tr>
<td>18</td>
<td>[0..1]</td>
<td>stepIncrementQuantity</td>
<td>The minimum increment that can be applied for an increase in an activation request.</td>
</tr>
<tr>
<td>19</td>
<td>[0..1]</td>
<td>energyPrice.Measurement_Unit.name</td>
<td>The identification of the formal code for a measurement unit (UN/ECE Recommendation 20).</td>
</tr>
<tr>
<td>20</td>
<td>[0..1]</td>
<td>marketAgreement.type</td>
<td>The specification of the kind of the agreement, e.g. long term, daily contract.</td>
</tr>
<tr>
<td>21</td>
<td>[0..1]</td>
<td>marketAgreement.mRID</td>
<td>The unique identification of the agreement.</td>
</tr>
<tr>
<td>22</td>
<td>[0..1]</td>
<td>marketAgreement.createdDateTime</td>
<td>The date and time of the creation of the agreement.</td>
</tr>
<tr>
<td>23</td>
<td>[0..1]</td>
<td>activation_ConstraintDuration.duration</td>
<td>The duration of the constraint. --- The delay before the regulation becomes effective after the activation.</td>
</tr>
<tr>
<td>24</td>
<td>[0..1]</td>
<td>resting_ConstraintDuration.duration</td>
<td>The duration of the constraint. --- The delay to be respected between the end of activation and the start of the next activation.</td>
</tr>
<tr>
<td>25</td>
<td>[0..1]</td>
<td>minimum_ConstraintDuration.duration</td>
<td>The duration of the constraint. --- The minimum duration that a regulation has to be up once the bid is activated.</td>
</tr>
<tr>
<td>26</td>
<td>[0..1]</td>
<td>maximum_ConstraintDuration.duration</td>
<td>The duration of the constraint. --- The maximum duration that a regulation has to be up once the bid is activated.</td>
</tr>
</tbody>
</table>
Table 6 shows all association ends of BidTimeSeries with other classes.

### Table 6 - 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>27</td>
<td>[1..*]</td>
<td>Series_Period.Period</td>
<td>Association Based On: Reserve bid contextual model::Series_Period.Period[1..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>28</td>
<td>[0..*]</td>
<td>MBA_Domain.AvailableMBA_Domain</td>
<td>Association Based On: Reserve bid contextual model::MBA_Domain.AvailableMBA_Domain[0..*] Reserve bid contextual model::BidTimeSeries.[]</td>
</tr>
<tr>
<td>29</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>
</tbody>
</table>

#### 2.2.3.3 MBA_Domain

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

Table 7 shows all attributes of MBA_Domain.

### Table 7 - Attributes of Reserve bid assembly model::MBA_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.</td>
</tr>
</tbody>
</table>

#### 2.2.3.4 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 8 shows all attributes of Point.

### Table 8 - 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.Position_Integer</td>
<td>A sequential value representing the relative position within a given time interval.</td>
</tr>
<tr>
<td>1</td>
<td>[1..1]</td>
<td>quantity.quantity.Decimal</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>2</td>
<td>[0..1]</td>
<td>minimum_Quantity.quantity.Decimal</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>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>3</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>4</td>
<td>[0..1]</td>
<td>energy_Price.amount</td>
<td>A number of monetary units specified in a unit of currency.</td>
</tr>
</tbody>
</table>

### 2.2.3.5 Reason

The motivation of an act.

Table 9 shows all attributes of Reason.

Table 9 - 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>1</td>
<td>[0..1]</td>
<td>text</td>
<td>The textual explanation corresponding to the reason code.</td>
</tr>
</tbody>
</table>

### 2.2.3.6 Series_Period

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

Table 10 shows all attributes of Series_Period.

Table 10 - 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>1</td>
<td>[1..1]</td>
<td>resolution</td>
<td>The definition of the number of units of time that compose an individual step within a period.</td>
</tr>
</tbody>
</table>

Table 11 shows all association ends of Series_Period with other classes.

Table 11 - Association ends of Reserve bid assembly model::Series_Period 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>2</td>
<td>[1..*]</td>
<td>Point</td>
<td>Association Based On: Reserve bid contextual model::Point.Point[1..*] Reserve bid contextual model::Series_Period[]</td>
</tr>
</tbody>
</table>

### 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
- 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
- ReasonCode_String datatype, codelist ReasonCodeTypeList
- ReasonText_String datatype
- ResourceID_String datatype, codelist CodingSchemeTypeList
- Status_String datatype, codelist StatusTypeList
- YMDHM_DateTime datatype
2.3 ReserveBid_MarketDocument XML schema

2.3.1 ReserveBid_MarketDocument XML schema structure

Figure 3 to Figure 5 provide the structure of the schema.

Figure 3 - ReserveBid_MarketDocument schema structure 1/3
Figure 4 - ReserveBid_MarketDocument schema structure 2/3
Figure 5 - ReserveBid_MarketDocument schema structure 3/3

2.3.2 ReserveBid_MarketDocument XML schema

The schema to be used to validate XML instances is to be identified by:
urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:0

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:cl="urn:entsoe.eu:wgedi:codelists"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
xmlns="urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:0"
xmlns:cimp="http://www.iec.ch/cimprofile"
attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:0"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:import schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd"
namespace="urn:entsoe.eu:wgedi-codelists" />
<xs:element name="ReserveBid_MarketDocument" type="ReserveBid_MarketDocument" />
<xs:simpleType name="ID_String"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="xs:string">
<xs:maxLength value="35" />
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="BusinessKind_String"
sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="cl:BusinessTypeList" />
</xs:simpleType>
<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:complexContent>
<xs:extension base="AreaID_String-base">
<xs:attribute name="codingScheme" type="cl:CodingSchemeTypeList" use="required" />
</xs:extension>
</xs:complexContent>
```

---

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<xs:restriction base="cl:StatusTypedList" />
</xs:simpleType>
<xs:complexType name="Action_Status"
  sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status">
  <xs:sequence>
    <xs:element minOccurs="1" maxOccurs="1" name="value" type="Status_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Status.value" />
  </xs:element>
</xs:complexType>
<xs:complexType name="BidTimeSeries"
  sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries">
  <xs:sequence>
    <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="ID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID" />
    <xs:element minOccurs="1" maxOccurs="1" name="auction.mRID" type="ID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID" />
    <xs:element minOccurs="1" maxOccurs="1" name="businessType" type="BusinessKind_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.businessType" />
    <xs:element minOccurs="1" maxOccurs="1" name="acquiring_Domain.mRID" type="AreaID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID" />
    <xs:element minOccurs="1" maxOccurs="1" name="connecting_Domain.mRID" type="AreaID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID" />
    <xs:element minOccurs="0" maxOccurs="1" name="provider_MarketParticipant.mRID" type="PartyID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID" />
    <xs:element minOccurs="1" maxOccurs="1" name="quantity_Measure_Unit.name" type="MeasurementUnitKind_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name" />
    <xs:element minOccurs="0" maxOccurs="1" name="currency_Unit.name" type="CurrencyCode_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name" />
    <xs:element minOccurs="0" maxOccurs="1" name="price_Measure_Unit.name" type="MeasurementUnitKind_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name" />
    <xs:element minOccurs="1" maxOccurs="1" name="divisible" type="ESMPBoolean_String"
    <xs:element minOccurs="0" maxOccurs="1" name="linkedBidsIdentification" type="ID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.linkedBidsIdentification" />
    <xs:element minOccurs="0" maxOccurs="1" name="multipartBidIdentification" type="ID_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.multipartBidIdentification" />
    <xs:element minOccurs="0" maxOccurs="1" name="exclusiveBidsIdentification" type="ID_String"
    <xs:element minOccurs="0" maxOccurs="1" name="blockBid" type="ESMPBoolean_String"
      sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.blockBid" />
  </xs:element>
</xs:complexType>
<xs:element minOccurs="0" maxOccurs="1" name="status" type="Action_Status">
  <xs:element>
    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.status">
      <xs:element/>
    </xs:element>
  </xs:element>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="priority" type="xs:integer">
  <xs:element>
    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.priority">
      <xs:element/>
    </xs:element>
  </xs:element>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="registeredResource.mRID" type="ResourceID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="flowDirection.direction" type="DirectionKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#FlowDirection.direction">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="stepIncrementQuantity" type="xs:decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.stepIncrementQuantity">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="energyPrice_Measure_Unit.name" type="MeasurementUnitKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="marketAgreement.type" type="CapacityContractKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="marketAgreement.mRID" type="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="marketAgreement.createdDateTime" type="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.createdDateTime">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="activation_ConstraintDuration.duration" type="xs:duration" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="resting_ConstraintDuration.duration" type="xs:duration" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="minimum_ConstraintDuration.duration" type="xs:duration" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration">
  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="maximum_ConstraintDuration.duration" type="xs:duration" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration">
  <xs:element/>
</xs:element>

  <xs:element/>
</xs:element>

  <xs:element/>
</xs:element>

<xs:element minOccurs="0" maxOccurs="unbounded" name="Reason" type="Reason" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries.Reason">
  <xs:element/>
</xs:element>
```xml
<xs:complexType name="MBA_Domain">
  <xs:sequence>
    <xs:element minOccurs="1" maxOccurs="1" name="mRID" type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
  </xs:sequence>
</xs:complexType>

<xs:simpleType name="Position_Integer">
  <xs:restriction base="xs:integer">
    <xs:maxInclusive value="999999"/>
    <xs:minInclusive value="1"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="Amount_Decimal">
  <xs:restriction base="xs:decimal">
    <xs:totalDigits value="17"/>
  </xs:restriction>
</xs:simpleType>

<xs:complexType name="Point">
  <xs:sequence>
    <xs:element minOccurs="1" maxOccurs="1" name="position" type="Position_Integer" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.position"/>
    <xs:element minOccurs="1" maxOccurs="1" name="quantity.quantity" type="xs:decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity.quantity"/>
    <xs:element minOccurs="0" maxOccurs="1" name="minimum_Quantity.quantity" type="Amount_Decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
    <xs:element minOccurs="0" maxOccurs="1" name="energy_Price.amount" type="Amount_Decimal" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Price.amount"/>
  </xs:sequence>
</xs:complexType>

<xs:simpleType name="ReasonCode_String">
  <xs:restriction base="cl:ReasonCodeTypeList"/>
</xs:simpleType>

<xs:simpleType name="ReasonText_String">
  <xs:restriction base="xs:string">
    <xs:maxLength value="512"/>
  </xs:restriction>
</xs:simpleType>

<xs:complexType name="Reason">
  <xs:sequence>
    <xs:element minOccurs="1" maxOccurs="1" name="code" type="ReasonCode_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.code"/>
    <xs:element minOccurs="0" maxOccurs="1" name="text" type="ReasonText_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason.text"/>
  </xs:sequence>
</xs:complexType>
```
<xs:element minOccurs="1" maxOccurs="1" name="sender_MarketParticipant.marketRole.type" type="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
  </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="receiver_MarketParticipant.mRID" type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID">
    </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="receiver_MarketParticipant.marketRole.type" type="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
    </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="createdDateTime" type="ESMP_DateTime" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Document.createdDateTime">
    </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="reserveBid_Period.timeInterval" type="ESMP_DateTimeInterval" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval">
    </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="domain.mRID" type="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID">
    </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="subject_MarketParticipant.mRID" type="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID">
    </xs:element>
  <xs:element minOccurs="1" maxOccurs="1" name="subject_MarketParticipant.marketRole.type" type="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type">
    </xs:element>
    </xs:element>
  </xs:sequence>
</xs:complexType>
</xs:schema>