Contents
Discussed with and approved by Помилка! Закладку не визначено.

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1 Introduction

Document scope:

This document refines IEC TS 62325-504 standard “Framework for energy market communications.” [1]

This document defines necessary exchange of information (data flow) between GRID operator and BM & AS.

2 Aggregated energy data communication

For document exchange between the BM & AS and the GRID operator system the standard IEC 62325-504 "Utilization of web services for electronic data interchanges on the European energy market for electricity" is used.

Both systems have to be both a client and a server.

If one system wants to send a document to the other system, the affected document must be part of a PUT-request to the server. The synchronous response has to be a valid Acknowledgement_MarketDocument in version 8.0 described in IEC 62325-451-1 [2]

For the communication between BM & AS and the GRID Operator system, the further commands (LIST and GET) of the IEC 62325-504 standard are not required.

3 Remarks

All definitions in this Document are made after the European electricity market concepts, defined in IEC 62325-351[4]. Please Reference this standard for model description.

If it is not defined explicitly, BM & AS system sends and receives documents with the Role A04 (System operator) and X code 10X1001C--00001X (Approved EIC of UKRENERGO).

GRID Operator system sends and receives documents with Metered data aggregator Role A09 and pseudo code 62X-MDA???.

For internal Market Balance Area - 10Y1001C--000182/ 10YUA-WEPS-----0 (UA-IPS/UA-BEI) must be used.

4 Aggregated energy data

This Section describes aggregated energy data exchange between GRID Operator and BM & AS. The electronic documents received by the BM & AS are expected to be the aggregated metered values per imbalance energy account.

4.1 Timeline

Data transfer is daily based starting at D+1 and D+91.
4.2 Process flow and Functional Requirements

Process flow is described in IEC 62325-451-2 Scenario 1 Workflow.

Grid Operator is an originator, BM & AS is a Recipient.

Grid Operator PUTs Schedule Document. BM & AS receives and processes Schedule Document and replies with Technical or Application acknowledgment, indicating the technical and/or functional acceptance or rejection of the message.

For purpose of Aggregated energy data transmission, the energy account document with aggregated date energy report commercial type is used. The process and document structure is defined in IEC 62325-451-4 [3]

This document could make a distinguishing between different account/settlement periods. This is made based on an interchanged document Process type. For this purpose, two different process types has to be used: A05 (Metered data aggregation) for D+1 period and A08(Central reconciliation) for D+91 period. A05 has to be coordinated with the first billing (version 1) and A08 has to be coordinated with second billing (reconciliation) (version 2).

The time series version must be translated as revision. For example, timeseries from the document with the process type A05 and timeseries version 3, has to be loaded with the version/revision 1.3.

4.3 Document definition

Document and xml schema is defined in IEC 62325-451-4. [3]

Transmission is limited to the nomination and acknowledgment process (IEC 62325-451-1);

4.3.1 Field and attribute arrangement

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mRID</td>
<td></td>
<td>Document id defined as follow: &quot;DSO X-Code&quot;-EA- &quot;date of metering&quot;</td>
</tr>
<tr>
<td>revisionNumber</td>
<td>&quot;nnn&quot;</td>
<td>Message version</td>
</tr>
<tr>
<td>type</td>
<td>A11</td>
<td>Message type: A11 – Aggregated energy data report</td>
</tr>
<tr>
<td>process.processType</td>
<td>A05/A08</td>
<td>A05 - Metered data aggregation</td>
</tr>
<tr>
<td><strong>Field</strong></td>
<td><strong>Value</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------</td>
<td>----------------------------------------------------</td>
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<td>A01</td>
<td>ENTSO code</td>
</tr>
<tr>
<td>sender_MarketParticipant.mRID</td>
<td>62X-MDA??</td>
<td>Metered data aggregator</td>
</tr>
<tr>
<td>receiver_MarketParticipant.mRID</td>
<td>10X1001C--00001X</td>
<td>System Operator</td>
</tr>
<tr>
<td>sender_MarketParticipant.marketRole.type</td>
<td>A09</td>
<td>Metered data aggregator</td>
</tr>
<tr>
<td>receiver_MarketParticipant.marketRole.type</td>
<td>A04</td>
<td>System Operator</td>
</tr>
<tr>
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<td>YYYY-MM-DDThh:mm:ssZ</td>
<td>Time of the document creation</td>
</tr>
<tr>
<td>matching_Time_Period.timeInterval</td>
<td>YYYY-MM-DDThh:00Z</td>
<td>Definition of the valid period begin acc. UTC</td>
</tr>
<tr>
<td>end</td>
<td>YYYY-MM-DD+1Thh:00Z</td>
<td>Definition of the valid period end acc. UTC</td>
</tr>
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<td>10Y1001C--000182/ 10YUA-WEPS-----0</td>
<td>Market balance Area that is the subject of the metered data transfer. ENTSO Code</td>
</tr>
<tr>
<td>TimeSeries</td>
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<td></td>
</tr>
<tr>
<td>mRID</td>
<td>TSxx</td>
<td>Time series id</td>
</tr>
<tr>
<td><strong>Field</strong></td>
<td><strong>Value</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>version</td>
<td>“nnn”</td>
<td>Time series version. Max 3 position</td>
</tr>
<tr>
<td>businessType</td>
<td>A14/A15</td>
<td>A14 – Aggregated energy data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A15 - Losses</td>
</tr>
<tr>
<td>area_Domain.mRID</td>
<td>62Y-DSO1</td>
<td>Metering Grid Area ENTSO Y Code</td>
</tr>
<tr>
<td>marketParticipant.mRID</td>
<td>Consumer / Producer EIC code</td>
<td>Consumer /Producer ENTSO Code</td>
</tr>
<tr>
<td>measurement_Unit.name</td>
<td>MAW</td>
<td>Megawatt (MW)</td>
</tr>
<tr>
<td>marketEvaluationPoint.mRID</td>
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<td>Metering Point id Z Code</td>
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<tr>
<td></td>
<td></td>
<td>EIC Code</td>
</tr>
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<td></td>
<td></td>
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</table>
### Acknowledgment definition

Acknowledgment is based on a model, and xml schema described in IEC 62325-451-1 [2]

#### 4.4.1 Field and attribute arrangement

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mRID</td>
<td>ACK-“ack date”</td>
<td>unique id define as ACK-“ack date”</td>
</tr>
<tr>
<td>createdDateTime</td>
<td>YYYY-MM-DDThh:mm:ssZ</td>
<td>Time of the document creation</td>
</tr>
<tr>
<td>codingScheme</td>
<td>“A01”</td>
<td>ETSO-Code</td>
</tr>
<tr>
<td>received_MarketDocument.mRID</td>
<td></td>
<td>The unique identification of the MarketParticipants Document is being acknowledged by this message</td>
</tr>
<tr>
<td>sender_MarketParticipant.mRID</td>
<td>10X1001C--00001X</td>
<td>EIC of System operator ETSO-Code</td>
</tr>
<tr>
<td>receiver_MarketParticipant.mRID</td>
<td>62X-MDA??</td>
<td>EIC of Metered data aggregator ETSO-Code</td>
</tr>
<tr>
<td>sender_MarketParticipant.marketRole.type</td>
<td>A09</td>
<td>Metered data aggregator</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>receiver_MarketParticipant.marketRole.type</td>
<td>A04</td>
<td>System Operator</td>
</tr>
<tr>
<td>Reason</td>
<td></td>
<td></td>
</tr>
<tr>
<td>code</td>
<td></td>
<td>Possible Reason codes, defined in IEC 62325-451-1</td>
</tr>
<tr>
<td>Text</td>
<td></td>
<td>The motivation of an act in coded form.</td>
</tr>
</tbody>
</table>

Possible Reason text: defined in IEC 62325-451-1
The textual explanation corresponding to the reason code.

4.5 Example

```xml
<?xml version="1.0" encoding="utf-8"?>
  <mRID>DSO X-Code"-EA-"date of metering"</mRID>
  <revisionNumber>1</revisionNumber>
  <type>A11</type>
  <process.processType>A05</process.processType>
  <process.classificationType>A01</process.classificationType>
  <sender_MarketParticipant.mRID codingScheme="A01">62X-MDA???</sender_MarketParticipant.mRID>
  <receiver_MarketParticipant.mRIDcodingScheme="A01">10X1001C--001X</receiver_MarketParticipant.mRID>
  <receiver_MarketParticipant.marketRole.type>A04</receiver_MarketParticipant.marketRole.type>
  <createdDateTime>2018-09-18T10:00:00Z</createdDateTime>
  <schedule_Time_Period.timeInterval>
    <start>2018-09-18T21:00Z</start>
    <end>2018-09-19T21:00Z</end>
  </schedule_Time_Period.timeInterval>
  <domain.mRID codingScheme="A01">10Y1001C--000182</domain.mRID>
  <TimeSeries>
    <mRID>TS1</mRID>
    <version>3</version>
    <businessType>A14</businessType>
    <product>8716867000016</product>
    <objectAggregation>A03</objectAggregation>
    <area_Domain.mRID codingScheme="A01">62Y-DSO1</area_Domain.mRID>
    <marketParticipant.mRID codingScheme="A01">62X_MP1</marketParticipant.mRID>
    <measurement_Unit.name>MAW</measurement_Unit.name>
    <marketEvaluationPoint.mRID codingScheme="A01">62Z-MeteringPoint1</marketEvaluationPoint.mRID>
  </TimeSeries>
</Schedule_MarketDocument>
```

```xml
<Period>
  <timeInterval>
    <start>2018-09-18T21:00Z</start>
    <end>2018-09-19T21:00Z</end>
  </timeInterval>
</Period>
```
<timeInterval>
  <resolution>PT60M</resolution>
  <Point>
    <position>1</position>
    <in_Quantity.quantity>50.0</in_Quantity.quantity>
    <out_Quantity.quantity>0.0</out_Quantity.quantity>
  </Point>
  <Point>
    <position>2</position>
    <in_Quantity.quantity>50.0</in_Quantity.quantity>
    <out_Quantity.quantity>0.0</out_Quantity.quantity>
  </Point>
  <!-- Points 3 - 23 -->
  <Point>
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    <in_Quantity.quantity>50.0</in_Quantity.quantity>
    <out_Quantity.quantity>0.0</out_Quantity.quantity>
  </Point>
</Point>
</TimeSeries>
</Schedule_MarketDocument>

4.5.1 Acknowledgment

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<Acknowledgement_MarketDocument>
  <mRID>ack-date</mRID>
  <createdDateTime>2001-12-31T12:00:00Z</createdDateTime>
  <sender_MarketParticipant.mRID>
    <codingScheme>A01</codingScheme>
    <mRID>10X1001C-0001X</mRID>
    <marketRole.type>A04</marketRole.type>
    <sender_MarketParticipant.marketRole.type>A04</sender_MarketParticipant.marketRole.type>
  </sender_MarketParticipant.mRID>
  <receiver_MarketParticipant.mRID>
    <codingScheme>A01</codingScheme>
    <mRID>62X-MDA???</mRID>
    <receiver_MarketParticipant.marketRole.type>A09</receiver_MarketParticipant.marketRole.type>
  </receiver_MarketParticipant.mRID>
  <received_MarketDocument.mRID>
    <mRID>“DSO X-Code”-“date of metering”</mRID>
    <code>A01</code>
    <text>fully accepted</text>
  </received_MarketDocument.mRID>
</Acknowledgement_MarketDocument>
5 Bibliography


4. IEC 62325-351 - CIM European market model exchange profile https://webstore.iec.ch/preview/info_iec62325-351%7Bed2.0%7Db.pdf

## Document history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Author</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>V00.01</td>
<td>25/09/2018</td>
<td>Alexandr Smirnov</td>
<td>First draft version</td>
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<td>V00.02</td>
<td>25/09/2018</td>
<td>Zsolt Lente</td>
<td>Review, minor changes</td>
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<tr>
<td>V00.03</td>
<td>15/10/2018</td>
<td>Alexandr Smirnov</td>
<td>Add document Types to differentiate the first and second version of billing.</td>
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<tr>
<td>V00.04</td>
<td>25/10/2018</td>
<td>Zsolt Lente</td>
<td>Review, minor changes</td>
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<td>V00.05</td>
<td>26/10/2018</td>
<td>Ákos Füzi</td>
<td>Approval and signing of the document</td>
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<tr>
<td>V00.06</td>
<td>19/11/2018</td>
<td>Alexandr Smirnov</td>
<td>Revising after customer review</td>
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<tr>
<td>V00.07</td>
<td>29/11/2018</td>
<td>Alexandr Smirnov</td>
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