RESOURCE SCHEDULE CONFIRMATION DOCUMENT
UML MODEL AND SCHEMA

2019-02-12
APPROVED DOCUMENT
VERSION 1.0
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## Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Release</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2019-01-14</td>
<td>First draft of the document.</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>2019-02-12</td>
<td>Approved by MC.</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 ResourceScheduleConfirmation_MarketDocument. The schema of the ResourceScheduleConfirmation_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 ResourceScheduleConfirmation_MarketDocument

2.1 Resource schedule confirmation contextual model

2.1.1 Overview of the model

Figure 1 shows the model.

Figure 1 - Resource schedule confirmation 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>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>Measure_Unit</td>
<td>TC57CIM::IEC62325::MarketManagement::Unit</td>
</tr>
<tr>
<td>Original_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>PlannedResource_TimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::TimeSeries</td>
</tr>
<tr>
<td>Point</td>
<td>TC57CIM::IEC62325::MarketManagement::Point</td>
</tr>
<tr>
<td>Process</td>
<td>TC57CIM::IEC62325::MarketManagement::Process</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>ResourceProvider_MarketParticipant</td>
<td>TC57CIM::IEC62325::MarketCommon::MarketParticipant</td>
</tr>
<tr>
<td>ResourceScheduleConfirmation_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>
<tr>
<td>UnavailableReserve_TimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::TimeSeries</td>
</tr>
</tbody>
</table>
2.2 Resource schedule confirmation 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>Original_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>PlannedResource_TimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::TimeSeries</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>ResourceScheduleConfirmation_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>Series_Period</td>
<td>TC57CIM::IEC62325::MarketManagement::Period</td>
</tr>
<tr>
<td>UnavailableReserve_TimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::TimeSeries</td>
</tr>
</tbody>
</table>

2.2.3 Detailed Resource schedule confirmation assembly model

2.2.3.1 ResourceScheduleConfirmation_MarketDocument root class

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

Table 3 shows all attributes of ResourceScheduleConfirmation_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>type MessageKind_String</td>
<td>The coded type of a document. The document type describes the principal characteristic of the document.</td>
</tr>
<tr>
<td>2</td>
<td>[1..1]</td>
<td>sender_MarketParticipant.mRID PartyID_String</td>
<td>The identification of a party in the energy market. The document owner.</td>
</tr>
<tr>
<td>3</td>
<td>[1..1]</td>
<td>sender_MarketParticipant.marketRole.type MarketRoleKind_String</td>
<td>The identification of the role played by a market player. The role associated with a MarketParticipant.</td>
</tr>
<tr>
<td>4</td>
<td>[1..1]</td>
<td>receiver_MarketParticipant.mRID PartyID_String</td>
<td>The identification of a party in the energy market. The document recipient.</td>
</tr>
<tr>
<td>5</td>
<td>[1..1]</td>
<td>receiver_MarketParticipant.marketRole.type MarketRoleKind_String</td>
<td>The identification of the role played by a market player. The role associated with a MarketParticipant.</td>
</tr>
<tr>
<td>6</td>
<td>[1..1]</td>
<td>createdDateTime ESMP_DateTime</td>
<td>The date and time of the creation of the document.</td>
</tr>
<tr>
<td>7</td>
<td>[1..1]</td>
<td>schedule_Period.timeInterval ESMP_DateTimeInterval</td>
<td>The start and end date and time for a given interval.</td>
</tr>
</tbody>
</table>

Table 4 shows all association ends of ResourceScheduleConfirmation_MarketDocument with other classes.
Table 4 - Association ends of Resource schedule confirmation assembly
model::ResourceScheduleConfirmation_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></td>
<td></td>
<td></td>
<td>Resource schedule confirmation contextual model::ResourceScheduleConfirmation_MarketDocument[]</td>
</tr>
<tr>
<td>9</td>
<td>[1..*]</td>
<td>Reason</td>
<td>Association Based On: Resource schedule confirmation contextual model::Reason.Reason[1..*]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Resource schedule confirmation contextual model::ResourceScheduleConfirmation_MarketDocument[]</td>
</tr>
</tbody>
</table>

2.2.3.2 Original_MarketDocument

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

Table 5 shows all attributes of Original_MarketDocument.

Table 5 - Attributes of Resource schedule confirmation assembly
model::Original_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>2</td>
<td>[0..1]</td>
<td>domain.mRID AreaID_String</td>
<td>The unique identification of the domain.</td>
</tr>
<tr>
<td>3</td>
<td>[0..1]</td>
<td>subject_MarketParticipant.mRID PartyID_String</td>
<td>The identification of a party in the energy market. The party that is the subject of the documents time series.</td>
</tr>
<tr>
<td>4</td>
<td>[0..1]</td>
<td>subject_MarketParticipant.marketRole.type MarketRoleKind_String</td>
<td>The identification of the role played by a market player. The party that is the subject of the documents time series. The role associated with a MarketParticipant.</td>
</tr>
<tr>
<td>5</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>
</tbody>
</table>

Table 6 shows all association ends of Original_MarketDocument with other classes.
Table 6 - Association ends of Resource schedule confirmation assembly
model::Original_MarketDocument with other classes

<table>
<thead>
<tr>
<th>Order</th>
<th>mult.</th>
<th>Class name / Role</th>
<th>Description</th>
</tr>
</thead>
</table>

2.2.3.3 PlannedResource_TimeSeries

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

Table 7 shows all attributes of PlannedResource_TimeSeries.

Table 7 - Attributes of Resource schedule confirmation assembly
model::PlannedResource_TimeSeries

<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>businessType.BusinessKind_String</td>
<td>The identification of the nature of the time series.</td>
</tr>
<tr>
<td>2</td>
<td>[0..1]</td>
<td>flowDirection.direction.DirectionKind_String</td>
<td>The coded identification of the direction of energy flow. --- The flow direction associated with a TimeSeries.</td>
</tr>
<tr>
<td>3</td>
<td>[1..1]</td>
<td>product.EnergyProductKind_String</td>
<td>The identification of the nature of an energy product such as power, energy, reactive power, etc.</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 domain associated with a TimeSeries.</td>
</tr>
<tr>
<td>5</td>
<td>[0..1]</td>
<td>registeredResource.mRID.ResourceID_String</td>
<td>The unique identification of a resource.</td>
</tr>
<tr>
<td>6</td>
<td>[1..1]</td>
<td>resourceProvider_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.</td>
</tr>
<tr>
<td>7</td>
<td>[0..1]</td>
<td>acquiring_Domain.mRID.AreaID_String</td>
<td>The unique identification of the domain. --- The domain associated with a TimeSeries.</td>
</tr>
<tr>
<td>8</td>
<td>[0..1]</td>
<td>marketAgreement.type.CapacityContractKind_String</td>
<td>The specification of the kind of the agreement, e.g. long term, daily contract. --- The identification of an agreement associated with a TimeSeries.</td>
</tr>
<tr>
<td>9</td>
<td>[0..1]</td>
<td>marketAgreement.mRID.ID_String</td>
<td>The unique identification of the agreement. --- The identification of an agreement associated with a TimeSeries.</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>10</td>
<td>[1..1]</td>
<td>measurement_Unit.name</td>
<td>The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). -- The unit of measure associated with the quantities in a TimeSeries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MeasurementUnitKind_String</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>[0..1]</td>
<td>objectAggregation</td>
<td>The identification of the domain that is the common denominator used to aggregate a time series.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ObjectAggregationKind_String</td>
<td></td>
</tr>
</tbody>
</table>

Table 8 shows all association ends of PlannedResource_TimeSeries with other classes.

**Table 8 - Association ends of Resource schedule confirmation assembly model::PlannedResource_TimeSeries 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>12</td>
<td>[1..*]</td>
<td>Series_Period</td>
<td>The time interval and resolution for a period associated with a TimeSeries. Association Based On: Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.[]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Series_Period[1..*]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resource schedule confirmation contextual model::Series_Period.Series_Period[1..*]</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>[0..*]</td>
<td>Reason</td>
<td>Association Based On: Resource schedule confirmation contextual model::Reason.Reason[0..*]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reason[0..*]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.[]</td>
<td></td>
</tr>
</tbody>
</table>

**2.2.3.4 Point**

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

Table 9 shows all attributes of Point.

**Table 9 - Attributes of Resource schedule confirmation 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</td>
<td>The principal quantity identified for a point.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decimal</td>
<td></td>
</tr>
</tbody>
</table>

Table 10 shows all association ends of Point with other classes.

**Table 10 - Association ends of Resource schedule confirmation assembly model::Point 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>[0..*]</td>
<td>Reason</td>
<td>The Reason information associated with a Point providing motivation information. Association Based On: Resource schedule confirmation contextual model::Point.[]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reason[0..*]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resource schedule confirmation contextual model::Reason.Reason[0..*]</td>
<td></td>
</tr>
</tbody>
</table>
2.2.3.5 Reason
The motivation of an act.
Table 11 shows all attributes of Reason.

<table>
<thead>
<tr>
<th>Order</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>code ReasonCode_String [1..1]</td>
<td>The motivation of an act in coded form.</td>
</tr>
<tr>
<td>1</td>
<td>text ReasonText_String [0..1]</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 12 shows all attributes of Series_Period.

<table>
<thead>
<tr>
<th>Order</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>timeInterval ESMP_DateTimeInterval [1..1]</td>
<td>The start and end time of the period.</td>
</tr>
<tr>
<td>1</td>
<td>resolution Duration [1..1]</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>
<thead>
<tr>
<th>Order</th>
<th>Class name / Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Point [1..*]</td>
<td>The Point information associated with a given Series_Period.within a TimeSeries. Association Based On: Resource schedule confirmation contextual model::Series_Period.[] ----- Resource schedule confirmation contextual model::Point.Point[1..*]</td>
</tr>
</tbody>
</table>

2.2.3.7 UnavailableReserve_TimeSeries
A set of time-ordered quantities being exchanged in relation to a product.
Table 14 shows all attributes of UnavailableReserve_TimeSeries.

<table>
<thead>
<tr>
<th>Order</th>
<th>Attribute name / Attribute type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>mRID ID_String [1..1]</td>
<td>A unique identification of the time series.</td>
</tr>
</tbody>
</table>
## Table 15 - Association ends of Resource schedule confirmation assembly model::UnavailableReserve_TimeSeries 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>12</td>
<td>[1..*]</td>
<td>Series_Period</td>
<td>The time interval and resolution for a period associated with a TimeSeries. Association Based On: Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.[]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Series_Period</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>----- Resource schedule confirmation contextual model::Series_Period.Series_Period[1..*]</td>
</tr>
<tr>
<td>13</td>
<td>[0..*]</td>
<td>Reason</td>
<td>Association Based On: Resource schedule confirmation contextual model::Reason.Reason[0..*]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reason</td>
<td>----- Resource schedule confirmation contextual model::UnavailableReserve_TimeSeries.[]</td>
</tr>
</tbody>
</table>
2.2.4 Datatypes

The list of datatypes used for the Resource schedule confirmation assembly model is as follows:

- `ESMP_DateTimeInterval` compound
- `AreaID_String` datatype, codelist `CodingSchemeTypeList`
- `BusinessKind_String` datatype, codelist `BusinessTypeList`
- `CapacityContractKind_String` datatype, codelist `ContractTypeList`
- `DirectionKind_String` datatype, codelist `DirectionTypeList`
- `EnergyProductKind_String` datatype, codelist `EnergyProductTypeList`
- `ESMP_DateTime` datatype
- `ESMPVersion_String` datatype
- `ID_String` datatype
- `MarketRoleKind_String` datatype, codelist `RoleTypeList`
- `MeasurementUnitKind_String` datatype, codelist `UnitOfMeasureTypeList`
- `MessageKind_String` datatype, codelist `MessageTypeList`
- `ObjectAggregationKind_String` datatype, codelist `ObjectAggregationTypeList`
- `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`
- `YMDHM_DateTime` datatype
2.2.5 ResourceScheduleConfirmation_MarketDocument XML schema structure

Figure 3 - ResourceScheduleConfirmation_MarketDocument schema structure
2.2.6 ResourceScheduleConfirmation_MarketDocument XML schema

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

urn:iec62325.351:tc57wg16:451:resourcescheduleconfirmationdocument:6:0

```xml
<xml version="1.0" encoding="utf-8">  
  <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"  
    targetNamespace="urn:iec62325.351:tc57wg16:451:resourcescheduleconfirmationdocument:6:0"  
    elementFormDefault="qualified"  
    attributeFormDefault="unqualified">  
    <xs:import namespace="urn:entsoe.eu:wgedi:codelists"  
      schemaLocation="urn:entsoe.eu:wgedi:codelists.sawsdl.xsd"/>  
    <xs:element name="ResourceScheduleConfirmation_MarketDocument"  
      type="ResourceScheduleConfirmation_MarketDocument"/>  
    <xs:simpleType name="ID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String"/>  
      <xs:restriction basis="xs:string">  
      <xs:maxLength value="35"/>  
      </xs:restriction>  
    </xs:simpleType>  
    <xs:simpleType name="ESMPVersion_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String"/>  
      <xs:restriction basis="xs:string">  
      <xs:pattern values="[1-9][0-9]*"/>  
      </xs:restriction>  
    </xs:simpleType>  
    <xs:simpleType name="AreaID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String"/>  
      <xs:restriction basis="xs:string">  
      <xs:maxLength value="18"/>  
      </xs:restriction>  
    </xs:simpleType>  
    <xs:simpleType name="PartyID_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String"/>  
      <xs:restriction basis="xs:string">  
      <xs:maxLength value="16"/>  
      </xs:restriction>  
    </xs:simpleType>  
    <xs:simpleType name="MarketRoleKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String"/>  
      <xs:restriction basis="cim:RoleTypeList"/>  
    </xs:simpleType>  
    <xs:simpleType name="ProcessKind_String" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String"/>  
      <xs:restriction basis="cim:ProcessTypeList"/>  
    </xs:simpleType>  
      <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:sequence>  
  </xs:schema>  
</xml>
```
<xs:complexType name="BusinessKind_String">
    <xs:restriction base="cl:BusinessTypeList"/>
</xs:complexType>

<xs:complexType name="DirectionKind_String">
    <xs:restriction base="cl:DirectionTypeList"/>
</xs:complexType>

<xs:complexType name="EnergyProductKind_String">
    <xs:restriction base="cl:EnergyProductTypeList"/>
</xs:complexType>

<xs:simpleType name="ResourceID_String">
    <xs:restriction base="xs:string">
        <xs:maxLength value="18"/>
    </xs:restriction>
</xs:simpleType>

<xs:complexType name="ResourceID_String-base">
    <xs:restriction base="xs:string"/>
</xs:complexType>

<xs:complexType name="PlannedResource_TimeSeries">
    <xs:complexContent>
        <xs:restriction base="cim16#PlannedResource_TimeSeries">
            <xs:sequence>
                <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"/>
                <xs:element name="ID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="0"/>
                <xs:element name="mRID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="1"/>
                <xs:element name="Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:ContractTypeList" type="cim16#ContractTypeKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:BusinessTypeList" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:DirectionTypeList" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:EnergyProductTypeList" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#DirectionKind" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#BusinessKind" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
            </xs:sequence>
        </xs:restriction>
    </xs:complexContent>
</xs:complexType>

<xs:complexType name="PlannedResource_TimeSeries-basic">
    <xs:complexContent>
        <xs:restriction base="cim16#PlannedResource_TimeSeries">
            <xs:sequence>
                <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"/>
                <xs:element name="ID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="0"/>
                <xs:element name="mRID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="1"/>
                <xs:element name="Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:ContractTypeList" type="cim16#ContractTypeKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:BusinessTypeList" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:DirectionTypeList" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:EnergyProductTypeList" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#DirectionKind" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#BusinessKind" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
            </xs:sequence>
        </xs:restriction>
    </xs:complexContent>
</xs:complexType>

<xs:complexType name="UnavailableReserve_TimeSeries">
    <xs:complexContent>
        <xs:restriction base="cim16#UnavailableReserve_TimeSeries">
            <xs:sequence>
                <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"/>
                <xs:element name="ID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="0"/>
                <xs:element name="mRID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="1"/>
                <xs:element name="Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:ContractTypeList" type="cim16#ContractTypeKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:BusinessTypeList" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:DirectionTypeList" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:EnergyProductTypeList" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#DirectionKind" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#BusinessKind" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
            </xs:sequence>
        </xs:restriction>
    </xs:complexContent>
</xs:complexType>

<xs:complexType name="UnavailableReserve_TimeSeries-basic">
    <xs:complexContent>
        <xs:restriction base="cim16#UnavailableReserve_TimeSeries">
            <xs:sequence>
                <xs:element name="mRID" type="ID_String" minOccurs="1" maxOccurs="1"/>
                <xs:element name="ID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="0"/>
                <xs:element name="mRID" type="cim16#IdentifiedObject.mRID" minOccurs="0" maxOccurs="1"/>
                <xs:element name="Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:ContractTypeList" type="cim16#ContractTypeKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:BusinessTypeList" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:DirectionTypeList" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cl:EnergyProductTypeList" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#DirectionKind" type="cim16#DirectionKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#BusinessKind" type="cim16#BusinessKind" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#Capacity" type="cim16#Capacity" minOccurs="0" maxOccurs="0"/>
                <xs:element name="cim16#EnergyProductKind" type="cim16#EnergyProductKind" minOccurs="0" maxOccurs="0"/>
            </xs:sequence>
        </xs:restriction>
    </xs:complexContent>
</xs:complexType>