European Network of Transmission System Operators for Electricity

GENERATION LOAD DOCUMENT
UML MODEL AND SCHEMA

2017-01-27
VERSION 1.0
# Table of Contents

1  Objective .......................................................................................................................... 5
2  GL_MarketDocument .......................................................................................................... 6

2.1  GenerationLoad contextual model .................................................................................. 6

2.1.1  Overview of the model ................................................................................................. 6

2.1.2  IsBasedOn relationships from the European style market profile ................................ 7

2.2  GenerationLoad assembly model .................................................................................... 8

2.2.1  Overview of the model ................................................................................................. 8

2.2.2  IsBasedOn relationships from the European style market profile .............................. 9

2.2.3  Detailed GenerationLoad assembly model .................................................................... 9

2.2.3.1  GL_MarketDocument root class .............................................................................. 9

2.2.3.2  MktGeneratingUnit ............................................................................................... 10

2.2.3.3  MktPSRType ......................................................................................................... 10

2.2.3.4  Point ....................................................................................................................... 11

2.2.3.5  Series_Period ......................................................................................................... 11

2.2.3.6  TimeSeries ............................................................................................................ 12

2.2.4  Datatypes ................................................................................................................... 13

2.2.5  GL_MarketDocument XML schema structure ............................................................ 15

2.2.6  GL_MarketDocument XML schema ......................................................................... 17

List of figures

24  Figure 1 - GenerationLoad contextual model .................................................................... 6
25  Figure 2 - GenerationLoad assembly model ...................................................................... 8
26  Figure 3 - GL_MarketDocument schema structure 1/3 ....................................................... 15
27  Figure 4 - GL_MarketDocument schema structure 2/3 ....................................................... 16
28  Figure 5 - GL_MarketDocument schema structure 3/3 ....................................................... 17

List of tables

30  Table 1 - IsBasedOn dependency ....................................................................................... 7
31  Table 2 - IsBasedOn dependency ....................................................................................... 9
32  Table 3 - Attributes of GenerationLoad assembly model::GL_MarketDocument .......... 9
33  Table 4 - Association ends of GenerationLoad assembly model::GL_MarketDocument with other classes ......................................................................................................................... 10
35  Table 5 - Attributes of GenerationLoad assembly model::MktGeneratingUnit ................. 10
36  Table 6 - Attributes of GenerationLoad assembly model::MktPSRType ............................. 11
37  Table 7 - Association ends of GenerationLoad assembly model::MktPSRType with other classes ................................................................................................................................. 11
39  Table 8 - Attributes of GenerationLoad assembly model::Point ........................................ 11
40  Table 9 - Attributes of GenerationLoad assembly model::Series_Period .......................... 11
41  Table 10 - Association ends of GenerationLoad assembly model::Series_Period with other classes ................................................................................................................................. 11
43  Table 11 - Attributes of GenerationLoad assembly model::TimeSeries .............................. 12
44  Table 12 - Association ends of GenerationLoad assembly model::TimeSeries with other classes ................................................................................................................................. 13
Copyright notice:

This document and its whole translations may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, except for literal and whole translation into languages other than English and under all circumstances, the copyright notice or references to ENTSO-E may not be removed.

This document and the information contained herein is provided on an "as is" basis.

ENTSO-E DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Maintenance notice:

This document is maintained by the ENTSO-E WG EDI. Comments or remarks are to be provided at EDI.Library@entsoe.eu
## 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>0</td>
<td>2017-01-27</td>
<td>First drafting of the document.</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>2017-01-30</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 GL_MarketDocument.

The schema of the GL_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 GL_MarketDocument

2.1 GenerationLoad contextual model

2.1.1 Overview of the model

Figure 1 shows the model.
2.1.2 IsBasedOn relationships from the European style market profile

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

<table>
<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>GL_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</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>MktGeneratingUnit</td>
<td>TC57CIM::IEC62325::MarketCommon::MktGeneratingUnit</td>
</tr>
<tr>
<td>MktPSRType</td>
<td>TC57CIM::IEC62325::MarketManagement::MktPSRType</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>Production_VoltageLevel</td>
<td>TC57CIM::IEC61970::Base::Core::VoltageLevel</td>
</tr>
<tr>
<td>RegisteredResource</td>
<td>TC57CIM::IEC62325::MarketCommon::RegisteredResource</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>TimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::TimeSeries</td>
</tr>
</tbody>
</table>
2.2 GenerationLoad assembly model

2.2.1 Overview of the model

Figure 2 shows the model.

![UML model and schema]

Figure 2 - GenerationLoad 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>GL_MarketDocument</td>
<td>TC57CIM::IEC62325::MarketManagement::MarketDocument</td>
</tr>
<tr>
<td>MktGeneratingUnit</td>
<td>TC57CIM::IEC62325::MarketCommon::MktGeneratingUnit</td>
</tr>
<tr>
<td>MktPSRType</td>
<td>TC57CIM::IEC62325::MarketManagement::MktPSRType</td>
</tr>
<tr>
<td>Point</td>
<td>TC57CIM::IEC62325::MarketManagement::Point</td>
</tr>
<tr>
<td>Series_Period</td>
<td>TC57CIM::IEC62325::MarketManagement::Period</td>
</tr>
<tr>
<td>TimeSeries</td>
<td>TC57CIM::IEC62325::MarketManagement::TimeSeries</td>
</tr>
</tbody>
</table>

2.2.3 Detailed GenerationLoad assembly model

2.2.3.1 GL_MarketDocument root class

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

This electronic document enables the transmission of the following forms of generation and load information for given periods:

- Daily, monthly, weekly and yearly generation and load forecasts
- Yearly forecast margin
- Actual load information
- Actual generation unit information
- Available and installed capacity
- Wind and solar information
- Pumped storage and reservoir capacity

Table 3 shows all attributes of GL_MarketDocument.

<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)</td>
<td>The unique identification of the document being exchanged within a business process flow.</td>
</tr>
<tr>
<td>1</td>
<td>revisionNumber ESMVersion(String)</td>
<td>The identification of the version that distinguishes one evolution of a document from another.</td>
</tr>
<tr>
<td>2</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>3</td>
<td>process.processType ProcessKind(String)</td>
<td>The identification of the nature of process that the document addresses. The identified processes are year ahead, month ahead, week ahead, day ahead and realised.</td>
</tr>
<tr>
<td>4</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>5</td>
<td>sender_MarketParticipant.marketRole.type MarketRoleKind(String)</td>
<td>The identification of the role played by a market player. The document owner. The role associated with a MarketParticipant.</td>
</tr>
</tbody>
</table>
### Table 4 - Association ends of GenerationLoad assembly model::GL_MarketDocument with other classes

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

### 2.2.3.2 MktGeneratingUnit

The information about a generating unit.

### Table 5 - Attributes of GenerationLoad assembly model::MktGeneratingUnit

<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>[0..1]</td>
<td>mRID ResourceID_String</td>
<td>The unique identification of a resource.</td>
</tr>
<tr>
<td>1</td>
<td>[0..1]</td>
<td>name String</td>
<td>The name is any free human readable and possibly non unique text naming the object.</td>
</tr>
<tr>
<td>2</td>
<td>[0..1]</td>
<td>nominalP ESMP_ActivePower</td>
<td>The nominal power of the generating unit. This represents the installed generation capacity for the generation unit being described.</td>
</tr>
</tbody>
</table>

### 2.2.3.3 MktPSRType

The type of a power system resource

### Table 6 shows all attributes of MktPSRType.
### Table 6 - Attributes of GenerationLoad assembly model::MktPSRTyp

<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>psrType</td>
<td>PsrType_String</td>
</tr>
<tr>
<td>1</td>
<td>[0..1]</td>
<td>voltage_PowerSystemResources.highVoltageLimit</td>
<td>ESMP_Voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The bus bar’s high voltage limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>--- The voltage level of the RegisteredResource.</td>
</tr>
</tbody>
</table>

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

### Table 7 - Association ends of GenerationLoad assembly model::MktPSRTyp 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>MktGeneratingUnit</td>
<td>The generating unit(s) of the production unit identified by the RegisteredResource.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PowerSystemResources</td>
<td>Association Based On:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GenerationLoad contextual model::MktGeneratingUnit.PowerSystemResources[0..*]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>---- GenerationLoad contextual model::MktPSRTyp[].</td>
</tr>
</tbody>
</table>

### 2.2.3.4 Point

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

Table 8 shows all attributes of Point.

### Table 8 - Attributes of GenerationLoad 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>Position_Integer</td>
</tr>
<tr>
<td>1</td>
<td>[1..1]</td>
<td>quantity</td>
<td>Decimal</td>
</tr>
<tr>
<td>2</td>
<td>[0..1]</td>
<td>secondaryQuantity</td>
<td>Decimal</td>
</tr>
</tbody>
</table>

### 2.2.3.5 Series_Period

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

Table 9 shows all attributes of Series_Period.

### Table 9 - Attributes of GenerationLoad 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>ESMP_DateTimeInterval</td>
</tr>
<tr>
<td>1</td>
<td>[1..1]</td>
<td>resolution</td>
<td>Duration</td>
</tr>
</tbody>
</table>

The definition of the number of units of time that compose an individual step within a period.
Table 10 shows all association ends of Series_Period with other classes.

**Table 10 - Association ends of GenerationLoad 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 Point</td>
<td>The Point information associated with a given Series_Period.within a TimeSeries. GenerationLoad contextual model::Series_Period[,]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Association Based On:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GenerationLoad contextual model::Series_Period.[]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GenerationLoad contextual model::Point.Point[1..*]</td>
</tr>
</tbody>
</table>

2.2.3.6 **TimeSeries**

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

Table 11 shows all attributes of TimeSeries.

**Table 11 - Attributes of GenerationLoad assembly model::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>[1..1]</td>
<td>objectAggregation ObjectAggregationKind_String</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></td>
<td>The identified object aggregations are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- area;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- resource object;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- resource type.</td>
</tr>
<tr>
<td>3</td>
<td>[0..1]</td>
<td>inBiddingZone_Domain.mRID AreaID_String</td>
<td>The unique identification of the domain. --- The identification of the bidding zone where energy is going associated with a TimeSeries.</td>
</tr>
<tr>
<td>4</td>
<td>[0..1]</td>
<td>outBiddingZone_Domain.mRID AreaID_String</td>
<td>The unique identification of the domain. --- The identification of the bidding zone where energy is taken from associated with a TimeSeries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>In the case of generation, this indicates the load used by the generation unit (consumption).</td>
</tr>
<tr>
<td>5</td>
<td>[0..1]</td>
<td>registeredResource.mRID ResourceID_String</td>
<td>The unique identification of a resource. --- The identification of a resource associated with a time series.</td>
</tr>
<tr>
<td>6</td>
<td>[0..1]</td>
<td>registeredResource.name String</td>
<td>The name is any free human readable and possibly non unique text naming the object.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The name of the production unit for which the generation information is provided. --- The identification of a resource associated with a time series.</td>
</tr>
<tr>
<td>7</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 associated with the quantities in the Point class (quantity and secondaryQuantity).</td>
</tr>
<tr>
<td>8</td>
<td>[1..1]</td>
<td>curveType CurveTypeString</td>
<td>The identification of the coded representation of the type of curve being described.</td>
</tr>
</tbody>
</table>
Table 12 shows all association ends of TimeSeries with other classes.

### Table 12 - Association ends of GenerationLoad assembly model::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>10</td>
<td>[0..1]</td>
<td>MktPSRTYPE</td>
<td>The identification of the type of the RegisteredResource associated with a TimeSeries. Association Based On: GenerationLoad contextual model::TimeSeries[]. MktPSRTYPE[0..1]</td>
</tr>
<tr>
<td>11</td>
<td>[0..*]</td>
<td>Series_Period.Period</td>
<td>The time interval and resolution for a period associated with a TimeSeries. Association Based On: GenerationLoad contextual model::TimeSeries[]. Series_Period.Period[0..*]</td>
</tr>
</tbody>
</table>

## 2.2.4 Datatypes

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

- **ESMP_DateTimeInterval compound**
- **AreaID_String datatype, codelist CodingSchemeTypeList**
- **BusinessKind_String datatype, codelist BusinessTypeList**
- **CurveType_String datatype, codelist CurveTypeList**
- **ESMP_ActivePower datatype**
- **ESMP_DateTime datatype**
- **ESMP_Voltage 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**
- **ObjectAggregationKind_String datatype, codelist ObjectAggregationTypeList**
- **PartyID_String datatype, codelist CodingSchemeTypeList**
- **Position_Integer datatype**
- **ProcessKind_String datatype, codelist ProcessTypeList**
- **PsrType_String datatype, codelist AssetTypeList**
180  •  ResourceID_String datatype, codelist CodingSchemeTypeList
181  •  UnitSymbol datatype, codelist UnitSymbol
182  •  YMDHM_DateTime datatype
2.2.5 **GL_MarketDocument XML schema structure**

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

![GL_MarketDocument schema structure 1/3](image)
Figure 4 - GL_MarketDocument schema structure 2/3
2.2.6 GL_MarketDocument XML schema

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

```
urn:iec62325.351:tc57wg16:451-6:generationloaddocument:3:1
```

```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:tc57wg16:451-6:generationloaddocument:3:1"
  xmlns:cimp="http://www.iec.ch/cimprofile"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="urn:iec62325.351:tc57wg16:451-6:generationloaddocument:3:1"
  elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:import namespace="urn:entsoe.eu:wgedi:codelists" schemaLocation="urn:entsoe-eu-wgedi-codelists.xsd"/>
  <xs:element name="GL_MarketDocument" type="GL_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="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="cl:MessageTypeList"/>
  </xs:simpleType>
  <xs:simpleType name="ProcessKind_String"
    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
    <xs:restriction base="cl:ProcessTypeList"/>
  </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="cl:ProfileID">
        <xs:attribute name="primaryQuantity" type="xs:decimal"/>
        <xs:attribute name="secondaryQuantity" type="xs:decimal"/>
        <xs:attribute name="position" type="xs:decimal"/>
        <xs:attribute name="resolution" type="xs:decimal"/>
        <xs:attribute name="timInterval" type="xs:decimal"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:schema>
```
<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>
</sawsdl:modelReference>
</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" type="xs:decimal" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.quantity"/>
<xs:element name="secondaryQuantity" type="xs:decimal" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point.secondaryQuantity"/>
</xs:sequence>
</sawsdl:modelReference>
</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="0" maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period.Point"/>
</xs:sequence>
</sawsdl:modelReference>
</xs:complexType>
<xs:complexType name="cancelledTS">
  <xs:element name="cancelledTS" type="ESMPBoolean_String" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.cancelledTS"/>
  <xs:element name="MktPSRType" type="MktPSRType" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries.MktPSRType"/>
</xs:sequence>
</xs:complexType>