European Network of
Transmission System Operators
for Electricity

RESERVE BID DOCUMENT
UML MODEL AND SCHEMA

2024-01-17
AGREED DOCUMENT
VERSION 1.5

Table of Contents

List of figures

List of tables

Copyright notice:

Maintenance notice:

This document is maintained by the ENTSO-E CIM WG. Comments or remarks are to be provided at cim@entsoe.eu

Revision History

Version	Release	Date	Comments
0	0	2016-12-02	First drafting of the document.
1	0	2018-01-10	First drafting of the document. XSD: V7.1: difference with V7.0: Added optional attribute MarketProduct Added optional attribute ValidityPeriod
1	1	2018-03-08	XSD: V7.1 Added two new relations between MarketProduct and BidTimeSeries Version approved by MC
1	2	2020-12-15	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.
1	3	2022-02-01	XSD: 7.3 Quantity_Measure_Unit.name & Price_Measure_Unit.name & EnergyPrice_Measure_Unit.name attributes were renamed to Quantity_Measurement_Unit.name & Price_Measurement_Unit.name & EnergyPrice_Measurement_Unit.name to be compliant with the ESMP. Approved by MC.
1	4	2022-10-18	XSD: 7.4 • New optional mktPSRType.psrType and inclusiveBidsIdentification attributes added at BidTimeSeries. Agreed by CIM EG.
1	5	2024-01-17	XSD 7.5 New optional quality attribute added at Point class. Agreed by CIM WG.

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.

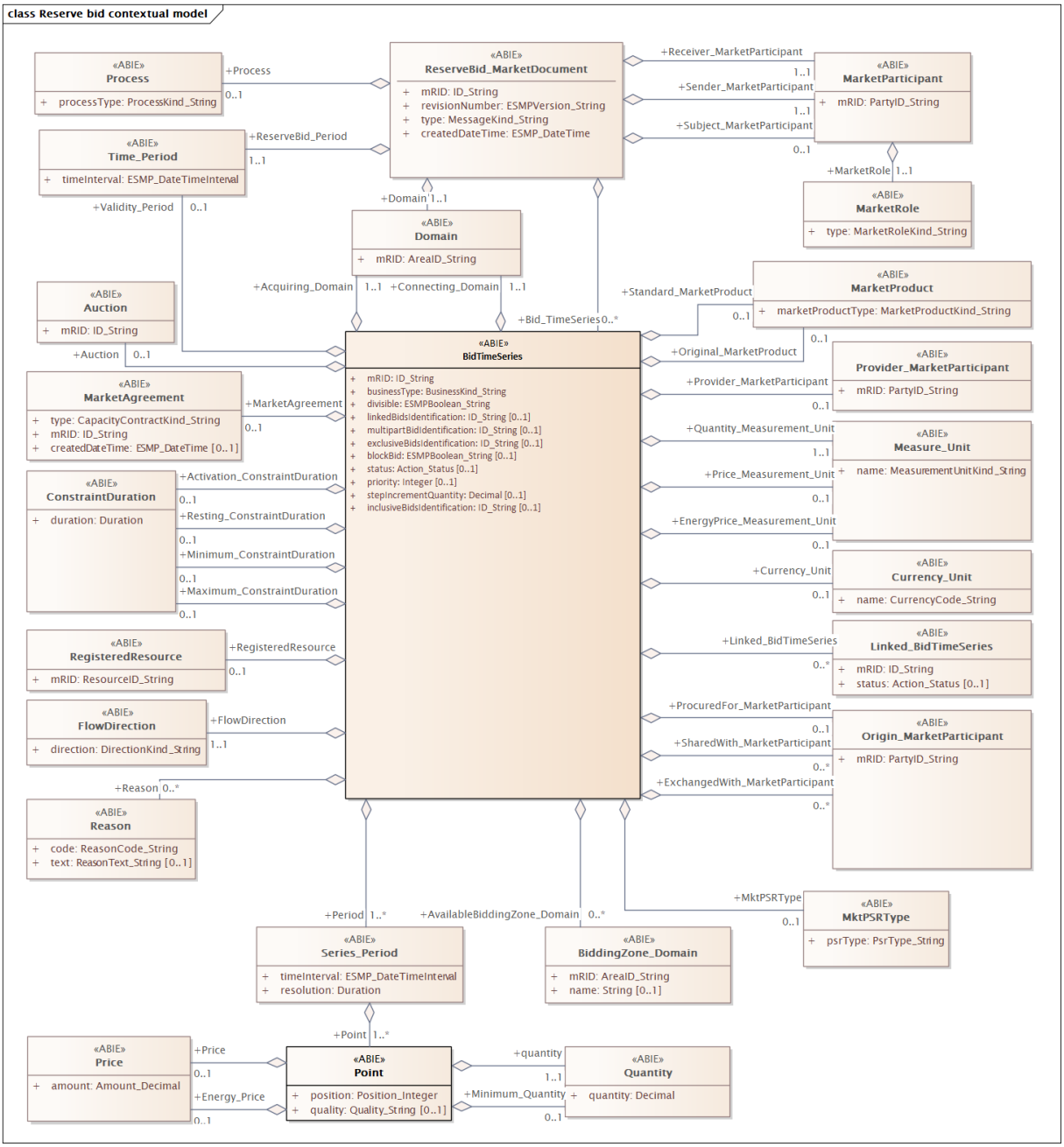

Figure 1 - Reserve bid contextual model

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

Name	Complete IsBasedOn Path
Auction	TC57CIM::Market::MarketManagement::Auction
BiddingZone_Domain	TC57CIM::Market::MarketManagement::Domain
BidTimeSeries	TC57CIM::Market::MarketManagement::BidTimeSeries
ConstraintDuration	TC57CIM::Market::MarketManagement::ConstraintDuration
Currency_Unit	TC57CIM::Market::MarketManagement::Unit
Domain	TC57CIM::Market::MarketManagement::Domain
FlowDirection	TC57CIM::Market::MarketManagement::FlowDirection
Linked_BidTimeSeries	TC57CIM::Market::MarketManagement::BidTimeSeries
MarketAgreement	TC57CIM::Market::MarketManagement::MarketAgreement
MarketParticipant	TC57CIM::Market::MarketCommon::MarketParticipant
MarketProduct	TC57CIM::Market::MarketCommon::MarketProduct
MarketRole	TC57CIM::Market::MarketCommon::MarketRole
Measure_Unit	TC57CIM::Market::MarketManagement::Unit
MktPSRType	TC57CIM::Market::MarketManagement::MktPSRType
Origin_MarketParticipant	TC57CIM::Market::MarketCommon::MarketParticipant
Point	TC57CIM::Market::MarketManagement::Point
Price	TC57CIM::Market::MarketManagement::Price
Process	TC57CIM::Market::MarketManagement::Process
Provider_MarketParticipant	TC57CIM::Market::MarketCommon::MarketParticipant
Quantity	TC57CIM::Market::MarketManagement::Quantity
Reason	TC57CIM::Market::MarketManagement::Reason
RegisteredResource	TC57CIM::Market::MarketCommon::RegisteredResource
ReserveBid_MarketDocument	TC57CIM::Market::MarketManagement::MarketDocument
Series_Period	TC57CIM::Market::MarketManagement::Period
Time_Period	TC57CIM::Market::MarketManagement::Period

2.2 Reserve bid assembly model

2.2.1 Overview of the model

Figure 2 shows the model.

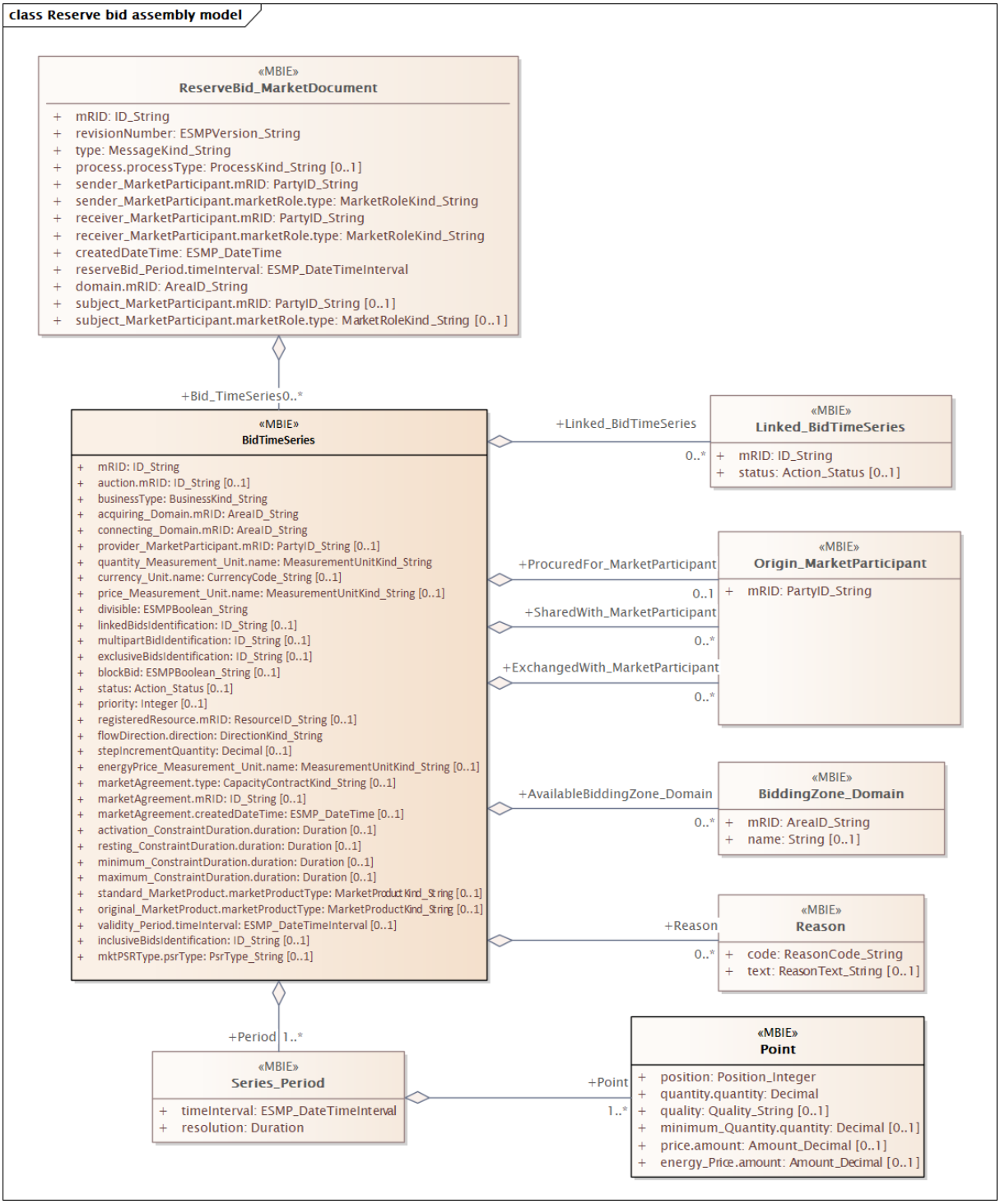

Figure 2 - Reserve bid assembly model

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 2 - IsBasedOn dependency

Name	Complete IsBasedOn Path
BiddingZone_Domain	TC57CIM::Market::MarketManagement::Domain
BidTimeSeries	TC57CIM::Market::MarketManagement::BidTimeSeries
Linked_BidTimeSeries	TC57CIM::Market::MarketManagement::BidTimeSeries
Origin_MarketParticipant	TC57CIM::Market::MarketCommon::MarketParticipant
Point	TC57CIM::Market::MarketManagement::Point
Reason	TC57CIM::Market::MarketManagement::Reason
ReserveBid_MarketDocument	TC57CIM::Market::MarketManagement::MarketDocument
Series_Period	TC57CIM::Market::MarketManagement::Period

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 3 - Attributes of Reserve bid assembly model::ReserveBid_MarketDocument

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The unique identification of the document being exchanged within a business process flow.
1	[1..1]	revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
3	[0..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses.
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.
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.

Order	mult.	Attribute name / Attribute type	Description
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	reserveBid_Period.timeInterval ESMP_DateTimeInterval	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.
10	[1..1]	domain.mRID AreaID_String	The unique identification of the domain. --- The domain covered within the bid document, i.e. the border for which auction is done.
11	[0..1]	subject_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The party for whom the bid is being submitted.
12	[0..1]	subject_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The party for whom the bid is being submitted.

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

Order	mult.	Class name / Role	Description
13	[0..*]	BidTimeSeries Bid_TimeSeries	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.[]

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

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

2.2.3.3 BidTimeSeries

The formal specification of specific characteristics related to a bid.

Table 6 shows all attributes of BidTimeSeries.

Table 6 - Attributes of Reserve bid assembly model::BidTimeSeries

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[0..1]	auction.mRID ID_String	The unique identification of the auction. --- The identification linking the bid to a set of specifications created by the auction operator.
2	[1..1]	businessType BusinessKind_String	The identification of the nature of the time series.
3	[1..1]	acquiring_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is to be put.
4	[1..1]	connecting_Domain.mRID AreaID_String	The unique identification of the domain. --- The area where the energy is coming from.
5	[0..1]	provider_MarketParticipant.mRID PartyID_String	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.
6	[1..1]	quantity_Measurement_Unit.name MeasurementUnitKind_String	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.
7	[0..1]	currency_Unit.name CurrencyCode_String	The identification of the formal code for a currency (ISO 4217). --- The currency in which the monetary amount is expressed.
8	[0..1]	price_Measurement_Unit.name MeasurementUnitKind_String	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.).
9	[1..1]	divisible ESMPBoolean_String	An indication whether or not each element of the bid may be partially accepted or not.
10	[0..1]	linkedBidsIdentification ID_String	The unique identification used to identify associated bids with each other.
11	[0..1]	multipartBidIdentification ID_String	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.
12	[0..1]	exclusiveBidsIdentification ID_String	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.

Order	mult.	Attribute name / Attribute type	Description
13	[0..1]	blockBid ESMPBoolean_String	The indication that the values in the period are considered as a whole. They cannot be changed or subdivided.
14	[0..1]	status Action_Status	The information about the status of the bid, such as "shared", "restricted", ...
15	[0..1]	priority Integer	The numeric local priority given to a bid. Lower numeric values will have higher priority.
16	[0..1]	registeredResource.mRID ResourceID_String	The unique identification of a resource. --- The identification of a resource associated with a TimeSeries.
17	[1..1]	flowDirection.direction DirectionKind_String	The coded identification of the direction of energy flow.
18	[0..1]	stepIncrementQuantity Decimal	The minimum increment that can be applied for an increase in an activation request.
19	[0..1]	energyPrice_Measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20).
20	[0..1]	marketAgreement.type CapacityContractKind_String	The specification of the kind of the agreement, e.g. long term, daily contract.
21	[0..1]	marketAgreement.mRID ID_String	The unique identification of the agreement.
22	[0..1]	marketAgreement.createdDateTime ESMP_DateTime	The date and time of the creation of the agreement.
23	[0..1]	activation_ConstraintDuration.duration Duration	The duration of the constraint. --- The delay before the regulation becomes effective after the activation.
24	[0..1]	resting_ConstraintDuration.duration Duration	The duration of the constraint. --- The delay to be respected between the end of activation and the start of the next activation.
25	[0..1]	minimum_ConstraintDuration.duration Duration	The duration of the constraint. --- The minimum duration that a regulation has to be up once the bid is activated.
26	[0..1]	maximum_ConstraintDuration.duration Duration	The duration of the constraint. --- The maximum duration that a regulation has to be up once the bid is activated.
27	[0..1]	standard_MarketProduct.marketProductType MarketProductKind_String	The Type of product on a market view
28	[0..1]	original_MarketProduct.marketProductType MarketProductKind_String	The Type of product on a market view
29	[0..1]	validity_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The period when the Bid can be activated.
30	[0..1]	inclusiveBidsIdentification ID_String	Unique identification associated with all linked bids. The identification of a set of bids that are linked together signifying that these bids must be accepted together. This identification is defined by the tenderer and must be unique for a given auction.
31	[0..1]	mktPSRType.psrType PsrType_String	The coded type of a power system resource. --- The identification of the type of resource associated with a TimeSeries.

Table 7 shows all association ends of BidTimeSeries with other classes.

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

Order	mult.	Class name / Role	Description
32	[1..*]	Series_Period Period	Association Based On: Reserve bid contextual model::Series_Period.Period[1..*] ----- Reserve bid contextual model::BidTimeSeries.[]
33	[0..*]	BiddingZone_Domain AvailableBiddingZone_Domain	The domain associated with a TimeSeries. Association Based On: Reserve bid contextual model::BidTimeSeries.[] ----- Reserve bid contextual model::BiddingZone_Domain.AvailableBiddingZone_Domain[0..*]
34	[0..*]	Reason Reason	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.[]
35	[0..*]	Linked_BidTimeSeries Linked_BidTimeSeries	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.[]
36	[0..1]	Origin_MarketParticipant ProcuredFor_MarketParticipant	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.[]
37	[0..*]	Origin_MarketParticipant SharedWith_MarketParticipant	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.[]
38	[0..*]	Origin_MarketParticipant ExchangedWith_MarketParticipant	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.[]

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

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series. In the ESMP context, the "model authority" is defined as a party (originator of the exchange) that provides a unique identification in the context of a business exchange such as time series identification, bid identification, ... Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.
1	[0..1]	status Action_Status	The information about the status of the bid, such as "shared", "restricted", ...

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

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

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

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.quantity Decimal	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.
2	[0..1]	quality Quality_String	The quality of the information being provided. This quality may be estimated, not available, as provided, etc.
3	[0..1]	minimum_Quantity.quantity Decimal	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.
4	[0..1]	price.amount Amount_Decimal	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 "first come first serve").
5	[0..1]	energy_Price.amount Amount_Decimal	A number of monetary units specified in a unit of currency.

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

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.

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

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	timeInterval ESMP_DateTimeInterval	The start and end time of the period.

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

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

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	Association Based On: Reserve bid contextual model::Point.Point[1..*] ----- Reserve bid contextual model::Series_Period.[]

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

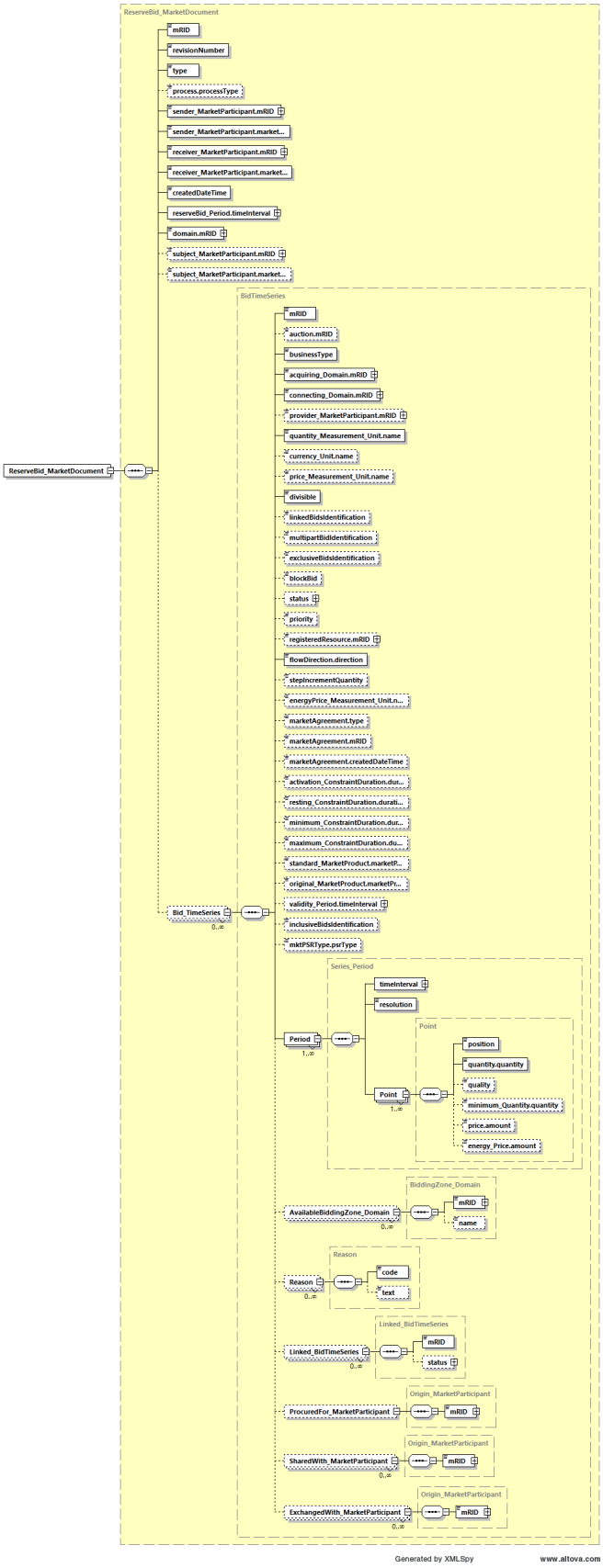

Figure 3 - ReserveBid_MarketDocument XML schema structure

2.2.6. ReserveBid_MarketDocument XML schema

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

urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:5

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
xmlns="urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:5"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
xmlns:cimp="http://www.iec.ch/cimprofile"
xmlns:xs="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:simpleType 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:simpleType>
	<xs:simpleType name="BusinessKind_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
		<xs:restriction base="ecl:BusinessTypeList"/>
	</xs:simpleType>
	<xs:simpleType name="PartyID_String-base" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
		<xs:restriction base="xs:string">
```

```
                    <xs:maxLength value="16"/>
              </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="PartyID_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:simpleContent>
                    <xs:extension base="PartyID_String-base">
                          <xs:attribute name="codingScheme"
type="ecl:CodingSchemeTypeList" use="required"/>
                    </xs:extension>
              </xs:simpleContent>
        </xs:complexType>
        <xs:simpleType name="MeasurementUnitKind_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
        </xs:simpleType>
        <xs:simpleType name="CurrencyCode_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:restriction base="ecl:CurrencyTypeList"/>
        </xs:simpleType>
        <xs:simpleType name="ESMPBoolean_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:restriction base="ecl:IndicatorTypeList"/>
        </xs:simpleType>
        <xs:simpleType name="ResourceID_String-base" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:restriction base="xs:string">
                    <xs:maxLength value="60"/>
              </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="ResourceID_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:simpleContent>
                    <xs:extension base="ResourceID_String-base">
                          <xs:attribute name="codingScheme"
type="ecl:CodingSchemeTypeList" use="required"/>
                    </xs:extension>
              </xs:simpleContent>
        </xs:complexType>
        <xs:simpleType name="DirectionKind_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:restriction base="ecl:DirectionTypeList"/>
        </xs:simpleType>
        <xs:simpleType name="CapacityContractKind_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
              <xs:restriction base="ecl:ContractTypeList"/>
        </xs:simpleType>
        <xs:simpleType name="ESMP_DateTime" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
              <xs:restriction base="xs:dateTime">
                    <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
9]|[12][0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
9]|30))T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
9])Z)|(([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|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][0134578
9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
9]|2[0-8])T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
            </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="MarketProductKind_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
            <xs:restriction base="ecl:MarketProductTypeList"/>
      </xs:simpleType>
      <xs:simpleType name="PsrType_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
            <xs:restriction base="ecl:AssetTypeList"/>
      </xs:simpleType>
      <xs:simpleType name="Status_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
            <xs:restriction base="ecl:StatusTypeList"/>
      </xs:simpleType>
      <xs:complexType name="Action_Status" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Status">
            <xs:sequence>
                  <xs:element name="value" type="Status_String" minOccurs="1"
maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#Status.value"/>
            </xs:sequence>
      </xs:complexType>
      <xs:simpleType name="YMDHM_DateTime" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
            <xs:restriction base="xs:string">
                  <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
9]|[12][0-9]|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-
9])Z)|(([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T(([01][0-9]|2[0-3]):[0-
5][0-
9])Z)|(([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
9]|2[0-8])T(([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
            </xs:restriction>
      </xs:simpleType>
      <xs:complexType name="ESMP_DateTimeInterval" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
            <xs:sequence>
                  <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#DateTimeInterval.start"/>
                  <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#DateTimeInterval.end"/>
            </xs:sequence>
      </xs:complexType>
      <xs:complexType name="BidTimeSeries" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries">
```

```
363                 <xs:sequence>
364                         <xs:element name="mRID" type="ID_String" minOccurs="1"
365   maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
366   cim16#IdentifiedObject.mRID"/>
367                         <xs:element name="auction.mRID" type="ID_String" minOccurs="0"
368   maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
369   cim16#IdentifiedObject.mRID"/>
370                         <xs:element name="businessType" type="BusinessKind_String"
371   minOccurs="1" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
372   schema-cim16#TimeSeries.businessType"/>
373                         <xs:element name="acquiring_Domain.mRID" type="AreaID_String"
374   minOccurs="1" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
375   schema-cim16#IdentifiedObject.mRID"/>
376                         <xs:element name="connecting_Domain.mRID" type="AreaID_String"
377   minOccurs="1" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
378   schema-cim16#IdentifiedObject.mRID"/>
379                         <xs:element name="provider_MarketParticipant.mRID"
380   type="PartyID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
381   http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
382                         <xs:element name="quantity_Measurement_Unit.name"
383   type="MeasurementUnitKind_String" minOccurs="1" maxOccurs="1"
384   sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
385                         <xs:element name="currency_Unit.name"
386   type="CurrencyCode_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
387   http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
388                         <xs:element name="price_Measurement_Unit.name"
389   type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
390   sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
391                         <xs:element name="divisible" type="ESMPBoolean_String"
392   minOccurs="1" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
393   schema-cim16#BidTimeSeries.divisible"/>
394                         <xs:element name="linkedBidsIdentification" type="ID_String"
395   minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
396   schema-cim16#BidTimeSeries.linkedBidsIdentification"/>
397                         <xs:element name="multipartBidIdentification" type="ID_String"
398   minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
399   schema-cim16#BidTimeSeries.multipartBidIdentification"/>
400                         <xs:element name="exclusiveBidsIdentification" type="ID_String"
401   minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
402   schema-cim16#BidTimeSeries.exclusiveBidsIdentification"/>
403                         <xs:element name="blockBid" type="ESMPBoolean_String"
404   minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
405   schema-cim16#BidTimeSeries.blockBid"/>
406                         <xs:element name="status" type="Action_Status" minOccurs="0"
407   maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
408   cim16#BidTimeSeries.status"/>
409                         <xs:element name="priority" type="xs:integer" minOccurs="0"
410   maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
411   cim16#BidTimeSeries.priority"/>
412                         <xs:element name="registeredResource.mRID"
413   type="ResourceID_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
414   http://iec.ch/TC57/2013/CIM-schema-cim16#IdentifiedObject.mRID"/>
415                         <xs:element name="flowDirection.direction"
416   type="DirectionKind_String" minOccurs="1" maxOccurs="1" sawsdl:modelReference="
417   http://iec.ch/TC57/2013/CIM-schema-cim16#FlowDirection.direction"/>
```

```
                    <xs:element name="stepIncrementQuantity" type="xs:decimal"
minOccurs="0" maxOccurs="1" sawsdl: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"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
                    <xs:element name="marketAgreement.type"
type="CapacityContractKind_String" minOccurs="0" maxOccurs="1"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-cim16#Document.type"/>
                    <xs:element name="marketAgreement.mRID" type="ID_String"
minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
schema-cim16#IdentifiedObject.mRID"/>
                    <xs:element name="marketAgreement.createdDateTime"
type="ESMP_DateTime" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Document.createdDateTime"/>
                    <xs:element name="activation_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
                    <xs:element name="resting_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
                    <xs:element name="minimum_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
                    <xs:element name="maximum_ConstraintDuration.duration"
type="xs:duration" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#ConstraintDuration.duration"/>
                    <xs:element name="standard_MarketProduct.marketProductType"
type="MarketProductKind_String" minOccurs="0" maxOccurs="1"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#MarketProduct.marketProductType"/>
                    <xs:element name="original_MarketProduct.marketProductType"
type="MarketProductKind_String" minOccurs="0" maxOccurs="1"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#MarketProduct.marketProductType"/>
                    <xs:element name="validity_Period.timeInterval"
type="ESMP_DateTimeInterval" minOccurs="0" maxOccurs="1" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Period.timeInterval"/>
                    <xs:element name="inclusiveBidsIdentification" type="ID_String"
minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
schema-cim16#BidTimeSeries.inclusiveBidsIdentification"/>
                    <xs:element name="mktPSRType.psrType" type="PsrType_String"
minOccurs="0" maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-
schema-cim16#MktPSRType.psrType"/>
                    <xs:element name="Period" type="Series_Period" minOccurs="1"
maxOccurs="unbounded" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.Period"/>
                    <xs:element name="AvailableBiddingZone_Domain"
type="BiddingZone_Domain" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.AvailableBiddingZone_Domain"/>
                    <xs:element name="Reason" type="Reason" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.Reason"/>
                    <xs:element name="Linked_BidTimeSeries"
type="Linked_BidTimeSeries" minOccurs="0" maxOccurs="unbounded"
```

```
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.Linked_BidTimeSeries"/>
                    <xs:element name="ProcuredFor_MarketParticipant"
type="Origin_MarketParticipant" minOccurs="0" maxOccurs="1"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.ProcuredFor_MarketParticipant"/>
                    <xs:element name="SharedWith_MarketParticipant"
type="Origin_MarketParticipant" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.SharedWith_MarketParticipant"/>
                    <xs:element name="ExchangedWith_MarketParticipant"
type="Origin_MarketParticipant" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.ExchangedWith_MarketParticipant"/>
             </xs:sequence>
       </xs:complexType>
       <xs:complexType name="Linked_BidTimeSeries" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#BidTimeSeries">
             <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="status" type="Action_Status" minOccurs="0"
maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#BidTimeSeries.status"/>
             </xs:sequence>
       </xs:complexType>
       <xs:complexType name="Origin_MarketParticipant" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#MarketParticipant">
             <xs:sequence>
                    <xs:element name="mRID" type="PartyID_String" minOccurs="1"
maxOccurs="1" sawsdl:modelReference=" http://iec.ch/TC57/2013/CIM-schema-
cim16#IdentifiedObject.mRID"/>
             </xs:sequence>
       </xs:complexType>
       <xs:simpleType name="Position_Integer" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
             <xs:restriction base="xs:integer">
                    <xs:maxInclusive value="999999"/>
                    <xs:minInclusive value="1"/>
             </xs:restriction>
       </xs:simpleType>
       <xs:simpleType name="Quality_String" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#String">
             <xs:restriction base="ecl:QualityTypeList"/>
       </xs:simpleType>
       <xs:simpleType name="Amount_Decimal" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Decimal">
             <xs:restriction base="xs:decimal">
                    <xs:totalDigits value="17"/>
             </xs:restriction>
       </xs:simpleType>
       <xs:complexType name="Point" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
             <xs:sequence>
```

```
                    <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#Quantity.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:sequence>
        </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:complexType name="Reason" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
              <xs:sequence>
                    <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="ecl:RoleTypeList"/>
        </xs:simpleType>
        <xs:complexType name="ReserveBid_MarketDocument" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
                <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="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:element name="Bid_TimeSeries" type="BidTimeSeries"
minOccurs="0" maxOccurs="unbounded" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument.Bid_TimeSeries"/>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="Series_Period" sawsdl:modelReference="
http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
                <xs:sequence>
```

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