

# Description and Use of Metering Messages transmitted by Elia for the Grid User (GU)

The purpose of this document is to explain how to access, understand and use messages containing metering data transmitted by Elia. It describes the content of the messages, how they are transmitted, the type of data transmitted and how this data can be implemented in client's business applications.

This manual should be read by:

- Metering operational staff who need to understand the contents of metering messages
- IT Developers, who need to use the message content in the implementation of custom applications

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Contact email address in case of business or technical issues: [metering.services@elia.be](mailto:metering.services@elia.be)

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| Abbreviation                                       | Description   |
|--|---|
| ACH  | Access Contract Holder  |
| aFRR   | automatic Frequency Restoration Reserve   |
| AP   | Access Point  |
| BRP  | Balance Responsible Party<br>Note: the former term "ARP" (Access Responsible Party) is still used in some documents or file names |
| BRP <sub>O.I.</sub>                                | Balance Responsible Party associated with an Offshore Interconnector  |
| B2B  | Business to Business  |
| BSP  | Balancing Service Provider (generic role)   |
| CDS  | Closed Distribution System  |
| CDSO   | Closed Distribution System Operator   |
| CSV  | Comma Separated Values  |
| DGO  | Distribution Grid Operator  |
| DCP  | DGO Connection Point  |
| DP   | Delivery Point  |
| EAN  | European Article Number   |
| EIC  | Energy Identification Code  |
| EVMSB2C  | Web site allowing to download the metering publications   |
| FTP  | File Transfer Protocol  |
| GEMP   | Global Elia Metered Position  |
| GU   | Grid User   |
| MCH  | Metering Contract Holder  |
| PROD   | Producer  |
| mFRRDP <sub>su</sub><br>(mFRRC <sub>ipu</sub> )    | manual Frequency Restoration Reserve delivered by Delivery Points DP <sub>SU</sub><br>(formerly known as CIPU units)              |
| mFRRDP <sub>pg</sub><br>(mFRRN <sub>onCipu</sub> ) | manual Frequency Restoration Reserve delivered by Delivery Points DP <sub>PG</sub><br>(formerly known as non CIPU units).         |
| SDR  | Strategic Demand Reserve  |

|      |  |
|------|--|
| SP   | SubAccess Delivery Point, also known as Submetering Delivery Point (Formerly called "Service Point") |
| SUP  | Supplier   |
| ToE  | "Transfer of Energy" as introduced by the Law of 13 <sup>th</sup> of July 2017                       |
| TSO  | Transmission System Operator (Elia in this document)   |
| XLSX | Microsoft ® Excel format and file qualifier  |
| XML  | eXtensible Markup Language   |

## Introduction

This document describes all aspects of metering data provided by Elia. This includes how to understand metering messages and how to access messages delivered via one of the protocols put at disposal by Elia.

This document serves four purposes:

- To provide clear understandable explanations of the data contained in metering messages. This information is for the use of operational staff, who need to understand message content and its application.
- To explain the use of the <https://evmsb2c.elia.be> web page to the operational staff.
- To provide reference information for IT Developers who need to build business applications for both accessing and using metering data. Especially to explain the use of the SFTP protocol, adopted for the transfer of messages from Elia to its clients.

This document is structured as follows:

Chapter 1 describes some of the concepts relating to metering messages, as well as the types of clients who can receive them. The terminology used in this chapter should be understood by both operational and development staff. For more information, see Metering Manual Concepts.

Chapter 2 contains general explanations of the contents of all message types. This information is aimed at the operational staff who need to understand message content. This Chapter contains also detailed information on all the message fields and are targeted more at developers who need to access this information for use in their own business applications.

Chapter 3, contain detailed information on the XML message fields and are targeted more at developers who need to access this information for use in their own business applications.

Chapter 4 explains how to access messages. It describes the different available protocols: it sets out the advantages of the use of the common communication protocol, which is of interest to all recipients, as well as detailed reference sections on the use of the protocol.

## Chapter 1 Metering Messages

### 1.1. Messages

#### 1.1.1. Market roles

This section lists each type of clients who have a contractual right to metering information. Clients have different market roles, and it is this role that determines the type of messages they receive. A client is identified as the "receiver" of the message.

Frequency delivery and messages received by the clients are defined in section "1.1.8 Regulated messages & message delivery frequency".

##### 1.1.1.1. Grid User (GU)

A Grid User has signed a Connection Contract which grants the right to be connected to the Elia grid. For details on this type of contract, refer to the website Elia: <https://www.elia.be/en/customers/connection>.

##### 1.1.1.2. Access Contract Holder (ACH)

An Access Contract Holder has a contract allowing offtake or injection of energy at (a) particular Access Point(s). The Access Contract Holder is the party who manages the Access Point and is not necessarily the same as the Grid User for that same point. For details on this type of contract, refer to the website Elia: <https://www.elia.be/en/customers/access>.

##### 1.1.1.3. Balance Responsible Party (BRP)

A Balance Responsible Party is responsible for "nominating" the actual amounts of power injected or taken out of the Elia grid, and for maintaining the balance between injection and consumption into his balance perimeter.

Each Access Point must have a Balance Responsible Party associated with it. For details on this BRP role and on this type of contract, refer to the website Elia: <https://www.elia.be/en/electricity-market-and-system/role-of-brp>.

##### 1.1.1.4. Supplier (SUP)

A Supplier provides energy that is injected into the grid. This must be done through a corresponding Balance Responsible Party.

##### 1.1.1.5. Producer (PROD)

A Producer produces energy that is injected into the grid. This must be done through a Supplier.

##### 1.1.1.6. Balancing Service provider (BSP) / Flexibility Service Provider (FSP)

The Balance Service provider (BSP) / Flexibility Service Provider (FSP) provides Elia with balancing/flexibility services or strategic reserves. This is a generic role given to the signatory of a balancing/flexibility service contract like an mFRR contract, DA/ID contract or SDR Contract.

##### 1.1.1.7. Metering Contract Holder (MCH)

A Metering Contract Holder has a contract entitling the holder to receive specific (non-regulated) metering data at specific points. Such a contract is not necessary for clients listed above who will receive metering data as part of the regulatory requirement associated with the contracts they already hold with Elia. Any of the clients listed above can request additional non-regulated metering messages. This type of message is described in section "2.3 Metering Point" and the frequency delivery is defined in the Metering Contract. For details on this type of contract, refer to the website Elia: <https://www.elia.be/en/customers/metering/additional-metering-services>.

### 1.1.2. Message types

The type of messages a client receives depends on the nature of the contract that is held with Elia and the "role" of the client. An overview of the message type by role is available in section 1.1.8.

#### 1.1.2.1. Access Point (AP)

These messages contain power flow values (aggregated metering data) at specific Access Points. These messages are described in more detail in section "2.1 Access Point".

Note: The Offshore Interconnection Point is a special Access Point.

#### 1.1.2.2. SubAccess Delivery Point (SP)

These messages contain power flow values at specific SubAccess Delivery Point, also known as Submetering Delivery Point. The service delivered can be Strategic Demand Reserve (SDR), mFRR, DA/ID or other services provided to Elia within the framework of balancing, flexibility, or strategic reserves. These messages are described in more detail in section "2.2 SubAccess Delivery Point".

#### 1.1.2.3. Metering Point (MP)

These messages can contain:

- Specific metering data requested by a client and defined in a metering contract. They can contain electric or non-electric data and refer to a specific Access Point.
- Metering data of an individual meter. Usually, these individual meters are used to calculate an aggregation like an Access Point, a SubAccess Delivery Point, etc.

A description can be found in more detail in section 2.3.

#### 1.1.2.4. CDS Access Point (CDS AP)

These messages contain power transfer values at specific CDS Access Points (Access point into a Closed Distribution System). These messages are described in more detail in section 2.4.

#### 1.1.2.5. Offshore Interconnection Point

These messages contain the power injected or taken off into/from the Elia Grid through the "Offshore Interconnection Point"

#### 1.1.2.6. Global Elia Metered Position (GEMP)

These messages provide aggregated data destined to the BRP. The data is summed nationally over Belgium, over each regulated region and over each regulated region per Supplier. These messages are described in more detail in section 2.6.

#### 1.1.2.7. Imbalance

These messages contain metering data destined to the BRP and contain the Imbalance of his perimeter for a given month. These messages are described in more detail in section 2.7.

#### 1.1.2.8. Transfer of Energy (ToE) Delivered volume (mFRR Del)

These messages contain the volume delivered (only by DP<sub>PG</sub> delivery points (former non CIPU) with a Transfer of Energy regime) by a BSP/FSP in the framework of the mFRR & DA/ID service. The former name of this type of publications was "mFRR Del". These messages are described in more detail in section 2.8.

Note: The former messages mFRR non CIPU (DP<sub>PG</sub>) delivered volume (mFRR Del) are deprecated and are not published anymore.

#### 1.1.2.9. RT DGO Allocation

These messages contain an estimate of the DGO Allocation destined to the BRP. These messages are described in more detail in section 2.9.



### 1.1.3. Message validity

The initial metering message contains non-validated data. This should not be confused with the quality of the data (See Section 1.1.3.1) – for even if all power values are labelled as normal (N) this does not yet mean that they are validated. The validity of the data applies to the complete set of values in the schedule. Data is validated by processes and checks carried out by Elia. When a message is validated, the values are guaranteed to be correct by Elia.

#### 1.1.3.1. Quality

Power values can be measured, calculated, or estimated. Every power value in the message is assigned a quality label which can be one of the following:

- N (Normal)

This refers to normal measured values, usually determined by a single properly functioning meter.

- I (Inexact)

Power values may be labelled inexact for several reasons. It may be because there was a perceived problem with the meter, or that values were calculated from combined measurements from several meters, one of which was inexact.

- S (Substitute)

If no measurement is available, an estimated value is used.

Note that the quality of the measured data should not be confused with the *validity* of the message.

#### 1.1.4. Message delivery

The power values transferred over the quarter hour periods are delivered regularly; daily and/or monthly. This pattern applies to all regulated messages.

##### 1.1.4.1. Daily delivered messages

A message containing all the quarter hour power values for the current month is delivered by 8h each day. The day on which the message is sent is the "publication day". The values for and after the "publication day" are set as 0 (quality flag "Inexact"). So, in Figure 1 below, values for all days before Day 2 are published on Day 2.

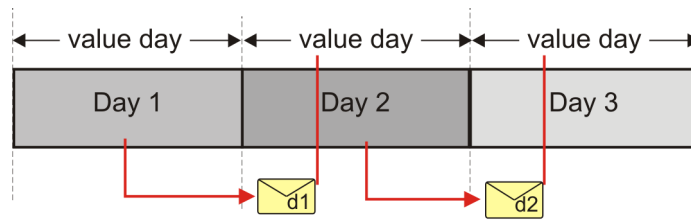


Figure 1 Daily delivery of metering messages

These messages contain non-validated data. The deliveries are listed in section "1.1.8 Regulated messages & message delivery frequency".

##### 1.1.4.2. Monthly validated delivered messages

The delivery of monthly validated messages is illustrated in Figure 2 below.

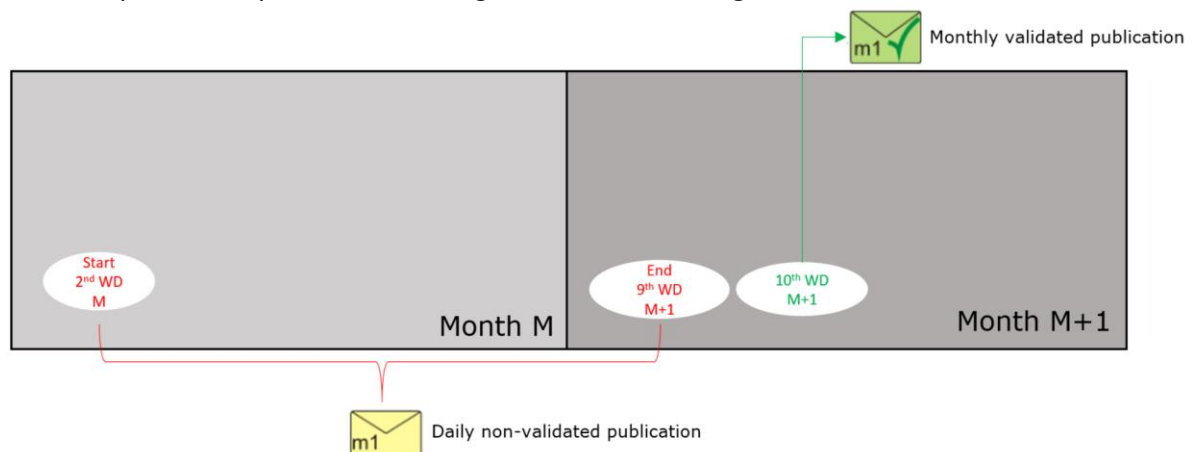


Figure 2 Regular deliveries of monthly messages

When the data is flagged as "validated by Elia", it is no longer updated. In rare cases where corrections need to take place after that, Elia will publish an updated message on the designated publication channel (eVMS/EPIC)".

### **1.1.5. Accessing messages – protocols**

Messages can be delivered using EPIC, the SFTP protocol or an “EVMSB2C” webpage. Section 4.1 explains these protocols and provides a reference section for the development of applications to receive metering data messages.

### **1.1.6. Accessing messages – formats**

Messages are delivered in CSV, XML or Excel (XLSX) formats. The format in which the messages are delivered is defined in the client contract and can be switched if required.

Understanding the contents of messages and the full details on the structure of CSV, XML and XLSX message formats are explained and given in Chapter 2 on “Understanding messages”.

### **1.1.7. Message formats and protocols independency**

The format of messages and the protocols are independent. Technically, it is therefore possible to receive any format type using any protocol.

More information about the messages formats in Chapter 2 and protocols in Chapter 4.

### **1.1.8. Regulated messages & message delivery frequency**

Table 1 lists all the stakeholders roles, the corresponding regulated messages they can receive and their delivery frequency.

Explanation of abbreviations used in the table 1 :

- CD = Calendar Day
- WD = Work Day
- 4<sup>th</sup>WD-1 = The calendar day before the 4<sup>th</sup> Work Day
- 10<sup>th</sup>WD-1 = The calendar day before the 10<sup>th</sup> Work Day
- Previous month: metering of the previous month sent the current month

| Role | Message Type                   | Message publication frequency  |  |                   |
|------|--------------------------------|--|--|-------------------|
|      |                                | Non-validated (Intermediate)   | Validated (Final)  | Format            |
| GU   | Access Point                   | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       | CSV, XML and XLSX |
|      | CDS Access Point               | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | N/A  |                   |
|      | SubAccess Delivery Point       | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       |                   |
|      | Metering Point                 | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       |                   |
|      | Offshore Interconnection Point | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       | XML and XLSX      |
| ACH  | Access Point                   | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       | CSV, XML and XLSX |
| BRP  | Access Point                   | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       |                   |
|      | GEMP                           | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day                               | Previous month is published on the 10 <sup>th</sup> CD                       |                   |
|      | CDS Access Point               | Previous month is published from 1 <sup>st</sup> to 10 <sup>th</sup> WD-1<br>Current month is published every day                            | Previous month is published on the 10 <sup>th</sup> WD                       |                   |
|      | Imbalance                      | Month M from 1 <sup>st</sup> CD of month M till 11 <sup>th</sup> WD of month M+2.  | Together with invoicing (after 11 <sup>th</sup> WD of month M+2 for month M) |                   |
|      | RT DGO Allocation              | Previous month is published the 4 first quarter-hours (till 1 AM) of the 1 <sup>st</sup> CD<br>Current month is published every quarter-hour | N/A  |                   |

| Role     | Message Type  | Message publication frequency   |  |                   |
|----------|---|---|--|-------------------|
|          |   | Non-validated (Intermediate)  | Validated (Final)                                      | Format            |
|          | SubAccess Delivery Point <sup>1</sup>                           | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day    | Previous month is published on the 10 <sup>th</sup> WD | CSV, XML and XLSX |
|          | Offshore Interconnection Point                                  | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day    | Previous month is published on the 10 <sup>th</sup> CD | XML and XLSX      |
| SUP      | Access Point  | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day    | Previous month is published on the 10 <sup>th</sup> CD | CSV, XML and XLSX |
|          | CDS Access Point  | Previous month is published from 1 <sup>st</sup> to 10 <sup>th</sup> WD-1<br>Current month is published every day | Previous month is published on the 10 <sup>th</sup> WD |                   |
|          | SubAccess Delivery Point <sup>1</sup>                           | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day    | Previous month is published on the 10 <sup>th</sup> WD |                   |
| PROD     | Access Point  | N/A   | Previous month is published on the 10 <sup>th</sup> CD | CSV, XML and XLSX |
|          | Metering Point  | N/A   | Previous month is published on the 10 <sup>th</sup> CD | CSV, XML and XLSX |
| BSP /FSP | Access Point  | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day    | Previous month is published on the 10 <sup>th</sup> CD | CSV, XML and XLSX |
|          | SubAccess Delivery Point  | Previous month is published from 1 <sup>st</sup> to 10 <sup>th</sup> WD<br>Current month is published every day   | N/A  | XML and XLSX      |
|          | CDS Access Point  | Previous month is published from 1 <sup>st</sup> to 9 <sup>th</sup> CD<br>Current month is published every day    | Previous month is published on the 10 <sup>th</sup> CD | CSV, XML and XLSX |
|          | Transfer of Energy (ToE) Delivered volumes (mFRR DP PG & DA/ID) | On event : Previous month is published on 15 <sup>th</sup> WD   | Together with Imbalance invoicing                      |                   |

<sup>1</sup> Only applicable in case a specific BRP/Supplier is defined at Sub Access Delivery Point level.

| Role | Message Type                      | Message publication frequency |                   |                   |
|------|-----------------------------------|-------------------------------|-------------------|-------------------|
|      |                                   | Non-validated (Intermediate)  | Validated (Final) | Format            |
| MCH  | (Non-regulated)<br>Metering Point | Depends on the Client's needs |                   | CSV, XML and XLSX |

*Table 1 Message delivery frequency*

## 1.2. Related documents

More info about metering services is available from the Elia website:

- General metering page:

<https://www.elia.be/en/customers/metering>

- Technical information, documentations, links... :

<https://www.elia.be/en/customers/customer-tools-and-extranet/metering>

For any other information please contact your Elia Key Account Manager or Metering services (email: [Metering.Services@elia.be](mailto:Metering.Services@elia.be))

## Chapter 2 Understanding messages

This chapter describes the structure of metering message types. It describes how the parameters and type of metered data introduced in the Metering Manual Concepts are incorporated into the messages and is targeted principally at operational staff.

**Note:** All the stakeholders roles, the corresponding messages types they can receive and delivery frequency of the messages is summarized at section "1.1.8 Regulated messages & message delivery frequency".

### 2.1. Access Point

An Access Point (AP) corresponds to an Injection and/or Offtake Point to the Elia Grid. Every Access Point is associated with one or more meter(s).

Clients receive messages containing the aggregated metering data values for each Access Point specified in their contracts with Elia.

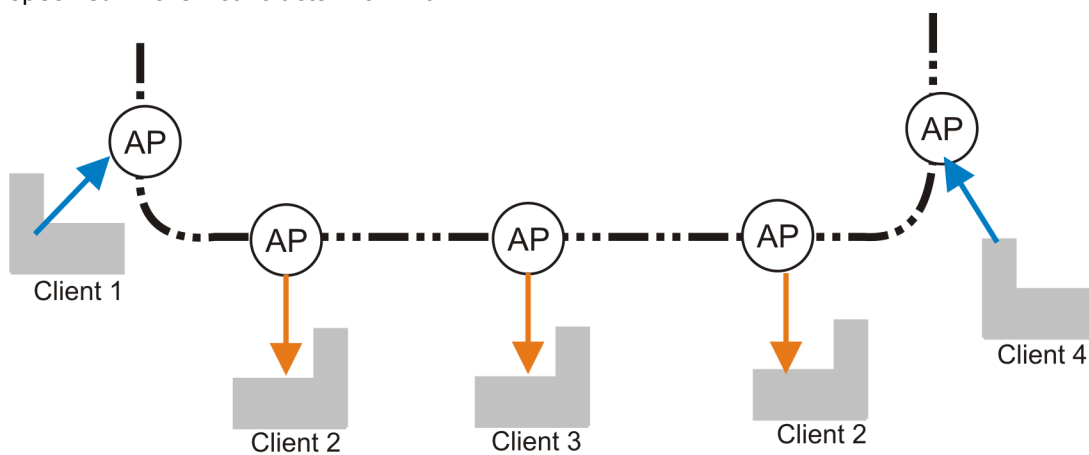


Figure 3 Access Points

Access Point messages are received by clients who can be producers or consumers of energy, or both. The direction of the energy flow is indicated in the message and the values are always positive. These messages identify the client, the Access Point, and all the parameters describing the power transferred as well as the actual power values.

All parameters used to describe power values are explained in the Metering Manual Concepts.

Access Point messages identify the client, the Access Point, the time period, all the parameters used to describe the power values and the actual power values. This message content can be delivered in one of three formats: CSV described in section 2.1.1 below, XML format described in section 2.1.2 and Excel (XLSX) format described in section 2.1.3.





**2.1.1. CSV Access Point**

Access Point messages contain a [header] row, a [data] row, [schedule] sections and an [end] row. An example of a CSV Access Point message is shown below. This example contains three [data] sections each referring to different power types (Active, Capacitive, and Inductive) at one Access Point.

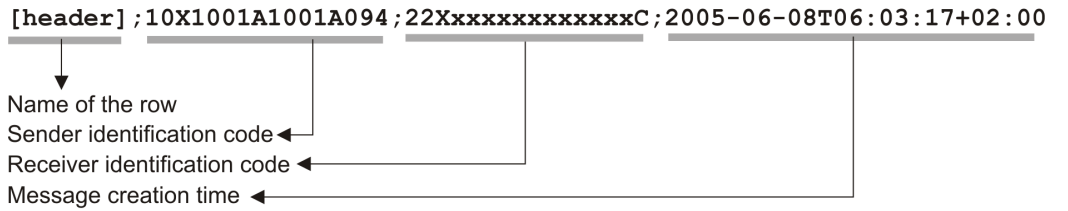
```
[header];10X1001A1001A094;22XXXXXXXXXXXXC;2005-06-08T06:03:17+02:00
[data];10X1001A1001A094;CONS;54145310558599982
[schedule];2005-06-06T22:00:00Z;1440;15;A;N;NC;ALP;W;False; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N;
0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N;
0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N;
0;N; 0;N; 0;N; . . .
0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N; 0;N;
[end]
```

Example 1 CSV Access Point message

Note that this example's presentation shows the overall message structure rather than the complete contents. Only the first of the power values is shown in each of the [schedule] sections.

**2.1.1.1. [header]**

The [header] row contains information about the sender and the receiver of the message as well as the time of creation of the message. There is only one [header] row in the message.



This is the first line of the file and appears only once.

| Field | Name                         | Data type         | Comment  |
|-------|------------------------------|-------------------|--|
| 1     | Name of the row              | String            | Fixed. Always [header]   |
| 2     | Sender identification code   | String            | EIC company code of the sender of the message i.e. Elia                                    |
| 3     | Receiver identification code | String            | EIC company code of the receiver of the message.   |
| 4     | Message creation time        | Date              | Date and time of the file creation in Iso format   |
| 5     | Message type                 | String (optional) | This optional field is reserved for future use but may contain the type of message.        |
| 6     | Version                      | String (optional) | This optional field is reserved for future use but may contain the version of the message. |

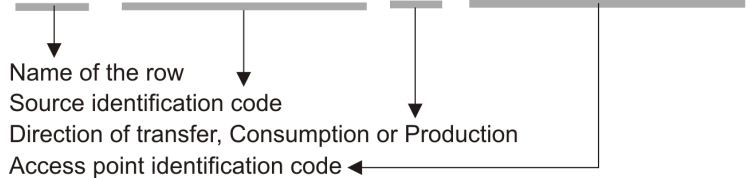
Table 2 CSV Access Point [header] fields

### 2.1.1.2. [data]

A [data] row contains information about metering values. A [data] section is always followed by at least one [schedule] section. There can be several [data] sections that correspond to different directions. The [data] section identifies the source of the metering data, the direction in which the power flows and the Access Point.

Many [data] rows may be used for different schedules.

**[data] ;10X1001A1001A094 ;CONS ;541453105585999982**



Name of the row  
Source identification code  
Direction of transfer, Consumption or Production  
Access point identification code

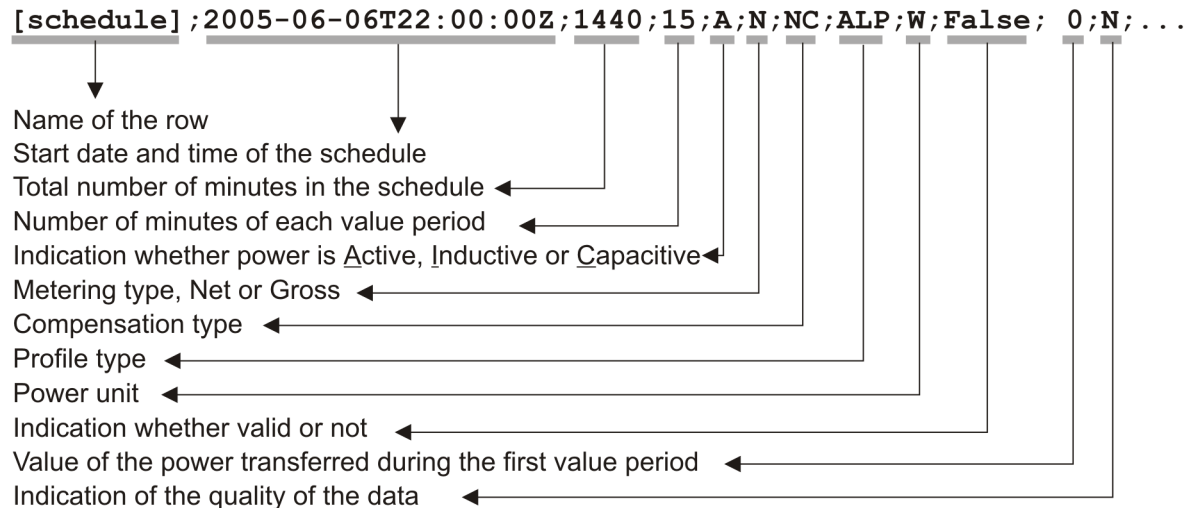
The [data] section is composed of one line. It identifies the source of the metering data, the Access Point at which the data is metered and the energy direction. A message can contain 1 or more [data] sections. Each [data] section can have 1 or more [schedule] sections.

| Field | Name                             | Data type | Comment  |
|-------|----------------------------------|-----------|--|
| 1     | Name of the row                  | String    | Fixed. Always [data]   |
| 2     | Source identification code       | String    | EIC company code of the source of the metering data (Elia)   |
| 3     | Direction of transfer            | String    | Identification of the direction of flow (see Metering Manual Concepts).<br>Possible values are:<br>- PROD: Production of active energy (flow from client to Elia)<br>- CONS: Consumption of active energy (flow from Elia to client)<br>- VolumeAdjustment : Corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR & mFRR). |
| 4     | Access Point identification code | String    | EAN (18-digit) code of the Access Point at which the data is metered.  |

Table 3 CSV Access Point [data] fields

### 2.1.1.3. [schedule]

A [schedule] section contains the actual power values transferred over the specified time period and identifies the type of power. For any one Access Point (identified in the [data] section) there can be a number of [schedules], those distinguishing the separate transfer of Active and Inductive power for example. The fields contained in the [schedule] are listed below; the general meaning of these fields can be found in The Metering Manual Concepts.



The [schedule] section contains the metering values and their quality. A [schedule] is always related to a parent [data] section. Each [data] section can have 1 or more [schedule] sections. The schedules are normally daily schedules, but any time period is theoretically possible.

Only positive power values are allowed in the Access Point message.

| Field | Name                | Data type | Comment   |
|-------|---------------------|-----------|---|
| 1     | Name of the row     | String    | Fixed. Always [schedule]  |
| 2     | Start date and time | Date      | Start date and time of the schedule in ISO 8601 format (see section "3.2 XML elements").  |
| 3     | Duration            | Integer   | Total number of minutes in the schedule.  |
| 4     | Period              | Integer   | Number of minutes for each value period. Always 15.   |
| 5     | Power type          | String    | Identification of the type of power (see Metering Manual Concept).<br>Possible values are: <ul style="list-style-type: none"> <li>• A: Active</li> <li>• I: Inductive</li> <li>• C: Capacitive</li> </ul> |
| 6     | Metering type       | String    | Indication as to whether the values are net, gross or specific (see Metering Manual Concept).<br>Possible values are: <ul style="list-style-type: none"> <li>• N: Net</li> <li>• G: Gross</li> </ul>      |

|              |                   |                  |   |
|--------------|-------------------|------------------|---|
|              |                   |                  | <ul style="list-style-type: none"> <li>• SP: Corrections for energy transactions performed in the context of Multiple BRPs.</li> <li>• FA: Corrections for energy transactions performed in the context of Individual Correction for aFRR.</li> <li>• FM : Corrections for energy transactions performed in the context of Individual Correction for mFRR.</li> </ul>   |
| 7            | Compensation type | String           | <p>Indication as to whether the values compensated or not (see Metering Manual Concept).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> <li>• C: Compensated. Used for billing purposes</li> <li>• A: Reserved for future use</li> <li>• CC: Compensated Corrected used for billing purposes only if corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR &amp; mFRR) exist.</li> </ul> |
| 8            | Profile type      | String           | <p>Indication of the load profile. This field is reserved for potential future use and has no significant meaning. Possible values are:</p> <ul style="list-style-type: none"> <li>• ALP: Aggregated Load Profile</li> <li>• ULP: Undefined load profile</li> </ul>   |
| 9            | Power unit        | String           | <p>Unit in which the power values are defined. Possible values are:</p> <ul style="list-style-type: none"> <li>• KWT, KVR,</li> <li>• W, KW, MW,</li> <li>• VAR, KVAR, MVAR</li> </ul>  |
| 10           | Validation        | Boolean          | <p>Indication as to whether the values are valid or not (see Metering Manual Concept).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• True: validated by Elia</li> <li>• False: not validated by Elia</li> </ul>  |
| 11 to 203 in | Value             | Unsigned Decimal | Value of the transferred power. The value is always positive. The value is expressed in the defined unit and  |

|                         |         |        |  |
|-------------------------|---------|--------|--|
| steps of 2              |         |        | contains a maximum of 3 digits after the decimal point.  |
| 12 to 204 in steps of 2 | Quality | 1 char | Indication as to the quality of the metered data (see Metering Manual Concept).<br>Possible values are: <ul style="list-style-type: none"><li>• N: Normal</li><li>• I: Inexact</li><li>• S: Substituted (Estimated replacement).</li></ul> |

Table 4 CSV Access Point [schedule] fields

### 2.1.2. XML Access Point

Access Point metering data is delivered in an XML file with the root element `<AccessPointValues>`. The `<AccessPointValues>` file consists of a `<header>` element, which refers to the message and a `<data-list>` element which contains the power transfer data.

```
<?xml version="1.0" encoding="iso-8859-1"?>
<AccessPointValues xmlns="http://www.elia.be/namespaces/public/evms/b2bmsg">
  + <header>
  + <data-list >
</AccessPointValues>
```

*Example 2 XML Access Point message root*

#### 2.1.2.1. <header>

The `<header>` element is mandatory. The single `<header>` element contains information about the sender of the message (Elia) and the receiver as well as the time when the message was created.

```
<header>
  + <sender> (contains fields identifying the sender)
  + <receiver> (contains fields identifying the receiver)
  <timestamp>2004-02-05T09:31:10Z</timestamp>
</header>
```

*Example 3 XML Access Point message <header>*

The contents of the `<header>` element are listed in the table below.

| Element name                   | Element content | Content type   | Cardinality | Description                        |
|--------------------------------|-----------------|--|-------------|------------------------------------|
| <code>&lt;sender&gt;</code>    | elements        | <code>&lt;party&gt;</code> elements, (see section 3.2.1) | mandatory   | Identification of message sender   |
| <code>&lt;receiver&gt;</code>  | elements        |  | mandatory   | Identification of message receiver |
| <code>&lt;timestamp&gt;</code> | text            | date   | mandatory   | Creation time of the message       |

*Table 5 XML <header> element for Access Point messages*

#### 2.1.2.2. <data-list>

The `<data-list>` can contain one or more `<data>` element.

```
<data-list>
  + <data>
</data-list>
```

*Example 4 XML Access Point message <data-list>*

The `<data>` element describes the flow of the power (from and to the parties concerned), the schedule of actual power values and the Access Point. The direction of the transfer of power is indicated by the optional `<partyFrom>` and `<partyTo>` elements.

```
<data>
  + <partyFrom> (fields defining the flow of energy)
  + <partyTo>
  <schedule-list>
  + <schedule> (describes the power and the values)
  </schedule-list>
  + <point> (contains fields identifying the Access Point)
</data>
```

*Example 5 XML Access Point message <data>*

The general meaning of these fields is given in The Metering Manual Concept. The contents of each <data> element are listed in the table below.

| Element name    | Element content | Content type                           | Cardinality | Description   |
|-----------------|-----------------|--|-------------|---|
| <partyFrom>     | elements        | <party> elements, (see section 3.2.1). | optional    | Fields identifying the party FROM which the power is flowing.                   |
| <partyTo>       | elements        |  | optional    | Field identifying the party TO which the power is flowing                       |
| <schedule-list> | elements        | <schedule> elements (see section 0).   | mandatory   | Fields identifying the characteristics of the transferred power and the values. |
| <point>         | elements        | <point> elements (see section 0).      | mandatory   | Fields identifying the Access Point   |

Table 6 XML <data> element for Access Point messages



### 2.1.3. Excel (XLSX) Access Point

The Excel file contains one sheet named from the Access Point EAN code: this sheet contains all information about the Access Point at the given month.

An example of Excel format Access Point message is shown below. This example contains four metering columns each referring to diverse types of metering at one Access Point. The top rows contain information about the receiver, the Access Point code and name and the time of creation (last update) of the message.

Subsequent area of the sheet is divided into columns:

- The first lines of the columns give information about the metering data (direction of the flow, power type, metering type, compensation type)
- The quarter hourly values give the power value and the quality for the mentioned metering data

|    | A                 | B                     | C     | D                     | E       | F                   | G       | H                     | I       | J                   | K       |   |
|----|-------------------|-----------------------|-------|-----------------------|---------|---------------------|---------|-----------------------|---------|---------------------|---------|---|
| 1  | Company           | 22XXXXXXXXXXXXC       |       | Test company          |         |                     |         |                       |         |                     |         |   |
| 2  | Meterable         | 541453167414516216    |       | Access Point test     |         |                     |         |                       |         |                     |         |   |
| 3  | Last Update       | 23-04-2014            |       |                       |         |                     |         |                       |         |                     |         |   |
| 4  | Validation Status | Non validated by Elia |       |                       |         |                     |         |                       |         |                     |         |   |
| 5  |                   |                       |       |                       |         |                     |         |                       |         |                     |         |   |
| 6  |                   | Meterable type        |       | Outgoing Active Gross |         | Outgoing Active Net |         | Incoming Active Gross |         | Incoming Active Net |         |   |
| 7  |                   |                       |       | Compensated           | Quality | Compensated         | Quality | Compensated           | Quality | Compensated         | Quality |   |
| 8  |                   |                       |       | 0 KWh                 | Invalid | 0 KWh               | Invalid | 0 KWh                 | Invalid | 0 KWh               | Invalid |   |
| 9  |                   | Monthly energy        |       |                       |         |                     |         |                       |         |                     |         |   |
| 10 |                   |                       |       |                       |         |                     |         |                       |         |                     |         |   |
| 11 |                   | Quarter hourly values |       |                       |         |                     |         |                       |         |                     |         |   |
| 12 |                   | Date                  | From  | To                    | W       | W                   | W       | W                     | W       | W                   | W       |   |
| 13 |                   | 01-01-2015            | 00:00 | 00:15                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 14 |                   | 01-01-2015            | 00:15 | 00:30                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 15 |                   | 01-01-2015            | 00:30 | 00:45                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 16 |                   | 01-01-2015            | 00:45 | 01:00                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 17 |                   | 01-01-2015            | 01:00 | 01:15                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 18 |                   | 01-01-2015            | 01:15 | 01:30                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 19 |                   | 01-01-2015            | 01:30 | 01:45                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 20 |                   | 01-01-2015            | 01:45 | 02:00                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 21 |                   | 01-01-2015            | 02:00 | 02:15                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 22 |                   | 01-01-2015            | 02:15 | 02:30                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 23 |                   | 01-01-2015            | 02:30 | 02:45                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 24 |                   | 01-01-2015            | 02:45 | 03:00                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 25 |                   | 01-01-2015            | 03:00 | 03:15                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 26 |                   | 01-01-2015            | 03:15 | 03:30                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 27 |                   | 01-01-2015            | 03:30 | 03:45                 | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |
| 28 |                   | 01-01-2015            | 03:45 |                       | 0       | I                   | 0       | I                     | 0       | I                   | 0       | I |

Figure 4 Sheet in a CSV Access Point message

The Access Point Excel sheet consists of the following sections:

- A header section.
- A set of columns headers.
- A set of columns values.



### 2.1.3.1. Header

The header contains reference of the Access Point and the receiver.

|   | A                 | B                     | C | D                 |
|---|-------------------|-----------------------|---|-------------------|
| 1 | Company           | 22XXXXXXXXXXXXC       |   | Test company      |
| 2 | Meterable         | 541453167414516216    |   | Access Point test |
| 3 | Last Update       | 23-04-2014            |   |                   |
| 4 | Validation Status | Non validated by Elia |   |                   |

Figure 5 Access Point message header

| Excel Cell              | Name                             | Data type     | Comment  |
|-------------------------|----------------------------------|---------------|--|
| B1:C1<br>(merged cells) | Receiver identification code     | String        | EIC company code of the receiver of the message.   |
| D1:F1<br>(merged cells) | Receiver name                    | String        | Name of the company receiver of the message.<br>Note this is a "display name" that can be different from the official name of the company  |
| B2:C2<br>(merged cells) | Access Point identification code | String        | EAN (18-digit) code of the Access Point at which the data is metered.  |
| D2:F2<br>(merged cells) | Access Point name                | String        | Name of the Access Point at which the data is metered  |
| B3:C3<br>(merged cells) | Last update date                 | Date and time | Date and time of the creation of the highest version of this document.   |
| B4:C4<br>(merged cells) | Validation                       | String        | Indication as to whether the values are valid or not (see Metering Manual Concepts).<br>Possible values : <ul style="list-style-type: none"> <li>• "validated by Elia"</li> <li>• "Non-validated by Elia"</li> </ul> |

Table 7 Excel Access Point header fields

### 2.1.3.2. Columns header

From the 4<sup>th</sup> column, 2 columns identify the source of each metering data metered at the Access Point. An Excel sheet can contain 1 or more set of columns.

For one column (example Column 4):

|   | A              | B | C | D           |
|---|----------------|---|---|-------------|
| 6 | Meterable type |   |   | Outgoing    |
| 7 |                |   |   | Active      |
| 8 |                |   |   | Gross       |
| 9 |                |   |   | Compensated |

Figure 6 CSV Access Point message – columns header

The content of the header is listed in the table below:

| Line | Name                  | Data type | Comment   |
|------|-----------------------|-----------|---|
| 6    | Direction of transfer | String    | <p>Identification of the direction of flow (see Metering Manual Concepts). Possible values are:</p> <ul style="list-style-type: none"> <li>“Incoming”: Production of active energy (flow from client to Elia)</li> <li>“Outgoing”: Consumption of active energy (flow from Elia to client)</li> <li>“VolumeAdjustment”: Corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR &amp; mFRR).</li> </ul>  |
| 7    | Power type            | String    | <p>Identification of the type of power (see Metering Manual Concepts). Possible values are:</p> <ul style="list-style-type: none"> <li>Active</li> <li>Inductive</li> <li>Capacitive</li> </ul>   |
| 8    | Metering type         | String    | <p>Indication as to whether the values are net or gross or specific (see Metering Manual Concepts). Possible values are:</p> <ul style="list-style-type: none"> <li>Net</li> <li>Gross</li> <li>SupplySplit : Corrections for energy transactions performed in the context of Multiple BRPs.</li> <li>FlexibilityaFRR: Corrections for energy transactions performed in the context of Individual Correction for aFRR.</li> <li>FlexibilitymFRR :Corrections for energy transactions performed in the context of Individual Correction for mFRR.</li> </ul> |

|    |                           |        |   |
|----|---------------------------|--------|---|
| 9  | Compensation type         | String | <p>Indication as to whether the values compensated or not (see Metering Manual Concepts). Possible values are:</p> <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> <li>• C: Compensated. Used for billing purposes</li> <li>• A: Reserved for future use</li> <li>• CC: Compensated Corrected used for billing purposes only if corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR &amp; mFRR) exist.</li> </ul> |
| 10 | Sum of the monthly energy |        | Excel formula = the sum of all quarter hourly values and related unit   |
| 13 | Power unit                | String | <p>Unit in which the power values are defined. Possible values are:</p> <ul style="list-style-type: none"> <li>• KWT, KVR,</li> <li>• W, KW, MW,</li> <li>• VAR, KVAR, MVAR</li> </ul>  |

*Table 8 Excel Access Point column metering reference*

### 2.1.3.3. Columns values

The same columns (starting from the 4<sup>th</sup> column), contain the metering values and their quality (on the next column) All the quarter hourly values of the month are present. Only positive power values are allowed in the Access Point message.

| Column                | Name    | Data type        | Comment   |
|-----------------------|---------|------------------|---|
| 4, 6, 8, 10, 12, etc. | Value   | Unsigned Decimal | Value of the transferred power for the given quarter. The value is always positive. The value is expressed in the defined unit and contains a maximum of 3 digits after the decimal point.<br>If there is no decimal, then no decimal point                           |
| 5, 7, 9, 11, 13, etc. | Quality | 1 char           | Indication as to the quality of the metered data for the given quarter (see Metering Manual Concepts).<br>Possible values are: <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul> |

Table 9 Excel Access Point columns cells

Remark: The decimal point, in Excel, being subject to the settings, it can be different from the figure shown in this document

## 2.2. SubAccess Delivery Point

The SubAccess Delivery Point (SP), also known as Submetering Delivery Point refers to a point:

- within the electrical facilities of a grid user downstream of an Access Point connected to the Elia Grid
- or within a CDS connected to the Elia Grid

from which a flexibility service can be delivered to Elia or for which a BRP and SUP have been defined (Multiple BRPs). Every SubAccess Delivery Point is associated with one or more meter(s).

The metering data is published to the flexibility supplier via the generic role of the Balance Service provider (BSP) /Flexibility Service Provider (FSP) if the SubAccess Delivery Point delivers flexibility services.

The flexibility service can be:

- Strategic Demand Reserve (SDR)
- mFRR
- DA/ID service
- Any future service

The data is published to the BRP and the Supplier if a specific BRP and Supplier have been defined for this SubAccess Delivery Point (Multiple BRPs).

All of the parameters used to describe power values are explained in The Metering Manual Concept.

### 2.2.1. Message content and structure

The SubAccess Delivery Point message contains the same information as the Metering Point message described in Section 2.3.

*Only the name of the file contains "SP" and not "MP".*

## 2.3. Metering Point

A Metering Point (MP) is a generic message that can be used for two different purposes:

1. The putting at disposal of the metering data coming from one meter (without any aggregation). For example, a local production unit or a connection point.

These Metering Points are provided by Elia at no extra cost to the Grid User and is part of the "standard metering".

2. The putting at disposal of additional data requested by a Grid User and specified in a commercial contract between the client and Elia (non-regulated metering).
  - Such data might include:
    - The (physical) energy flow at a given point, like a local production
    - Non-electric values at a virtual point, such as temperature, imbalance, prices, etc.
  - A Metering Point message's content will depend on the client's specific requirements. Since they can contain measured quantities other than power, the corresponding unit is provided in the message too. Examples of non-electric units are:
    - Euro per MW (E/MW)
    - Hertz (HRTZ)
    - Cubic Meter per hour (M3/H)
    - GigaJoules per hour (GJ/H)
    - Celsius (°C)

For compatibility reasons, these units are placed in the same fields as the power units.

- Such data are always published into a specific role: MCH (Metering Contract Holder): more information can be obtained from your Key Account Manager or on the Elia website <https://www.elia.be/en/customers/metering/additional-metering-services>

When non-regulated, the content of Metering Point messages will depend on the client's specifications as set out in the contract. The general structure of the messages follows that of the regulated messages and is set out here.

### 2.3.1. CSV Metering Point message

The Metering Point message contains a single [header] section, followed by a series of [data] sections, each of which contains a [schedule]. An example of CSV format Metering Point message containing a non-electric [schedule] with negative values (imbalance schedule) is shown below. Because this message contains non-electric data, not all the fields used to describe electric power values are relevant and so there are some that are left blank.

```
[header];10X1001A1001A094;22XXXXXXXXXXXX--Z;2007-02-15T07:59:33+01:00
[data];10X1001A1001A094;CONS;541453114157831663
[schedule];2006-12-31T23:00:00Z;1440;15;A;;;ALP;KW;False; 133.6;N; 85.2;N; 95.6;N; 211.2;N;-
621.6;N; 164.8;N;-1231.6;N; 150;N; 148.4;N; 203.6;N; 31.2;N; 278;N; 176.8;N; 292.4;N; 344.4;N;
63.6;N; 206;N; 191.2;N; 176;N; 143.6;N; 174.4;N; 123.6;N; 212;N; 24;N;-52;N; 24.8;N; 47.6;N;
32;N; 203.6;N; 13.2;N;-0.8;N;-58.8;N; 402.8;N; 132;N; 131.2;N;-25.2;N;-120.4;N;-8;N;-157.2;N;-
226.8;N;-97.6;N;-148;N;-200;N;-105.6;N;-72.8;N; 27.6;N;-128;N;-253.2;N;-518;N;-20.4;N;
42.8;N;-37.2;N; 163.6;N;-9.2;N; 342.8;N; 8;N; 2.8;N; 143.6;N; 71.2;N; 250.8;N;-81.6;N; 40;N;
152.4;N;-72.8;N; 7.2;N;-63.2;N;-132;N;-362.4;N;-615.6;N;-430.8;N;-49.6;N;-96;N; 141.6;N;
51.6;N; 103.2;N; 63.6;N; 144.4;N;-38;N; 17.6;N; 130;N; 172;N; 107.2;N;-24.8;N; 182.8;N;
37.2;N; 148.8;N; 22;N; 147.6;N;-637.2;N; 42.4;N; 852;N; 62.4;N;-281.2;N; 334.4;N; 324.8;N;
223.2;N
[schedule];2007-01-01T23:00:00Z;1440;15;A;;;ALP;KW;False; 231.2;N; 162.4;N;-1094;N; 182.8;N;-
338;N; 281.6;N; 123.2;N; 283.2;N;-411.6;N; 281.6;N; 364;N; 207.6;N; 217.6;N; 101.2;N; 166.4;N;
39.6;N; 117.6;N; 110.8;N;-29.6;N; 16.8;N;-100.4;N; 52;N;-84.8;N;-54.8;N;-536;N;-1352.8;N;-
352.4;N;-600.8;N;-30.8;N;-396;N;-372;N;-44.4;N; 197.6;N;-459.6;N; 239.2;N;-315.6;N; 99.2;N;-
493.6;N;-350.4;N;-165.6;N;-142.4;N; 70.4;N;-98.8;N; 2;N;-247.6;N;-172;N;-139.2;N;-131.6;N;-
334.4;N; 57.6;N; 203.2;N;-3.6;N; 194.4;N;-20;N; 572.8;N; 341.2;N; 176.8;N;-382;N;-240.4;N;-
62.8;N; 261.2;N;-46.4;N; 74.8;N;-267.6;N;-60.4;N;-79.6;N;-182.4;N;-350;N;-280.4;N;-290.8;N;-
426.4;N;-31.6;N;-116;N; 188.8;N; 273.6;N; 170.4;N; 17.6;N; 278.4;N;-187.2;N; 219.2;N; 630.4;N;
80;N;-483.2;N; 204.8;N; 375.2;N; 279.6;N; 352.8;N; 340;N;-542.8;N; 299.2;N; 538;N; 315.6;N;
32;N; 204.8;N; 144;N; 470.8;N
[end]
```

*Example 6 CSV Metering Point message*

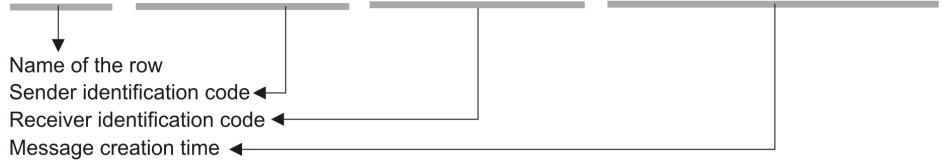
The Metering Point Message consists of the following sections:

- [header]
- [data]
- [schedule]
- [end] – which is the last line indicating the end of the message. All characters following [end] must be ignored.

### 2.3.1.1. [header]

The [header] of the message defines the sender and receiver of the message as well as the time of its creation. There is only one [header] row in the message.

```
[header];10X1001A1001A094;22XXXXXXXXXXXX--Z;2007-02-15T07:59:33+01:00
```



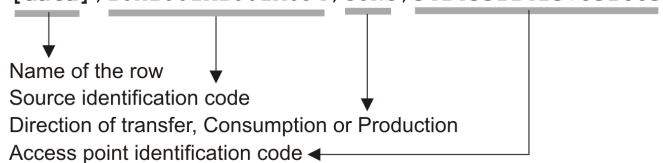
| Field | Name                         | Data type         | Comment  |
|-------|------------------------------|-------------------|--|
| 1     | Name of the row              | String            | Fixed. Always [header]   |
| 2     | Sender identification code   | String            | EIC code (Energy Identification Code) of the TSO (Elia)                                    |
| 3     | Receiver identification code | String            | EIC code (Energy Identification Code) of the receiver of the message                       |
| 4     | Message creation time        | Date              | Date and time of the file creation in Iso format   |
| 5     | Message type                 | String (optional) | This optional field is reserved for future use but may contain the type of message.        |
| 6     | Version                      | String (optional) | This optional field is reserved for future use but may contain the version of the message. |

Table 10 CSV Metering Point [header] fields

### 2.3.1.2. [data]

Each [data] section identifies the source of the metering data, the direction of the power flow and the access (metering) point to which the data relates. A message can contain 1 or more [data] sections.

```
[data];10X1001A1001A094;CONS;541453114157831663
```



| Field | Name                       | Data type | Comment   |
|-------|----------------------------|-----------|---|
| 1     | Name of the row            | String    | Fixed. Always [data]  |
| 2     | Source identification code | String    | EIC company code of the source of the metering data (Elia)  |
| 3     | Direction of transfer      | String    | Identification of the direction of flow (see Metering Manual Concepts).<br>Possible values are: <ul style="list-style-type: none"> <li>PROD: Production of active energy (flow from client to Elia)</li> <li>CONS: consumption of active energy (flow from client to Elia)</li> </ul> |



|   |                                    |        |  |
|---|------------------------------------|--------|--|
|   |                                    |        | <ul style="list-style-type: none"> <li>VolumeAdjustment : Corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR &amp; mFRR).</li> </ul> |
| 4 | Metering Point identification code | String | EAN (18-digit) code of the Metering Point at which the data is metered.  |

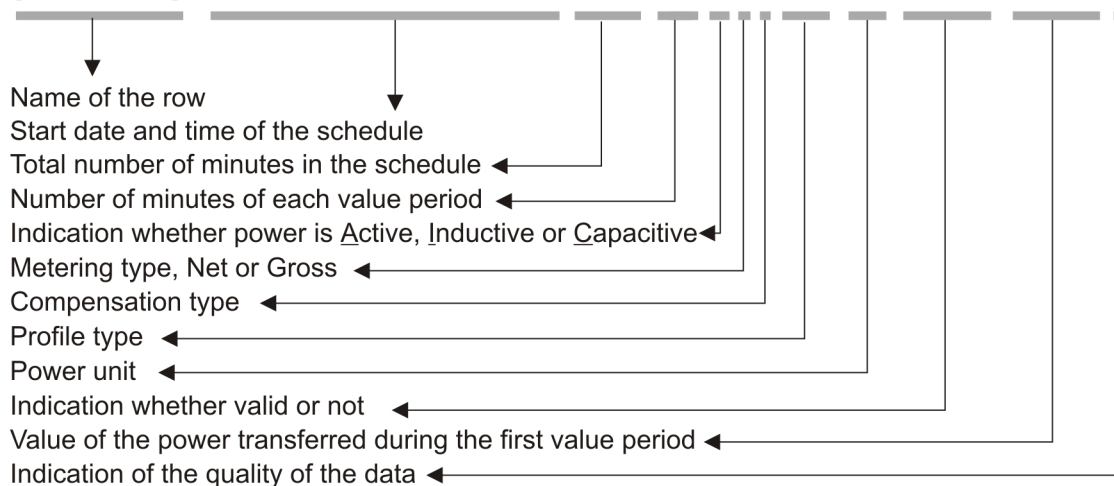
Table 11 CSV Metering Point message [data] fields

### 2.3.1.3. [schedule]

The [schedule] section contains the metering values and their status. A [schedule] is always related to a parent [data] section. Each [data] section can have 1 or more [schedule] sections. The schedules are normally daily schedules, but any time period is theoretically possible.

The [schedule] section contains the metered values for the corresponding [data] section. Each [schedule] section identifies all the parameters used to describe the metered quantity as well as the actual metered values. Since Metering Point messages do not necessarily contain power values, some of the fields will be blank.

**[schedule] ; 2006-12-31T23:00:00Z ; 1440 ; 15 ; A ; ; ALP ; KW ; False ; 133.6 ; N ; . . .**



| Field | Name                | Data type         | Comment   |
|-------|---------------------|-------------------|---|
| 1     | Name of the row     | String            | Fixed. Always [schedule]  |
| 2     | Start date and time | Date              | Start date and time of the schedule in ISO 8601 format  |
| 3     | Duration            | Integer           | Total number of minutes in the schedule.  |
| 4     | Period              | Integer           | Number of minutes for each value period. Always 15.   |
| 5     | Power type          | String (optional) | Identification of the type of power* (see Metering Manual Concepts). Possible values are: <ul style="list-style-type: none"> <li>A: Active</li> <li>I: Inductive</li> <li>C: Capacitive</li> </ul> * this has no meaning for non-power values |

|                         |                   |                   |   |
|-------------------------|-------------------|-------------------|---|
| 6                       | Metering type     | String (optional) | <p>Indication as to whether the values are net or gross* or specific (see Metering Manual Concepts). Possible values are</p> <ul style="list-style-type: none"> <li>• N: Net</li> <li>• G: Gross</li> <li>• GG: "Green Gross"</li> <li>• SP: Corrections for energy transactions performed in the context of Multiple BRPs.</li> <li>• FA: Corrections for energy transactions performed in the context of Individual Correction for aFRR.</li> <li>• FM : Corrections for energy transactions performed in the context of Individual Correction for mFRR.</li> </ul> <p>* this has no meaning for non-power values</p> |
| 7                       | Compensation type | String (optional) | <p>Indication as to whether the values are compensated or not* (see Metering Manual Concepts). Possible values are:</p> <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> <li>• C: Compensated. Used for billing purposes</li> <li>• A: Reserved for future use</li> <li>• CC: Compensated Corrected used for billing purposes only if corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR &amp; mFRR) exist.</li> </ul> <p>* this has no meaning for non-power values</p>  |
| 8                       | Profile type      | String            | <p>Indication of the load profile*. This field is reserved for probable future use and has no significant meaning. Currently, values could be:</p> <ul style="list-style-type: none"> <li>• ALP: Aggregated load profile</li> <li>• ULP: Undefined load profile</li> </ul> <p>* this has no meaning for non-power values</p>  |
| 9                       | Unit              | String (optional) | <p>Unit in which the metered values are defined. This depends on the quantity being measured.</p>   |
| 10                      | Validation        | Boolean           | <p>Indication as to whether the values are valid or not. Possible values are:</p> <ul style="list-style-type: none"> <li>• True: validated by Elia</li> <li>• False: not validated by Elia</li> </ul>   |
| 11 to 203 in steps of 2 | Value             | signed Decimal    | <p>Value of the metered quantity in the unit defined in Field 9 above with a maximum of 3 digits after the decimal point.</p> <ul style="list-style-type: none"> <li>• If the value is negative then the "-" operator is added before the value</li> </ul>  |

|                         |         |        |  |
|-------------------------|---------|--------|--|
|                         |         |        | <ul style="list-style-type: none"><li>• If the value is positive then no operator is added</li></ul>   |
| 12 to 204 in steps of 2 | Quality | 1 char | Indication as to the quality of the metered data (see Metering Manual Concepts). Possible values are: <ul style="list-style-type: none"><li>• N: Normal</li><li>• I: Inexact</li><li>• S: Substituted (Estimated replacement).</li></ul> |

Table 12 CSV Metering Point message [schedule] fields

### 2.3.2. XML Metering Point message

Metering Point metering data is delivered in an XML file with the root element <MeteringPointValues>

```
<?xml version="1.0" encoding="iso-8859-1"?>
<MeteringPointValues xmlns="http://www.elia.be/namespaces/public/evms/b2bmsg">
+ <header>
+ <data-list >
</MeteringPointValues >
```

#### Example 7 XML Metering Point message

The message consists of a single <header> element that describes the message and a <data-list> element that contains the specific data.

#### 2.3.2.1. <header>

The <header> element is mandatory. There is one <header> in the message which identifies the sender and receiver and the time it was created.

```
<header>
+ <sender>
+ <receiver>
  <timestamp>2004-02-05T09:31:10Z</timestamp>
</header>
```

The contents of the <header> element are listed in the table below.

| Element name | Element content | Content type                           | Cardinality | Description                            |
|--------------|-----------------|--|-------------|--|
| <sender>     | elements        | <party> elements, (see section 3.2.1). | mandatory   | Identification of message sender       |
| <receiver>   | elements        |  | mandatory   | Identification of message receiver     |
| <timestamp>  | text            | date                                   | mandatory   | Time at which the message was created. |

Table 13 XML <header> element for Metering Point messages

#### 2.3.2.2. <data-list>

The <data-list> element contains several <data> elements. Each of the <data> elements identify the data values and the Access Point.

```
<data-list>
<data>
+ <partyFrom>
+ <partyTo>
+ <schedule-list>
  <MPEanCode>8714252005707</MPEanCode>
</data>
</data-list>
```

The contents of each <data> element are listed in the table below.

| Element name    | Element content | Content type                          | Cardinality | Description  |
|-----------------|-----------------|---------------------------------------|-------------|--|
| <partyFrom>     | elements        | <party> elements, see section 3.2.1). | optional    | Optional field indicating the direction of flow if the data is power.        |
| <partyTo>       | elements        |                                       | optional    |  |
| <schedule-list> | elements        | <schedule> elements (see section 0).  |             | Fields identifying the characteristics of the metered data and their values. |
| <MPEanCode>     | text            | string                                | mandatory   | Metering Point EAN Code  |

Table 14 XML <data> element for Metering Point messages

### 2.3.3. Excel (XLSX) Metering Point message

The Excel file contains one sheet named from the EAN code: This sheet contains all information about the Metering Point for the given month:

The top rows contain information about the receiver, the Metering Point code and name and the time of creation (last update) of the message. Subsequent areas of the sheet is divided into columns.

The first lines of the columns give information about the metering data (direction of the flow, power type, metering type, compensation type). The quarter hourly values give the power value and the quality for the mentioned metering data. Because this message may contain non-electric data, not all the fields used to describe electric power values are relevant and so there are some that may be left blank.

|    | A                     | B                     | C     | D           | E       | F |
|----|-----------------------|-----------------------|-------|-------------|---------|---|
| 1  | Company               |                       |       |             |         |   |
| 2  | Meterable             | 541453138157290220    |       |             |         |   |
| 3  | Last Update           | 23-04-2014            |       |             |         |   |
| 4  | Validation Status     | Non validated by Elia |       |             |         |   |
| 5  |                       |                       |       |             |         |   |
| 6  | Meterable type        |                       |       | Incoming    |         |   |
| 7  |                       |                       |       | Active      |         |   |
| 8  |                       |                       |       | Net         |         |   |
| 9  |                       |                       |       | Alternative | Quality |   |
| 10 | Monthly energy        |                       |       | 0 KWh       | Invalid |   |
| 11 |                       |                       |       |             |         |   |
| 12 | Quarter hourly values |                       |       |             |         |   |
| 13 | Date                  | From                  | To    | W           |         |   |
| 14 | 01-01-2015            | 00:00                 | 00:15 | 0           | I       |   |
| 15 | 01-01-2015            | 00:15                 | 00:30 | 0           | I       |   |
| 16 | 01-01-2015            | 00:30                 | 00:45 | 0           | I       |   |
| 17 | 01-01-2015            | 00:45                 | 01:00 | 0           | I       |   |
| 18 | 01-01-2015            | 01:00                 | 01:15 | 0           | I       |   |
| 19 | 01-01-2015            | 01:15                 | 01:30 | 0           | I       |   |
| 20 | 01-01-2015            | 01:30                 | 01:45 | 0           | I       |   |
| 21 | 01-01-2015            | 01:45                 | 02:00 | 0           | I       |   |
| 22 | 01-01-2015            | 02:00                 | 02:15 | 0           | I       |   |
| 23 | 01-01-2015            | 02:15                 | 02:30 | 0           | I       |   |
| 24 | 01-01-2015            | 02:30                 | 02:45 | 0           | I       |   |
| 25 | 01-01-2015            | 02:45                 | 03:00 | 0           | I       |   |
| 26 | 01-01-2015            | 03:00                 | 03:15 | 0           | I       |   |
| 27 | 01-01-2015            | 03:15                 | 03:30 | 0           | I       |   |
| 28 | 01-01-2015            | 03:30                 | 03:45 | 0           | I       |   |

Example 8 Excel (XLSX) Metering Point message

The Metering Point message consists of the following sections:

- A header.
- A set of columns headers.
- A set of columns values.

#### 2.3.3.1. Header

The header contains reference of the Metering data and the receiver. The information is the same as the Access Point described in Section 2.1.3

#### 2.3.3.2. Column headers

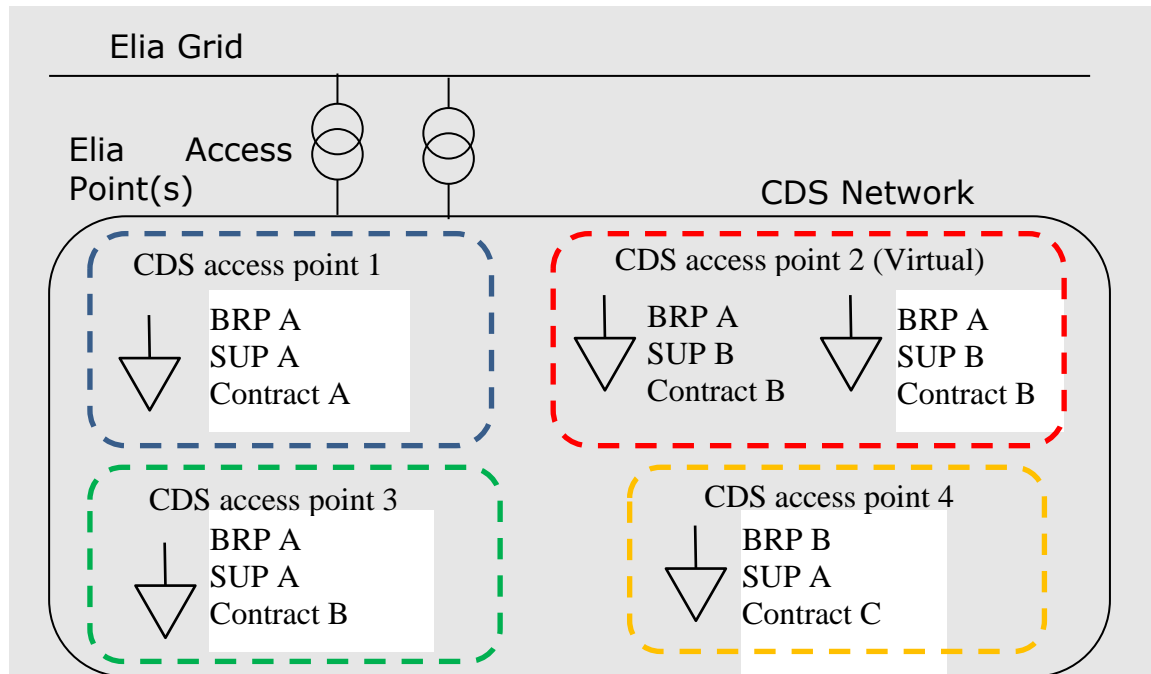
Same as the Access Point described in Section 2.1.3

#### 2.3.3.3. Column values

Same as the Access Point described in Section 2.1.3

## 2.4. CDS Access Point

A 'Closed Distribution System Access Point' or 'CDS Access Point' is the access point to the Closed Distribution System of a Closed Distribution System User, where all its physical Injections and/or Off-takes of Active Power within the Closed Distribution System can be aggregated (virtually if applicable).



Metering data messages are sent by the CDS Operator to Elia and republished by Elia to the CDS grid user (only in case of real Access Point), BRP, Supplier and BSP according to the contracts of these clients.

CDS Access Point messages identify the client, the CDS Access Point, the time period, all the parameters used to describe the power values and the actual power values. They follow the "Metering Point" format.

All of the parameters used to describe power values are explained in The Metering Manual Concept. Full details on all the descriptive fields and the possible values they can take can be found in:

- section 2.4.1 (for the CSV format messages)
- section 2.4.2 (for the XML format messages)
- section 2.4.3 (for the XLSX format messages)



### 2.4.1. CSV CDS Access Point message

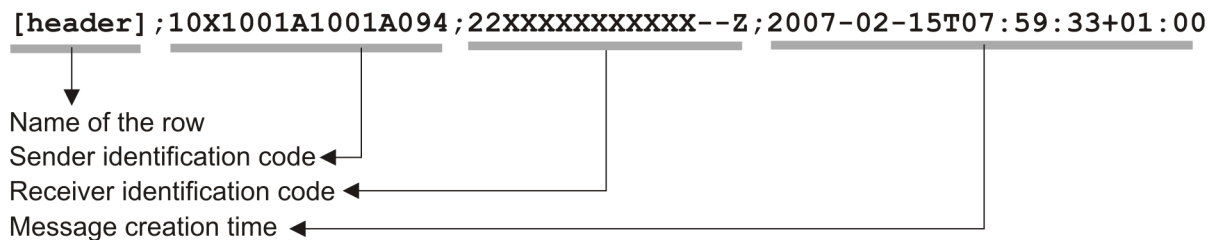
CDS Access Point messages contain a [header] row, a [data] row and [schedule] sections. An example of a CSV CDS Access Point message is shown below.

```
[header];10X1001A1001A094;22XXXXXXXXXXXX--Z;2007-02-15T07:59:33+01:00
[data];10X1001A1001A094;CONS;541453114157831663
[schedule];2006-12-31T23:00:00Z;1440;15;A;;;ALP;KW;False; 133.6;N; 85.2;N; 95.6;N; 211.2;N;-
621.6;N; 164.8;N;-1231.6;N; 150;N; 148.4;N; 203.6;N; 31.2;N; 278;N; 176.8;N; 292.4;N; 344.4;N;
63.6;N; 206;N; 191.2;N; 176;N; 143.6;N; 174.4;N; 123.6;N; 212;N; 24;N;-52;N; 24.8;N; 47.6;N;
32;N; 203.6;N; 13.2;N;- .8;N;-58.8;N; 402.8;N; 132;N; 131.2;N;-25.2;N;-120.4;N;-8;N;-157.2;N;-
226.8;N;-97.6;N;-148;N;-200;N;-105.6;N;-72.8;N; 27.6;N;-128;N;-253.2;N;-518;N;-20.4;N;
42.8;N;-37.2;N; 163.6;N;-9.2;N; 342.8;N; 8;N; 2.8;N; 143.6;N; 71.2;N; 250.8;N;-81.6;N; 40;N;
152.4;N;-72.8;N; 7.2;N;-63.2;N;-132;N;-362.4;N;-615.6;N;-430.8;N;-49.6;N;-96;N; 141.6;N;
51.6;N; 103.2;N; 63.6;N; 144.4;N;-38;N; 17.6;N; 130;N; 172;N; 107.2;N;-24.8;N; 182.8;N;
37.2;N; 148.8;N; 22;N; 147.6;N;-637.2;N; 42.4;N; 852;N; 62.4;N;-281.2;N; 334.4;N; 324.8;N;
223.2;N
[schedule];2007-01-01T23:00:00Z;1440;15;A;;;ALP;KW;False; 231.2;N; 162.4;N;-1094;N; 182.8;N;-
338;N; 281.6;N; 123.2;N; 283.2;N;-411.6;N; 281.6;N; 364;N; 207.6;N; 217.6;N; 101.2;N; 166.4;N;
39.6;N; 117.6;N; 110.8;N;-29.6;N; 16.8;N;-100.4;N; 52;N;-84.8;N;-54.8;N;-536;N;-1352.8;N;-
352.4;N;-600.8;N;-30.8;N;-396;N;-372;N;-44.4;N; 197.6;N;-459.6;N; 239.2;N;-315.6;N; 99.2;N;-
493.6;N;-350.4;N;-165.6;N;-142.4;N; 70.4;N;-98.8;N; 2;N;-247.6;N;-172;N;-139.2;N;-131.6;N;-
334.4;N; 57.6;N; 203.2;N;-3.6;N; 194.4;N;-20;N; 572.8;N; 341.2;N; 176.8;N;-382;N;-240.4;N;-
62.8;N; 261.2;N;-46.4;N; 74.8;N;-267.6;N;-60.4;N;-79.6;N;-182.4;N;-350;N;-280.4;N;-290.8;N;-
426.4;N;-31.6;N;-116;N; 188.8;N; 273.6;N; 170.4;N; 17.6;N; 278.4;N;-187.2;N; 219.2;N; 630.4;N;
80;N;-483.2;N; 204.8;N; 375.2;N; 279.6;N; 352.8;N; 340;N;-542.8;N; 299.2;N; 538;N; 315.6;N;
32;N; 204.8;N; 144;N; 470.8;N
[end]
```

Example 9 CSV CDS Access Point message

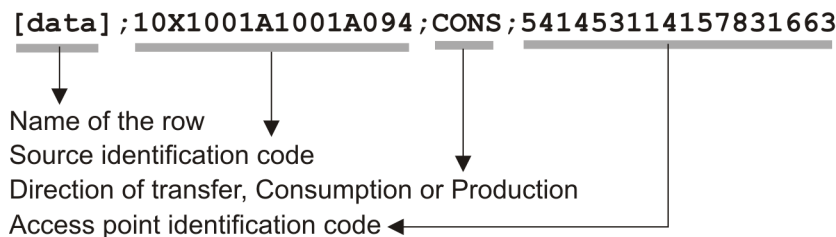
#### 2.4.1.1. [header]

The [header] of the message defines the sender and receiver of the message as well as the time of its creation. There is only one [header] row in the message.



#### 2.4.1.2. [data]

Each [data] section identifies the source of the metering data, the direction of the power flow and the access (metering) point to which the data relates.

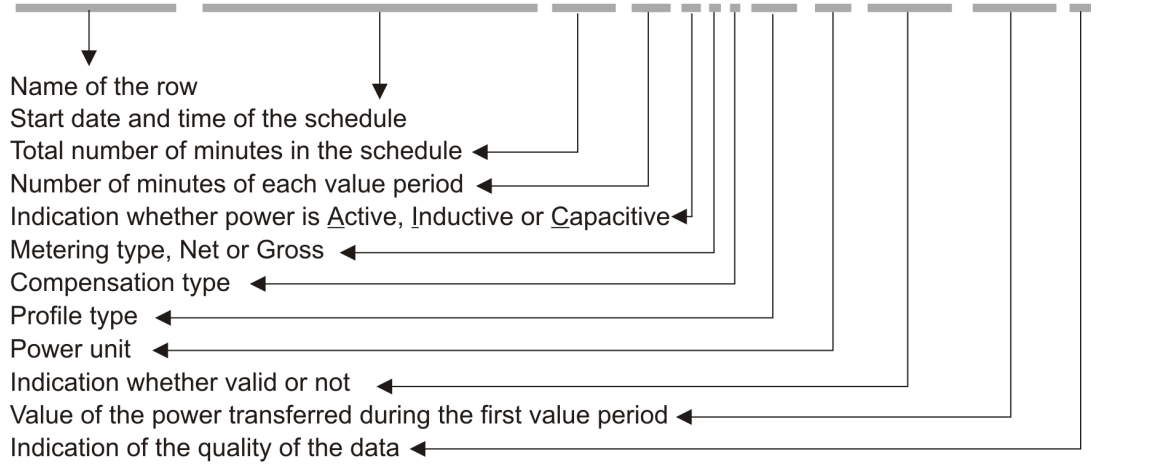




**2.4.1.3. [schedule]**

The [schedule] section contains the metered values for the corresponding [data] section. Each [schedule] section identifies all the parameters used to describe the metered quantity as well as the actual metered values.

**[schedule];2006-12-31T23:00:00Z;1440;15;A;;ALP;KW;False;133.6;N;...**



Details on all the values that these fields can take are given in Section 2.3.1 (CDS Access Point messages follow the same structure as Metering Points).



### 2.4.2. XML CDS Access Point message structure

Closed Distribution System Access Point metering data is delivered in an XML file with the root element <MeteringPointValues>

```
<?xml version="1.0" encoding="iso-8859-1"?>
<MeteringPointValues xmlns="http://www.elia.be/namespaces/public/evms/b2bmsg">
+ <header>
+ <data-list >
</MeteringPointValues >
```

#### *Example 10 XML CDS Access Point message root*

The single <header> element contains information about the sender of the message (Elia) and the receiver as well as the time when the message was created.

```
<header>
+ <sender> (contains fields identifying the sender)
+ <receiver> (contains fields identifying the receiver)
  <timestamp>2004-02-05T09:31:10Z</timestamp>
</header>
```

#### *Example 11 XML CDS Access Point message <header>*

The <data-list> can contain one or more <data> element.

```
<data-list>
+ <data>
</data-list>
```

#### *Example 12 XML CDS Access Point message <data-list>*

The <data > element describes the flow of the power (from and to the parties concerned), the schedule of actual power values and the Access Point.

```
<data>
+ <partyFrom> (fields defining the flow of energy)
+ <partyTo>
  <schedule-list>
  + <schedule> (describes the power and the values)
  </schedule-list>
+ <point> (contains fields identifying the Access Point)
</data>
```

#### *Example 13 XML CDS Access Point message <data>*

The general meaning of these fields is given in The Metering Manual Concepts and a full description of all the fields and the values they can take is given in section 2.1.2.

### 2.4.3. Excel CDS Access Point message structure

The Excel file contains one sheet named from the CDS Access Point EAN code: This sheet contains all information about the CDS Access Point for the given month:

The top rows contain information about the receiver, the CDS Access Point EAN code and name and the time of creation (last update) of the message.

Subsequent areas of the sheet are divided into columns. The first lines of the columns give information about the metering data (direction of the flow, power type, metering type, compensation type)

|    | A                     | B                     | C     | D           | E       | F |
|----|-----------------------|-----------------------|-------|-------------|---------|---|
| 1  | Company               |                       |       |             |         |   |
| 2  | Meterable             | 541453138157290220    |       |             |         |   |
| 3  | Last Update           | 23-04-2014            |       |             |         |   |
| 4  | Validation Status     | Non validated by Elia |       |             |         |   |
| 5  |                       |                       |       |             |         |   |
| 6  | Meterable type        |                       |       | Incoming    |         |   |
| 7  |                       |                       |       | Active      |         |   |
| 8  |                       |                       |       | Net         |         |   |
| 9  |                       |                       |       | Alternative | Quality |   |
| 10 | Monthly energy        |                       |       | 0 KWh       | Invalid |   |
| 11 |                       |                       |       |             |         |   |
| 12 | Quarter hourly values |                       |       |             |         |   |
| 13 | Date                  | From                  | To    | W           |         |   |
| 14 | 01-01-2015            | 00:00                 | 00:15 | 0           | I       |   |
| 15 | 01-01-2015            | 00:15                 | 00:30 | 0           | I       |   |
| 16 | 01-01-2015            | 00:30                 | 00:45 | 0           | I       |   |
| 17 | 01-01-2015            | 00:45                 | 01:00 | 0           | I       |   |
| 18 | 01-01-2015            | 01:00                 | 01:15 | 0           | I       |   |
| 19 | 01-01-2015            | 01:15                 | 01:30 | 0           | I       |   |
| 20 | 01-01-2015            | 01:30                 | 01:45 | 0           | I       |   |
| 21 | 01-01-2015            | 01:45                 | 02:00 | 0           | I       |   |
| 22 | 01-01-2015            | 02:00                 | 02:15 | 0           | I       |   |
| 23 | 01-01-2015            | 02:15                 | 02:30 | 0           | I       |   |
| 24 | 01-01-2015            | 02:30                 | 02:45 | 0           | I       |   |
| 25 | 01-01-2015            | 02:45                 | 03:00 | 0           | I       |   |
| 26 | 01-01-2015            | 03:00                 | 03:15 | 0           | I       |   |
| 27 | 01-01-2015            | 03:15                 | 03:30 | 0           | I       |   |
| 28 | 01-01-2015            | 03:30                 | 03:45 | 0           | I       |   |

Example 14 Excel (XLSX) CDS Access Point message

CDS Access Point messages follow the same structure as Metering Points. See Section 2.3.3.

## **2.5. Offshore Interconnection Point**

The Offshore Interconnection Point has the same format as the Access Point.

## 2.6. GEMP

The Global Elia Metered Position (GEMP) message provides aggregated data to the Balance Responsible Parties (BRP). The data is summed in three ways:

- Nationally over all Belgium.
  - ⇒ *Each of the power values contained is the total sum of the active energy for all Access Points of the BRP.*
- Regionally over each regulated region in Belgium.
  - ⇒ *Each of the power values contained is the sum of the active energy for all Access Points of the BRP in a particular region.*
- Regionally for each region and each Supplier.
  - ⇒ *Each of the power values contained is the sum of the active energy for all Access Points of the BRP in a particular region that are fed by a particular Supplier.*

All the data is delivered in one message, with separate data sections for the different summations. The regions supported are:

- Flanders (FLE)
- Wallonia (WAL)
- Brussels (BRU)
- Federal (FED)

A schematic representation of an arrangement of BRPs, Suppliers and regions to illustrate this is shown in the Figure below:

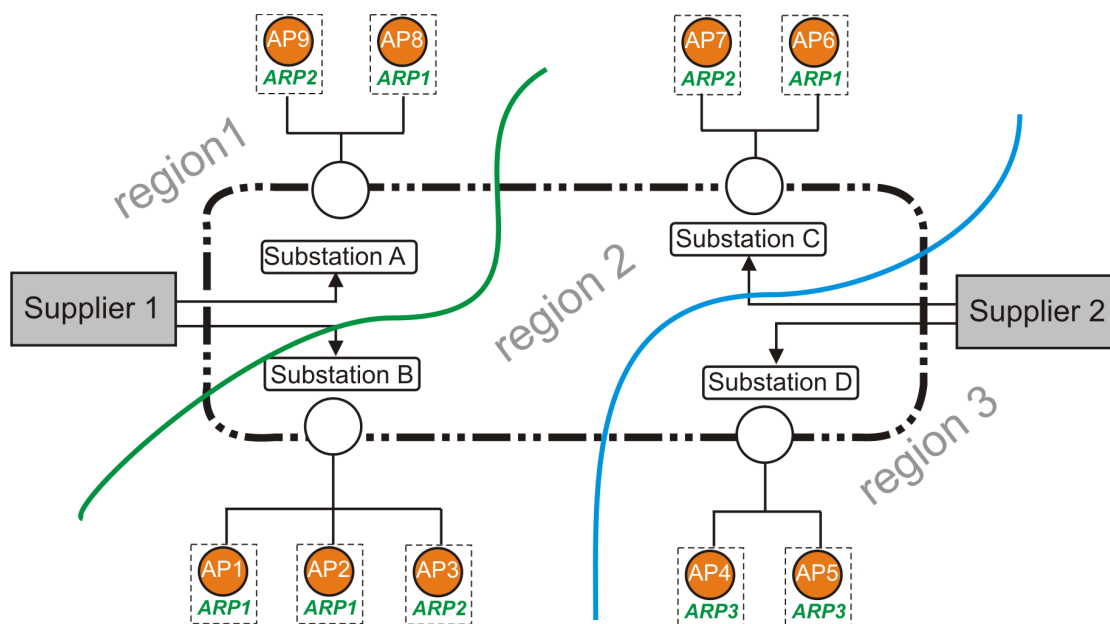


Figure 7 GEMP messages<sup>2</sup>

<sup>2</sup> ARP is the former denomination for BRP

Let us consider, for example, the messages received by BRP1 responsible for 4 Access Points (ARP1, ARP2, ARP6 and ARP8). BRP1 will receive Access Point messages for each of these Access Points but will in addition receive the following summed data:

- Summed data nationally – which is the total summation of all the Access Points for which BRP1 is responsible in all regions, (AP1+AP2+AP6+ AP8)
- Summed data/ region for regions 1 (AP8) and 2 (AP1+ AP2+AP6). BRP1 does not operate in region 3.
- Summed data / region / supplier
  - region 1 / supplier 1 (AP8)
  - region 2 / supplier 1 (AP1+AP2)
  - region 2 / supplier 2 (AP6)

**Note:** a BRP is only working with active data (A).


Summed metered data (GEMPs) are delivered in single messages with separate data sections that contain the different summations, i.e. national summation for all Belgium, summation per regulated region and summation per region and per supplier. This message content can be delivered in one of three formats; CSV described in section 2.6.1, XML format described in section 2.6.2 and Excel format described in section 2.6.3.



### 2.6.1.1. [header]

The header of the message defines the sender and receiver of the message and its creation time. There is only one [header] row in the message.

```
[header] ;10X1001A1001A094;22XELIATEST20--V;2004-06-10T08:18:34+02:00
```



| Field | Name                         | Data type         | Comment  |
|-------|------------------------------|-------------------|--|
| 1     | Name of the row              | String            | Fixed. Always [header]   |
| 2     | Sender identification code   | String            | EIC code (Energy Identification Code) of the sender of the message (Elia).                 |
| 3     | Receiver identification code | String            | EIC code of the receiver of the message of the message.                                    |
| 4     | Message creation time        | Date              | Date and time of the file creation in ISO 8601 format                                      |
| 5     | Message type                 | String            | Fixed. Always "GEMP ARP"   |
| 6     | Version                      | String (optional) | This optional field is reserved for future use but may contain the version of the message. |

Table 15 CSV GEMP [header] fields

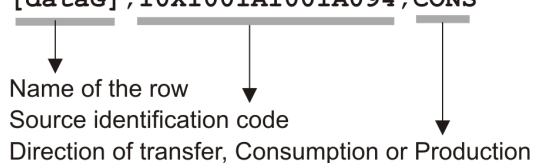
### 2.6.1.2. [data(x)]

There are three data sections in the message that correspond to the three summations, [dataG], which refers to the national (global) aggregated data, [dataR] which refers to the data per region and [dataS] which refers to data per region per supplier.

#### 2.6.1.2.1. [dataG]

[dataG] contains the national (global) summation for all Access Points in Belgium that are in the scope of responsibility of the BRP. Each [dataG] section in the message identifies the source of the metering data and the direction of the power flow.

```
[dataG] ;10X1001A1001A094;CONS
```



| Field | Name                       | Data type | Comment   |
|-------|----------------------------|-----------|---|
| 1     | Name of the row            | String    | Fixed. Always [dataG]   |
| 2     | Source identification code | String    | EIC code of the source of the metering data (Elia)  |
| 3     | Direction of transfer      | String    | Identification of the direction of flow (see Metering Concepts Manual). Possible values are: <ul style="list-style-type: none"> <li>PROD: Production of active energy (flow from client to Elia)</li> </ul> |

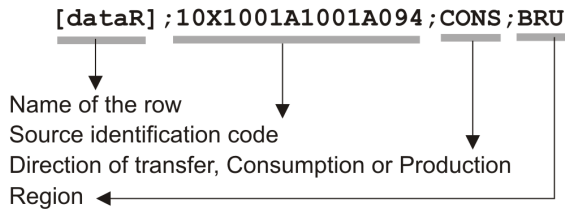


|  |  |  |  |
|--|--|--|--|
|  |  |  | <ul style="list-style-type: none"> <li>• <b>CONS:</b> Consumption of active energy (flow from client to Elia)</li> </ul> |
|--|--|--|--|

Table 16 CSV GEMP [dataG] fields

**2.6.1.2.2. [dataR]**

[dataR] contains the sum of metering data for all Access Points that are in the scope of responsibility of the BRP in each regulated region. Each [dataR] section in the message identifies the source of the metering data, the direction of the power flow and the region.



|   |                            |        |  |
|---|----------------------------|--------|--|
| 1 | Name of the row            | String | Fixed. Always [dataR]  |
| 2 | Source identification code | String | EIC code of the source of the metering data (Elia).  |
| 3 | Direction of transfer      | String | Identification of the direction of flow (see Metering Concepts Manual).<br>Possible values are: <ul style="list-style-type: none"> <li>• <b>PROD:</b> Production of active energy (flow from client to Elia)</li> <li>• <b>CONS:</b> Consumption of active energy (flow from client to Elia)</li> </ul>  |
| 4 | Region                     | String | Field indicating the region over which the values are summed. Possible values are: <ul style="list-style-type: none"> <li>• <b>FLE:</b> Flemish region</li> <li>• <b>WAL:</b> Wallonia region</li> <li>• <b>BRU:</b> Brussels region</li> <li>• <b>FED:</b> Federal region. This region contains all Access Points that are on the 380/220/150 kV network (independently of the physical location).</li> </ul> |

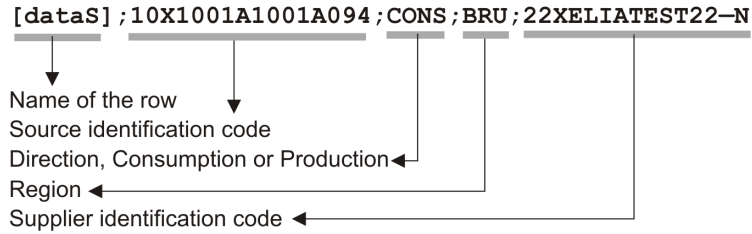
Table 17 CSV GEMP [dataR] fields



### 2.6.1.2.3. [dataS]

[dataS] – contains the sum of metering data for all Access Points that are in the scope of responsibility of the BRP in each regulated region and for each supplier. Each [dataS] section in the message identifies the source of the metering data, the direction of the power flow, the region and the energy supplier.

The [dataS] section is only contained in messages delivered to BRPs.



| Field | Name                         | Data type | Comment   |
|-------|------------------------------|-----------|---|
| 1     | Name of the row              | String    | Fixed. Always [dataS]   |
| 2     | Source identification code   | String    | EIC code of the source of the metering data (Elia)  |
| 3     | Direction of transfer        | String    | Identification of the direction of flow (see Metering Concepts Manual). Possible values are: <ul style="list-style-type: none"> <li>• PROD: Production of active energy (flow from client to Elia).</li> <li>• CONS: Consumption of active energy (flow from client to Elia).</li> </ul>  |
| 4     | Region                       | string    | Field indicating the region over which the values are summed. Possible values are: <ul style="list-style-type: none"> <li>• FLE: Flemish region</li> <li>• WAL: Wallonia region</li> <li>• BRU: Brussels region</li> <li>• FED: Federal region. This region contains all Access Points that are on the 380/220/150 kV grid (independently of the physical location).</li> </ul> |
| 6     | Supplier identification code | String    | EIC code of the supplier for which the values are summed.   |

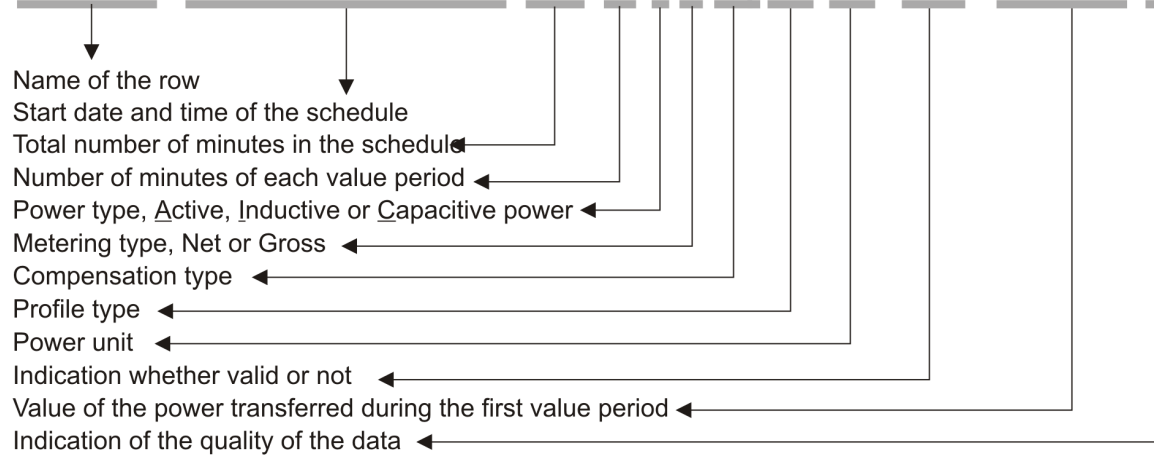
Table 18 CSV GEMP [dataS] fields



### 2.6.1.3. [schedule]

The [schedule] section contains the actual metered values for the corresponding [data] section. Each [schedule] section identifies all the parameters used to describe the power as well as the actual power values.

```
[schedule];2005-03-07T23:00:00Z;1440;15;I;N;NC;ULP;VAR;False;16417.082;N;..
```



Each of these parameters is described in the Metering Manual Concept. The schedule section is linked with the [dataG], [dataR] or [dataS] section that precedes it. There can be several schedule lines for each type of data section.

The schedules are normally daily schedules, but any time period is in theory possible.

| Field | Name                | Data type | Comment   |
|-------|---------------------|-----------|---|
| 1     | Name of the row     | String    | Fixed. Always [schedule]  |
| 2     | Start date and time | Date      | Start date and time of the schedule in ISO 8601 format  |
| 3     | Duration            | Integer   | Total number of minutes in the schedule   |
| 4     | Period              | Integer   | Number of minutes for each value period. Always 15.   |
| 5     | Power type          | String    | Identification of the type of power (see Metering Concept Manual).<br>Possible values are: <ul style="list-style-type: none"> <li>• A: Active</li> <li>• I: Inductive</li> <li>• C: Capacitive</li> <li>• Only Active values are provided to BRPs.</li> </ul> |
| 6     | Metering type       | String    | Indication as to whether the values are net, gross or specific (see Metering Concept Manual).<br>Possible values: <ul style="list-style-type: none"> <li>• N: Net</li> <li>• G: Gross</li> <li>• GG: "Green Gross"</li> <li>•</li> </ul>                      |
| 7     | Compensation type   | String    | Indication as to whether the values compensated or not (see Metering Concept Manual).   |

|                         |              |                  |  |
|-------------------------|--------------|------------------|--|
|                         |              |                  | <p>Possible values:</p> <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> <li>• C: Compensated. Used for billing purposes</li> <li>• A: Reserved for future use</li> <li>• CC: Compensated Corrected. Used for specific purposes</li> </ul> |
| 8                       | Profile type | string           | <p>Indication of the load profile. This field is reserved for probable future use and has no significant meaning. Currently, values could be:</p> <ul style="list-style-type: none"> <li>• ALP: Aggregated load profile,</li> <li>• ULP: Undefined load profile</li> </ul>               |
| 9                       | Power unit   | String           | <p>Unit in which the power values are defined. Possible values are:</p> <ul style="list-style-type: none"> <li>• KWT, KVR,</li> <li>• W, KW, MW,</li> <li>• VAR, KVAR, MVAR</li> </ul>   |
| 10                      | Validation   | Boolean          | <p>Indication as to whether the values are valid or not (see Metering Concept Manual).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• True: validated by Elia</li> <li>• False: not validated by Elia</li> </ul>   |
| 11 to 203 in steps of 2 | Value        | Unsigned Decimal | <p>Value of the transferred power. The value is always positive. The value is expressed in the defined unit and contains a maximum of 3 digits after the decimal point.</p>  |
| 12 to 204 in steps of 2 | Quality      | 1 char           | <p>Indication as to the quality of the metered data (see Metering Concept Manual ).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul>                               |

Table 19 CSV GEMP [schedule] fields

## 2.6.2. XML GEMP

The summed metered data is supplied in a single message (contained in the <ARPAAllGemp> root element) which contains 3 sub sections:

```
<?xml version="1.0" encoding="iso-8859-1"?>
<ARPAAllGemp xmlns="http://www.elia.be/namespaces/public/evms/b2bmsg">
+ <ARPGemp>
+ <ARPRRegionGemp>
+ <ARPSupplierGemp>
</ARPAAllGemp>
```

Example 16 XML ARPALLGemp message root

- <ARPGemp> contains the global summed data
- <ARPRRegionGemp> contains the data summed per region
- <ARPSupplierGemp> contains the data summed per region and per supplier

### 2.6.2.1. ARPGemp

The <ARPGemp> element contains the global summation for all Access Points in Belgium that are in the scope of responsibility of the BRP. It consists of a <header>, which concerns the message and a <data-list> which contains the power transfer data.

```
<ARPGemp>
+ <header>
+ <data-list>
</ARPGemp>
```

Example 17 XML GEMP message <ARPGemp>

#### 2.6.2.1.1. <header>

The single <header> element contains information about the sender of the message (Elia), the receiver, the time when the message was created and the type of message.

```
<header>
+ <sender> (contains fields identifying the sender)
+ <receiver> (contains fields identifying the receiver)
  <timestamp>2004-02-05T09:31:10Z</timestamp>
  <MsgGempType> (contains the type of message)
</header>
```

Example 18 XML GEMP message <header>

The contents of the <header> element are listed in the table below.

| Element name  | Element content | Content type                          | Cardinality | Description                            |
|---------------|-----------------|---------------------------------------|-------------|--|
| <sender>      | elements        | <party> elements, (see section 3.2.1) | mandatory   | Identification of message sender       |
| <receiver>    | elements        |                                       | mandatory   | Identification of message receiver     |
| <timestamp>   | text            | date                                  | mandatory   | Time at which the message was created. |
| <MsgGempType> | text            | string                                | optional    | Fixed:GEMP ARP                         |

Table 20 XML <header> element for ARPGemp elements

### 2.6.2.1.2. <data-list>

The <data-list> can contain one or more <data> sections. Each of the <data> sections identifies the direction of the transfer of power, by the optional <partyFrom> and <partyTo> elements, and a <schedule-list> that lists the actual power values.

```
<data-list>
  <data>
    + <partyFrom>
    + <partyTo>
    + <schedule-list>
  </data>
</data-list>
```

Example 19 XML GEMP message <data-list>

All the concepts related to these parameters are described in The Metering Manual Concept. The contents of each <data> section are listed in the table below.

| Element name    | Element content | Content type                           | Cardinality | Description   |
|-----------------|-----------------|--|-------------|---|
| <partyFrom>     | elements        | <party> elements, (see section 3.2.1). | optional    | Fields identifying the party FROM which the power is flowing.                     |
| <partyTo>       | elements        |  | optional    | Fields identifying the party TO which the power is flowing.                       |
| <schedule-list> | elements        | <schedule> elements (see section 0).   | mandatory   | Fields identifying the characteristics of the transferred power and their values. |

Table 21 XML <data> element for ARPGemp elements

### 2.6.2.2. ARPRegionGemp

The <ARPRegionGemp> element contains the sum of metering data for all Access Points in the scope of responsibility of the BRP or Supplier in each regulated region. It consists of a <header>, which concerns the message and a <data-list> which contains the power transfer data.

```
<ARPRegionGemp>
+ <header>
+ <data-list>
</ARPRegionGemp>
```

#### 2.6.2.2.1. <header>

The <header> element is mandatory. There is one <header> in the <ARPRegionGemp> element which identifies the sender and receiver of the message, time the message was created and the type of message.

```
<header>
+ <sender>
+ <receiver>
<timestamp>2004-07-02T10:23:08Z</timestamp>
<MsgGempType>
</header>
```

The contents of the <header> element are listed in the table below.

| Element name  | Element content | Content type                           | Cardinality | Description                            |
|---------------|-----------------|--|-------------|--|
| <sender>      | elements        | <party> elements, (see section 3.2.1). | mandatory   | Identification of message sender       |
| <receiver>    | elements        |  | mandatory   | Identification of message receiver     |
| <timestamp>   | text            | date                                   | mandatory   | Time at which the message was created. |
| <MsgGempType> | text            | string                                 | optional    | Fixed:GEMP ARP                         |

Table 22 XML <header> element for ARPRegionGemp elements

#### 2.6.2.2.2. <data-list>

The <data-list> element contains several <data> elements. Each of the <data> sections identify the direction of the transfer of power, by the optional <partyFrom> and <partyTo> elements, the summed power values per region and the region over which the values are summed.

```
<data-list>
  <data>
    + <partyFrom>
    + <partyTo>
    + <schedule-list>
      <region>BRU</region>
  </data>
</data-list>
```

The contents of each <data> section are listed in the table below.

| Element name    | Element content | Content type                           | Cardinality | Description   |
|-----------------|-----------------|--|-------------|---|
| <partyFrom>     | elements        | <party> elements, (see section 3.2.1). | optional    | Fields identifying the party FROM which the power is flowing.   |
| <partyTo>       | elements        |  | optional    | Fields identifying the party TO which the power is flowing.   |
| <schedule-list> | elements        | <schedule> elements (see section 0).   | mandatory   | Fields identifying the characteristics of the transferred power and their values.   |
| <region>        | text            | string                                 | mandatory   | Field indicating the region over which the values are summed. <ul style="list-style-type: none"> <li>• Possible values are:</li> <li>• FLE: Flemish region</li> <li>• WAL: Wallonia region</li> <li>• BRU: Brussels region</li> <li>• FED: Federal region. This region contains all Access Points that are on the 380/220/150 kV network (independently of the physical location).</li> </ul> |

Table 23 XML <data> element for ARPRegionGemp elements

### 2.6.2.3. ARPSupplierGemp

The <ARPSupplierGemp> element contains the sum of metering data for all Access Points in the scope of responsibility of the BRP in each regulated region and for each supplier. It consists of a <header>, which concerns the message and a <data-list> which contains the power transfer data.

```
<ARPSupplierGemp>
+ <header>
+ <data-list>
</ARPSupplierGemp>
```

#### 2.6.2.3.1. <header>

The <header> element is mandatory. There is one <header> in the <ARPSupplierGemp> element which identifies the sender and receiver of the message, the time the message was created and the type of message.

```
<header>
+ <sender>
+ <receiver>
<timestamp>2004-07-02T10:23:08Z</timestamp>
<MsgGempType>
</header>
```

The contents of the <header> element are listed in the table below.

| Element name  | Element content | Content type                           | Cardinality | Description                            |
|---------------|-----------------|--|-------------|--|
| <sender>      | elements        | <party> elements, (see section 3.2.1). | mandatory   | Identification of message sender       |
| <receiver>    | elements        |  | mandatory   | Identification of message receiver     |
| <timestamp>   | text            | date                                   | mandatory   | Time at which the message was created. |
| <MsgGempType> | text            | string                                 | optional    | Fixed:GEMP ARP                         |

Table 24 XML <header> element for ARPSupplierGemp elements



### 2.6.2.3.2. <data-list>

The <data-list> element contains several <data> elements. Each of the <data> sections identifies the direction of the transfer of power, by the optional <partyFrom> and <partyTo> elements, the summed power values, the region, and the supplier over which the values are summed.

```
<data-list>
  <data>
    + <partyFrom>
    + <partyTo>
    + <schedule-list>
    <region>BRU</region>
    <supplierEicCode>11SUPP-B-----P</supplierEicCode >
  </data>
</data-list>
```

The content of each <data> section is listed in the table below.

| Element name      | Element content | Content type                           | Cardinality | Description   |
|-------------------|-----------------|--|-------------|---|
| <partyFrom>       | elements        | <party> elements, (see section 3.2.1). | optional    | Fields identifying the party FROM which the power is flowing.   |
| <partyTo>         | elements        |  | optional    | Fields identifying the party TO which the power is flowing.   |
| <schedule-list>   | elements        | <schedule> elements (see section 0).   |             | Fields identifying the characteristics of the transferred power and their values.   |
| <region>          | text            | string                                 | mandatory   | Field indicating the region over which the values are summed. Possible values are: <ul style="list-style-type: none"> <li>• FLE: Flemish region</li> <li>• WAL: Wallonia region</li> <li>• BRU: Brussels region</li> <li>• FED: Federal region, which contains all Access Points on the 380/220/150 kV network (independently of the physical location).</li> </ul> |
| <supplierEicCode> |                 | string                                 | mandatory   | EIC Code of the supplier of the Access Point  |

Table 25 XML <data> element for ARPSupplierGemp elements



### 2.6.3. Excel GEMP

An example of a message GEMP is shown below. Note that this example's presentation shows the overall message structure rather than the complete contents. Only the first power values are shown in each of the Column values.

The Excel file contains one sheet named "000000000000000000": This sheet contains all information about the GEMP values for the given month:

The top rows contain information about the receiver, the "000000000000000000" code and "GEMP" and the time of creation (last update) of the message.

Subsequent areas of the sheet are divided into columns. The first lines of the columns contain information about the metering data (direction of the flow, power type, metering type, compensation type). The quarter hourly values give the power value and the quality for the mentioned metering data.

| Company               |       | Metersable            |         | GEMP                |         |                     |         |                       |         |                     |         |                     |         |                       |         |                     |         |                 |         |                 |         |   |
|-----------------------|-------|-----------------------|---------|---------------------|---------|---------------------|---------|-----------------------|---------|---------------------|---------|---------------------|---------|-----------------------|---------|---------------------|---------|-----------------|---------|-----------------|---------|---|
|                       |       | 000000000000000000    |         | GEMP                |         |                     |         |                       |         |                     |         |                     |         |                       |         |                     |         |                 |         |                 |         |   |
|                       |       | 23-04-2014            |         |                     |         |                     |         |                       |         |                     |         |                     |         |                       |         |                     |         |                 |         |                 |         |   |
|                       |       | Non validated by Elia |         |                     |         |                     |         |                       |         |                     |         |                     |         |                       |         |                     |         |                 |         |                 |         |   |
| Metersable type       |       | Total                 |         | Total               |         | Total               |         | Total                 |         | Total               |         | Total               |         | Bru                   |         | Bru                 |         |                 |         |                 |         |   |
|                       |       | Outgoing Active Gross |         | Outgoing Active Net |         | Outgoing Active Net |         | Incoming Active Gross |         | Incoming Active Net |         | Incoming Active Net |         | Outgoing Active Gross |         | Outgoing Active Net |         |                 |         |                 |         |   |
| Monthly energy        |       | Compensated           | Quality | Compensated         | Quality | Non Compensated     | Quality | Compensated           | Quality | Compensated         | Quality | Non Compensated     | Quality | Compensated           | Quality | Compensated         | Quality | Non Compensated | Quality | Non Compensated | Quality |   |
| Quarter hourly values |       | 0 KWh                 |         | 0 KWh               |         | 0 KWh               |         | 0 KWh                 |         | 0 KWh               |         | 0 KWh               |         | 0 KWh                 |         | 0 KWh               |         | 0 KWh           |         | 0 KWh           |         |   |
| Date                  | From  | To                    | V       |                     | V       |                     | V       |                       | V       |                     | V       |                     | V       |                       | V       |                     | V       |                 | V       |                 | V       |   |
| 01-01-2015            | 00:00 | 00:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 00:15 | 00:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 00:30 | 00:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 00:45 | 01:00                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 01:00 | 01:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 01:15 | 01:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 01:30 | 01:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 01:45 | 02:00                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 02:00 | 02:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 02:15 | 02:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 02:30 | 02:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 02:45 | 03:00                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 03:00 | 03:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 03:15 | 03:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 03:30 | 03:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 03:45 | 04:00                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 04:00 | 04:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 04:15 | 04:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 04:30 | 04:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 04:45 | 05:00                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 05:00 | 05:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 05:15 | 05:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 05:30 | 05:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 05:45 | 06:00                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 06:00 | 06:15                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 06:15 | 06:30                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |
| 01-01-2015            | 06:30 | 06:45                 | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1                   | 0       | 1                     | 0       | 1                   | 0       | 1               | 0       | 1               | 0       | 1 |

Example 20 Excel (XLSX) Global Elia Metered Position (GEMP) message

The GEMP consists of the following sections:

- A header section.
- A set of columns headers.
- A set of columns values.

### 2.6.3.1. Header

The header contains reference of the "GEMP" point and the receiver.

|   | A                 | B                     | C | D            |
|---|-------------------|-----------------------|---|--------------|
| 1 | Company           | 22XXXXXXXXXXXXC       |   | Test company |
| 2 | Meterable         | 000000000000000000    |   | GEMP         |
| 3 | Last Update       | 23-04-2014            |   |              |
| 4 | Validation Status | Non validated by Elia |   |              |
| 5 |                   |                       |   |              |

Figure 8 Excel GEMP header

| Excel Cell              | Name                         | Data type     | Comment   |
|-------------------------|------------------------------|---------------|---|
| B1:C1<br>(merged cells) | Receiver identification code | String        | EIC company code of the receiver of the message.  |
| D1:F1<br>(merged cells) | Receiver name                | String        | Name of the company receiver of the message.<br><b>Note:</b> this is a "display name" that can be different from the official name of the company   |
| B2:C2<br>(merged cells) | GEMP identification code     | String        | Fixed: "000000000000000000"   |
| D2:F2<br>(merged cells) | GEMPname                     | String        | Fixed: "GEMP"   |
| B3:C3<br>(merged cells) | Last update date             | Date and time | Date and time of the creation of the highest version of this document.  |
| B4:C4<br>(merged cells) | Validation                   | String        | Indication as to whether the values are valid or not (see Metering Manual Concepts).<br>Possible values are: <ul style="list-style-type: none"> <li>"Validated by Elia"</li> <li>"Non-validated by Elia"</li> </ul> |

Table 26 Excel GEMP header fields

### 2.6.3.2. Column headers

Same as the Access Point described in Section 2.1.3.2.

### 2.6.3.3. Column values

Same as the Access Point described in Section 2.1.3.3.

## 2.7. Imbalance

Electricity cannot be stored in massive quantities at a reasonable price.

Therefore, one of the objectives of Elia, as Transport System Operator (TSO), is to maintain the Elia electrical grid "in balance": practically, on the Elia grid, the production (injection) of electricity must be continually adjusted with the consumption (offtake) of electricity.

In more general terms, the energy coming on the Elia grid must always be equal with the energy leaving the Elia grid. The energy can be produced or consumed in Belgium but also imported from or exported to other European countries.

The BRP "injects" ("IN") and "offtakes" ("OUT") electricity on the Elia grid. The sum of these "IN" and "OUT" constitutes the "balance perimeter" of the BRP.

To be sure that BRP respects the golden rule on his balance perimeter, Elia calculates the Imbalance settlement for each quarter: Per quarter hour, this is the difference between:

- IN: the quantity of energy coming in the balance perimeter of the BRP and
- OUT: the energy going out the balance perimeter of the BRP.

E.g., Injection on the left side is in balance with offtake on the right side:

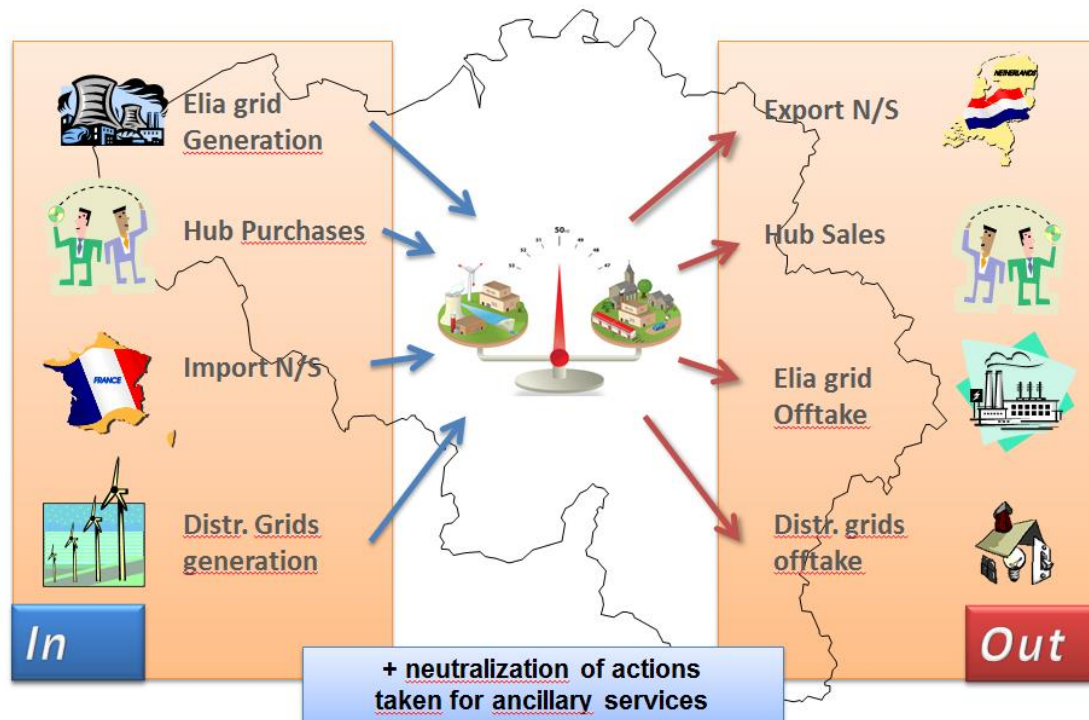


Figure 9: Balance perimeter

**IN** = The total injection of the BRP equals the sum of many components, for that quarter hour:

- all imports (for this BRP) from other European grid
- all injections at the injection Points allocated to the BRP
- all distribution injection positions allocated to the BRP
- all injections by internal transfers of nominated by the BRP ("as the buyer")

**OUT** = The Total offtake of the BRP equals the sum of many components, for that quarter hour:

- all exports (for this BRP) to other European grid
- all offtakes at the offtake points allocated to the BRP
- all distribution offtake positions allocated to the BRP
- all offtakes by internal transfers of energy nominated by the BRP ("as the seller")

As the difference of "classical" messages explained before in this document, the Imbalance message contains components. A component within a message represents a business flow. The energy is measured per quarter hour. For each quarter hour, the "balance perimeter" of the BRP may contain many components.

Each component is supposedly well known by the recipient and published to facilitate the analysis in case of error: its detailed business meaning is not described in this document. The list of components is given in "2.7.1. Imbalance Components".

Full details on all the descriptive fields and the possible values they can take can be found in section 2.7.6 (for the CSV format messages), section 2.7.7 (for the XML format messages) and section 2.7.8 (for the XLSX format messages).

#### **2.7.1. Imbalance components**

The business concepts behind each component are explained in the contractual document given to the BRP. This manual gives only a brief description.

The imbalance components that can be counted to the BRP are:

| Component                     | Description  |
|-------------------------------|--|
| CrossBorderExportTotal        | Total cross border export position of the BRP: Total energy going out the BRP balance perimeter on the Elia grid   |
| CrossBorderImportTotal        | Total cross border import position of the BRP: Total energy coming in the BRP balance perimeter on the Elia grid   |
| HubSalesTotal                 | Total of the sales of the BRP on Elia Hub (included its sales on the Power Exchanges)  |
| HubPurchasesTotal             | Total of the purchase (buy) of the BRP on Elia Hub (included its purchases on the Power Exchanges)   |
| aFRRUpCorrTotal               | Compensation for activation of aFRR upward (positive).   |
| aFRRDownCorrTotal             | Compensation for activation aFRR downward (negative).  |
| mFRRnonCipuBrpSourceCorrTotal | Compensations of the BRP <sub>source</sub> of a Delivery Point performed in the context of an mFRR non CIPU units (DP <sub>PG</sub> ) activation (Upward & Downward). The compensation's amount corresponds to the energy delivered by the activated DP <sub>PG</sub> falling under a ToE regime.                              |
| mFRRnonCipuBrpBspCorrTotal    | Compensations of the BRP <sub>BSP</sub> performed in the context of an mFRR non CIPU units (DP <sub>PG</sub> ) activation (Upward & Downward). This component corresponds to the mFRRnonCipuBrpBspDownCorr component minus the mFRRnonCipuBrpBspUpCorr component.  |
| mFRRnonCipuBrpBspUpCorr       | Compensations of the BRP <sub>BSP</sub> performed in the context of mFRR non CIPU units (DP <sub>PG</sub> ) upward activations. The compensation's amount corresponds to the difference between the upward energy requested by Elia and the energy delivered by the activated DP <sub>PG</sub> falling under a ToE regime.     |
| mFRRnonCipuBrpBspDownCorr     | Compensations of the BRP <sub>BSP</sub> performed in the context of mFRR non CIPU units (DP <sub>PG</sub> ) downward activations. The compensation's amount corresponds to the difference between the downward energy requested by Elia and the energy delivered by the activated DP <sub>PG</sub> falling under a ToE regime. |
| mFRRnonCipuTotal              | Sum of the compensations (BRP <sub>source</sub> & BRP <sub>BSP</sub> ) performed in the context of mFRR non CIPU units (DP <sub>PG</sub> ) activations (Upward & Downward). This component corresponds to the sum of the mFRRnonCipuBrpSourceCorrTotal & mFRRnonCipuBrpBspCorrTotal components.                                |
| OtherUpCorrTotal              | Additional Upward balancing compensation: This component represents additional upward compensation in the case of a specific agreement.  |
| OtherDownCorrTotal            | Additional Downward balancing compensation: This component represents additional downward compensation in the case of a specific agreement.  |
| DGOInjectionTotal             | Total of injection of the BRP for all DGO Network  |
| DGOOfftakeTotal               | Total of offtake of the BRP for all DGO Network  |
| DGOLossesTotal                | Total of losses of the BRP related to its clients on DGO Networks  |
| DGOInjection                  | Allocation injection of the BRP for one DGO Network  |
| DGOOfftake                    | Allocation offtake of the BRP for one DGO Network  |
| DGOLoopLossesTotal            | Total of Loop losses (Clearing difference) for the DGO Network attributed to the BRP   |

|                                       |   |
|---------------------------------------|---|
| DGOLoopLosses                         | Loop losses (Clearing difference) of a DGO Network  |
| CDSInjectionTotal                     | Total of injection of the BRP for all CDS Network   |
| CDSOfftakeTotal                       | Total of offtake of the BRP for all CDS Network   |
| CDSLosesTotal                         | Total of losses of the BRP related to its clients on CDS Networks   |
| CDSInjection                          | Allocation injection of the BRP for one CDS Network   |
| CDSOfftake                            | Allocation offtake of the BRP for one CDS Network   |
| CDSLoopLossesTotal                    | Total of Loop losses Clearing Difference for the CDS network attributed to the BRP  |
| CDSLoopLosses                         | Loop losses (Clearing difference) of a CDS Network  |
| TSOOfftakeTotal                       | Total offtake of the BRP for its clients on the TSO network   |
| TSOInjectionTotal                     | Total injection of the BRP from its clients on the TSO network  |
| TSOLosesTotal                         | Total losses of the BRP related to its clients on the TSO network   |
| ImbalanceResultofthePooling           | The imbalance of the pooling. (The Imbalance counted to the BRP "head of Pool". Is the sum of individual imbalance of the member of the pool in case of pooling agreement)  |
| OffshoreInterconnectionOfftakeTotal   | Total offtake of the BRP <sub>O.I.</sub> associated with this Offshore Interconnection  |
| OffshoreInterconnectionInjectionTotal | Total injection of the BRP <sub>O.I.</sub> associated with this Offshore Interconnection  |
| ImbalanceRecipient                    | Total Imbalance of the BRP  |
| mFRRDPpg&DA/IDBrpBspCorrTotal         | Compensations of the BRP <sub>BSP</sub> performed in the context of mFRR DP <sub>PG</sub> (non CIPU units) activations (Upward & Downward) in DA/ID. This component corresponds to the mFRRDPpg&DA/IDDownBrpbspCorr component minus the mFRRDPpg&DA/IDUpBrpbspCorr component.                                 |
| mFRRDPpg&DA/IDBrpSourceCorrTotal      | Compensations of the BRP <sub>SOURCE</sub> performed in the context of mFRR DP <sub>PG</sub> (non CIPU units) activations (Upward & Downward) in DA/ID.   |
| mFRRDPpg&DA/IDDownBrpbspCorr          | Compensations of the BRP <sub>BSP</sub> performed in the context of mFRR DP <sub>PG</sub> (non CIPU units) downward activations in DA/ID.   |
| mFRRDPpg&DA/IDTotal                   | Sum of the compensations (BRP <sub>SOURCE</sub> & BRP <sub>BSP</sub> ) performed in the context of mFRR DP <sub>PG</sub> (non CIPU units) activations (Upward & Downward) in DA/ID. This component corresponds to the sum of the mFRRDPpg&DA/IDBrpSourceCorrTotal & mFRRDPpg&DA/IDBrpBspCorrTotal components. |
| mFRRDPpg&DA/IDUpBrpbspCorr            | Compensations of the BRP <sub>BSP</sub> performed in the context of mFRR DP <sub>PG</sub> (non CIPU units) upward activations in DA/ID.   |
| mFRRDPsuUpCorr Total                  | Compensations of the BRP performed in the context of mFRR DP <sub>SU</sub> (former CIPU units) upward activations. This component together with the "RedispatchingUpCorr Total" component are replacing the former "mFRRCipuAndCipuUpCorrTotal" component.  |
| mFRRDPsuDownCorr Total                | Compensations of the BRP performed in the context of mFRR DP <sub>SU</sub> (former CIPU units) downward activations. This component together with the "RedispatchingDownCorr Total" component are replacing the former "mFRRCipuAndCipuDownCorrTotal" component.  |

|                             |   |
|-----------------------------|---|
| RedispatchingUpCorr Total   | Compensations of the BRP performed in the context of Redispatching upward activations. This component together with the "mFRRDPsuUpCorr Total" component are replacing the former "mFRRCipuAndCipuUpCorrTotal" component.       |
| RedispatchingDownCorr Total | Compensations of the BRP performed in the context of Redispatching downward activations. This component together with the "mFRRDPsuDownCorr Total" component are replacing the former "mFRRCipuAndCipuDownCorrTotal" component. |



**Remarks:**

This list can always vary when new components of the Imbalance could be created based on new market rules. Elia does not guarantee the order of components within the message.

**2.7.2. Imbalance components criteria's**

In the following list the columns must be understood as:

- **Component:** See Section "2.7.1 Imbalance components"
- **Flow direction:** the flow of electricity within the BRP Balance perimeter:
  - **IN:** the quantity of energy coming in the balance perimeter of the BRP
  - **OUT:** the energy going out the balance perimeter of the BRP
- **Possible negative value?** Normally the electricity follows the flow indicated within the column 'Flow direction', but exceptionally electricity can flow in the other direction. In this case, the electricity quarter value is negative

| Component                             | Flow direction | Possible negative values? |
|---------------------------------------|----------------|---------------------------|
| CrossBorderExportTotal                | Out            | No                        |
| CrossBorderImportTotal                | In             | No                        |
| HubSalesTotal                         | Out            | No                        |
| HubPurchasesTotal                     | In             | No                        |
| aFRRUpCorrTotal                       | Out            | No                        |
| aFRRDownCorrTotal                     | In             | No                        |
| OtherUpCorrTotal                      | Out            | No                        |
| OtherDownCorrTotal                    | In             | No                        |
| DGOInjectionTotal                     | In             | No                        |
| DGOOfftakeTotal                       | Out            | No                        |
| DGOLossesTotal                        | Out            | Yes                       |
| DGOInjection                          | In             | No                        |
| DGOOfftake                            | Out            | No                        |
| DGOLoopLossesTotal                    | Out            | Yes                       |
| DGOLoopLosses                         | Out            | Yes                       |
| CDSInjectionTotal                     | In             | No                        |
| CDSOfftakeTotal                       | Out            | No                        |
| CDSLosesTotal                         | Out            | Yes                       |
| CDSInjection                          | In             | No                        |
| CDSOfftake                            | Out            | No                        |
| CDSLoopLossesTotal                    | Out            | Yes                       |
| CDSLoopLosses                         | Out            | Yes                       |
| TSOOfftakeTotal                       | Out            | No                        |
| TSOInjectionTotal                     | In             | No                        |
| TSOLosesTotal                         | Out            | No                        |
| DchCompensationTotal                  | Out            | Yes                       |
| ImbalanceResultofthePooling           | In             | Yes                       |
| OffshoreInterconnectionOfftakeTotal   | Out            | No                        |
| OffshoreInterconnectionInjectionTotal | In             | No                        |
| ImbalanceRecipient                    | In             | Yes                       |
| mFRRDPpg&DA/IDBrpBspCorrTotal         | In             | Yes                       |

|                                  |     |     |
|----------------------------------|-----|-----|
| mFRRDPpg&DA/IDBrpSourceCorrTotal | In  | Yes |
| mFRRDPpg&DA/IDDownBrpbspCorr     | In  | No  |
| mFRRDPpg&DA/IDTotal              | In  | Yes |
| mFRRDPpg&DA/IDUpBrpbspCorr       | Out | No  |
| mFRRDPsuUpCorr Total             | Out | No  |
| mFRRDPsuDownCorr Total           | In  | No  |
| RedispatchingUpCorr Total        | Out | No  |
| RedispatchingDownCorr Total      | In  | No  |

### 2.7.3. Imbalance components added parameters

In the following list the columns must be understood as:

- **Component:** See section 2.7.1 "Imbalance components"
- **Party/area:** Each component can be general and referenced to the BRP: this is the "party". For example, all border import of the BRP. But some components can be also detailed per "area". For example, a component on a distribution grid has also the grid area code.
- **Code:** This code can be:
  - The BRP EIC code
  - The area code
  - A specific EIC code

| Component              | Party/Area | Code   |
|------------------------|------------|--|
| CrossBorderExportTotal | Party      | BRP EIC code   |
| CrossBorderImportTotal | Party      | BRP EIC code   |
| HubSalesTotal          | Party      | BRP EIC code   |
| HubPurchasesTotal      | Party      | BRP EIC code   |
| aFRRUpCorrTotal        | Party      | BRP EIC code   |
| aFRRDownCorrTotal      | Party      | BRP EIC code   |
| OtherUpCorrTotal       | Party      | BRP EIC code   |
| OtherDownCorrTotal     | Party      | BRP EIC code   |
| DGOInjectionTotal      | Area       | ALL DGO EIC code: 22YBE-ALLDSO---0                                 |
| DGOOfftakeTotal        | Area       | ALL DGO EIC code: 22YBE-ALLDSO---0                                 |
| DGOLossesTotal         | Area       | ALL DGO EIC code: 22YBE-ALLDSO---0                                 |
| DGOInjection           | Area       | DGO Network EAN code (see "2.7.1.4 Distribution grid area codes ") |
| DGOOfftake             | Area       | DGO Network EAN code (see "2.7.1.4 Distribution grid area codes ") |
| DGOLoopLossesTotal     | Area       | ALL DGO EIC code: '22YBE-ALLDSO---0                                |
| DGOLoopLosses          | Area       | DGO Network EAN code   |
| CDSInjectionTotal      | Area       | ALL CDS EIC code: 22YBE-ALLCDS---3                                 |
| CDSOfftakeTotal        | Area       | ALL CDS EIC code: 22YBE-ALLCDS---3                                 |
| CDSLosesTotal          | Area       | ALL CDS EIC code: 22YBE-ALLCDS---3                                 |
| CDSInjection           | Area       | CDS Network EAN code   |
| CDSOfftake             | Area       | CDS Network EAN code   |
| CDSLoopLossesTotal     | Area       | ALL CDS EIC code: 22YBE-ALLCDS---3                                 |
| CDSLoopLosses          | Area       | CDS Network EAN code   |
| TSOOfftakeTotal        | Area       | Total on the Elia network: 22YBE-TSO-----9                         |

|                                       |       |  |
|---------------------------------------|-------|--|
| TSOInjectionTotal                     | Area  | Total on the Elia network: 22YBE-TSO-----9                     |
| TSOLossesTotal                        | Area  | Total on the Elia network: 22YBE-TSO-----9                     |
| ImbalanceResultofthePooling           | Party | BRP EIC code   |
| OffshoreInterconnectionOfftakeTotal   | Party | ALL OIP EIC code: 22YBE-ALLOIP---F                             |
| OffshoreInterconnectionInjectionTotal | Party | ALL OIP EIC code: 22YBE-ALLOIP---F                             |
| ImbalanceRecipient                    | Party | Can be EIC code of the BRPs member of the pool or BRP EIC code |
| mFRRDPpg&DA/IDBrpBspCorrTotal         | Party | BRP EIC code   |
| mFRRDPpg&DA/IDBrpSourceCorrTotal      | Party | BRP EIC code   |
| mFRRDPpg&DA/IDDownBrpbspCorr          | Party | BSP EIC code   |
| mFRRDPpg&DA/IDTotal                   | Party | BSP EIC code   |
| mFRRDPpg&DA/IDUpBrpbspCorr            | Party | BRP EIC code   |
| mFRRDPsuUpCorr Total                  | Party | BRP EIC code   |
| mFRRDPsuDownCorr Total                | Party | BRP EIC code   |
| RedispatchingUpCorr Total             | Party | BRP EIC code   |
| RedispatchingDownCorr Total           | Party | BRP EIC code   |

#### 2.7.4. Distribution grid area codes

The code used in the metering system refers to its DGO network EAN (these EAN codes are also used in the nomination system).

See:

[https://www.elia.be/-/media/project/elia/elia-site/customers/customer-tools/nominations/20210201\\_list-of-distribution-grids\\_en.pdf](https://www.elia.be/-/media/project/elia/elia-site/customers/customer-tools/nominations/20210201_list-of-distribution-grids_en.pdf) for the complete list.

Currently following DGO Network are available:

|   |
|---|
| 541453179928225270 - AIEG                       |
| 541453175526064631 - AIESH                      |
| 541453105692690617 - GASELWEST                  |
| 541453199767702817 - Fluvius West               |
| 541453174796694517 - IMEWO                      |
| 541453116958254573 - Fluvius Limburg            |
| 541453126054018733 - INTERGEM                   |
| 541453182932680843 - Fluvius Antwerpen          |
| 541453118978518246 - IVEKA                      |
| 541453117858523134 - IVERLEK                    |
| 541453152233523132 - ORES (BRABANT WALLON)      |
| 541453182435244320 - ORES (EST)                 |
| 541453122843569516 - ORES (HAINAUT ELECTRICITE) |
| 541453114573305847 - ORES (LUXEMBOURG)          |
| 541453137733095884 - ORES (MOUSCRON)            |
| 541453170109194514 - ORES (NAMUR)               |
| 541453169685000180 - ORES (VERVIERS)            |
| 541453175169008979 - PBE                        |
| 541453131260317563 - SIBELGA                    |
| 541453175605410335 - SIBELGAS                   |
| 541453199449664358 - RESA                       |
| 541453135778772500 - Réseau D'Energies de Wavre |

### 2.7.5. Closed Distribution System area codes

The code used in the metering system refers to its CDS network EAN (these EAN codes are also used in the nomination system).

See:

[https://www.elia.be/-/media/project/elia/elia-site/customers/customer-tools/nominations/20230701\\_active\\_closed\\_distribution\\_grids\\_en.pdf](https://www.elia.be/-/media/project/elia/elia-site/customers/customer-tools/nominations/20230701_active_closed_distribution_grids_en.pdf) for the complete list.

Currently following CDS Network are available:

|  |
|--|
| 541453185522017586 - DNB Brussels Airport _ Zaventem     |
| 541453176864035840 - BASF Antwerpen                      |
| 541453173171146450 - ArcelorMittal Belgium _ Seraing     |
| 541453118417028657 - ArcelorMittal Belgium_Ramet         |
| 541453112214433928 - INEOS Oxide Utilities _ Zwijndrecht |
| 543000348105915000 - NYRSTAR Belgium _ Balen             |

### 2.7.6. CSV Imbalance Value

Imbalance messages contain a [header] row, a [data] row describing the component and [schedule] sections. An example of a CSV Imbalance message is shown below:

```
[header];10X1001A1001A094;22XBRPA-----A;2015-09-14T22:00:00Z;IMBALANCE;10;Final
[data];CrossBorderExportTotal;22XBRPA-----A;OUT
[schedule];2015-07-31T22:00:00Z;1440;15;A;N;C;ALP;KW;695939,469;N;
[end]
```

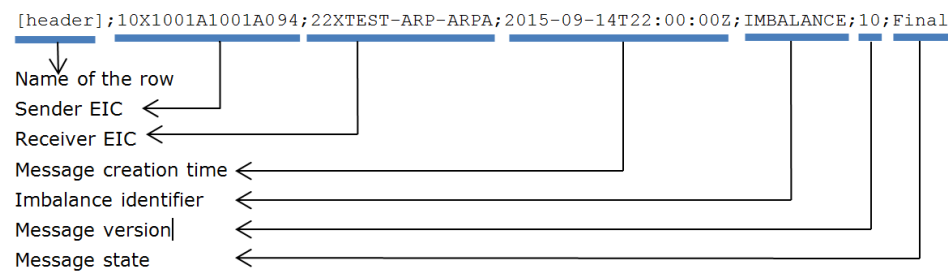
Example 21 CSV Imbalance message

The Imbalance Message consists of the following sections:

- a [header] section
- [data] section
- [schedule] section
- [end] – which is the last line indicating the end of the message. All characters following [end] must be ignored.

#### 2.7.6.1. [header]

The [header] row contains information about the sender and the receiver of the message as well as the time of creation, the version number, state of the message and the fact that this is an Imbalance message. There is only one [header] row in the message.



| Field | Name                         | Data type | Comment   |
|-------|------------------------------|-----------|---|
| 1     | Name of the row              | String    | Fixed. Always [header]  |
| 2     | Sender identification code   | String    | EIC code (Energy Identification Code) of the TSO (Elia): 10X1001A1001A094   |
| 3     | Receiver identification code | String    | EIC code (Energy Identification Code) of the receiver of the message  |
| 4     | Message creation time        | Date      | Date and time of the file creation in Iso format  |
| 5     | Message type                 | String    | Fixed. Always IMBALANCE   |
| 6     | Version                      | String    | The version of the message: An integer within range [1...999]. <b>Note:</b> The first message sent is not guaranteed to have version 1. |
| 7     | Message status               | String    | Indicate if the message is 'Intermediate', 'Final' or 'FinalModified'   |

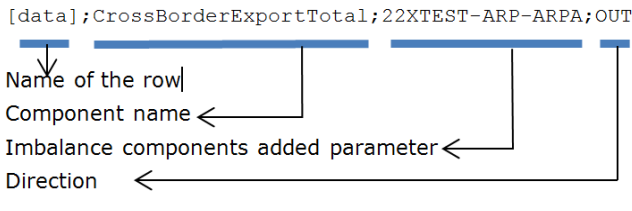
Table 27 CSV Imbalance [header] fields





**2.7.6.2. [data]**

A [data] row contains information about the component and related criteria. A [data] section is always followed by at least one [schedule] section. There are several [data] sections that correspond to different components.

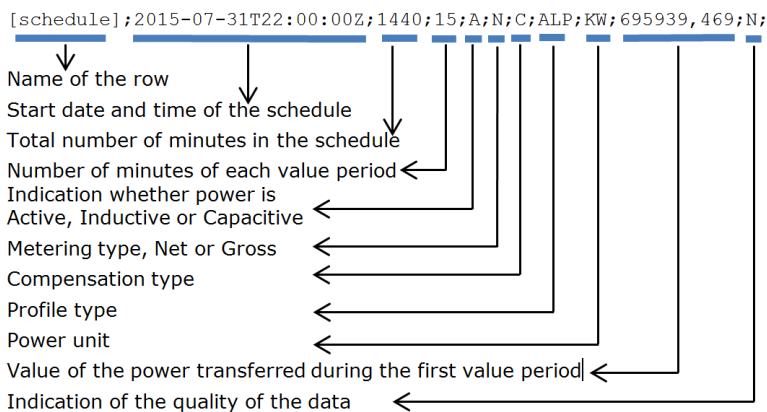


| Field | Name                    | Data type | Comment   |
|-------|-------------------------|-----------|---|
| 1     | Name of the row         | String    | Fixed. Always [data]  |
| 2     | Component               | String    | Name of the component: See "2.7.1 Imbalance Components"   |
| 3     | Party/Area              | String    | The party or Area related to the component: see "2.7.3 Imbalance components added parameters"   |
| 3     | Direction of Power flow | String    | Identification of the direction of flow (see section see "2.7.2 Imbalance components "). Possible values are: <ul style="list-style-type: none"> <li>OUT: the energy is going out the BRP Balance perimeter</li> <li>IN: the energy is coming in the BRP balance perimeter</li> </ul> |

Table 28 CSV Imbalance message [data] fields

**2.7.6.3. [schedule]**

A [schedule] section contains the power values transferred over the specified time period and identifies the type of power. The Time period constitutes 1 day of 23, 24 or 25 hours. For any component identified in the [data] section, there can be a number of [schedules]. A [schedule] is always related to a parent [data] section. Each [data] section should have one [schedule] section for each day of the covered month but any time period is theoretically possible. The fields contained in the [schedule] are listed below; the general meaning of these fields can be found in section Metering Concept Manual.



| Field | Name                | Data type | Comment   |
|-------|---------------------|-----------|---|
| 1     | Name of the row     | String    | Fixed. Always [schedule]  |
| 2     | Start date and time | Date      | Start date and time of the schedule in ISO 8601 format.   |
| 3     | Duration            | Integer   | Total number of minutes in the schedule.  |
| 4     | Period              | Integer   | Number of minutes for each value period. Always 15.   |
| 5     | Power type          | String    | <p>Identification of the type of power* (see Metering Concept Manual).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• A: Active</li> <li>• I: Inductive</li> <li>• C: Capacitive</li> </ul> <p>* Normally only Active power type are part of the Imbalance message but theoretically other power type could also exist</p>  |
| 6     | Metering type       | String    | <p>Indication as to whether the values are net or gross* or specific (see Metering Concept Manual).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• N: Net</li> <li>• G: Gross</li> <li>• GG: "Green Gross"</li> </ul> <p>* Normally only Net metering type are part of the Imbalance message but theoretically other metering type could also exist</p>   |
| 7     | Compensation type   | String    | <p>Indication as to whether the values are compensated or not* (see Metering Concept Manual).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> <li>• C: Compensated. Used for billing purposes</li> <li>• A: Reserved for future use</li> <li>• CC: Compensated Corrected Used for specific purposes</li> </ul> <p>* Normally only Compensated are part of the Imbalance message but theoretically other Compensation type could also exist</p> |
| 8     | Profile type        | String    | <p>Indication of the load profile*. This field is reserved for probable future use and has no significant meaning. Currently, values could be:</p> <ul style="list-style-type: none"> <li>• ALP: Aggregated load profile</li> </ul>   |

|                         |         |                |   |
|-------------------------|---------|----------------|---|
|                         |         |                | <ul style="list-style-type: none"> <li>• ULP: Undefined load profile</li> <li>* Normally only ALP are part of the Imbalance message but theoretically ULP type could also exist</li> </ul>  |
| 9                       | Unit    | String         | <p>Unit in which the metered values are defined.</p> <p>Normally always KW</p>  |
| 10 to 202 in steps of 2 | Value   | Signed Decimal | <p>Value of the metered quantity in the unit defined in Field 9 above with a maximum of 3 digits after the decimal point.</p> <ul style="list-style-type: none"> <li>• If the value is positive then no "+" sign is added</li> <li>• If the value is negative then "-" sign is added</li> </ul> |
| 11 to 203 in steps of 2 | Quality | 1 char         | <p>Indication as to the quality of the metered data (see Metering Concept Manual).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul>                                       |

Table 29 CSV Imbalance message [schedule] fields

### 2.7.7. XML Imbalance

The current Imbalance message respects the **CIM IEC standard 62325-451-4**

The structure therefore is briefly explained in this document but whole description is available on the IEC web store: <https://webstore.iec.ch/publication/29116>

The XSD Schema reference is available on "3.1 Reference XSD".

```
<EnergyAccount_MarketDocument xsi:schemaLocation="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0 iec62325-451-4-settlement_v4.xsd"
xmlns="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
</EnergyAccount_MarketDocument>
```

#### Example 22 XML Imbalance message root

The message begins with information about the sender of the message (Elia) and the receiver as well as the time when the message was created plus some information about the state of this message: This header is valid for all the Time Series.

Remark: the XML comments indicated in the message below are for the reader comprehension and are available in the message sent by Elia.

```
<mRID>IMB_20150801_20150831</mRID><revisionNumber>10</revisionNumber>
<type>A12<!--Imbalance report--></type>
<docStatus><value>A02</value></docStatus><!--Final-->
<process.processType>A06</process.processType> <!--Imbalance settlement-->
<process.classificationType>A01</process.classificationType> <!--Detail-->
<sender_MarketParticipant.mRID
codingScheme="A01">10X1001A1001A094</sender_MarketParticipant.mRID>
<sender_MarketParticipant.marketRole.type>A04</sender_MarketParticipant.marketRole.type>
<receiver_MarketParticipant.mRID codingScheme="A01">22XBRPA-----
A</receiver_MarketParticipant.mRID>
<receiver_MarketParticipant.marketRole.type>A08</receiver_MarketParticipant.marketRole.type>
<!--Balance responsible party-->
<createdDateTime>2015-09-14T22:00:00Z</createdDateTime>
<period.timeInterval>
    <start>2015-07-31T22:00Z</start>
    <end>2015-08-30T22:00Z</end>
</period.timeInterval>
<domain.mRID codingScheme="A01">10YBE-----2</domain.mRID>
```

#### Example 23 XML Imbalance message header

### 2.7.7.1. XML Imbalance Header fields

The following header fields are mandatory and are listed in the table below.

| Element name                             | Content type                                   | Description   |
|--|--|---|
| mRID                                     | String [1..35]                                 | The unique identification of the document. Currently: "IMB_[First day of the period covered:YYYYMMDD]_[Last day of the covered period:YYYYMMDD]"<br>Example: IMB_20150801_20150831<br>Please note that this mRID structure is not guaranteed. Any implementation should only refer to this mRID to determine if this message instance was already treated or not.                           |
| revisionNumber                           | Integer [1...999]                              | The version number of the document: It is not guaranteed that first document received by the BRP has version number 1. A more recent document has a higher version number   |
| type                                     | String [3]                                     | Fixed. Always A12 (Imbalance document)  |
| docStatus                                | String [3]                                     | The status of the Imbalance document. Possible values: <ul style="list-style-type: none"> <li>• A01 - Intermediate</li> <li>• A02 - Final</li> <li>• A03 - Final Modified</li> </ul>  |
| process.processType                      | String [3]                                     | The type of the Imbalance document. Possible values: <ul style="list-style-type: none"> <li>• A04 - System Operation closure</li> <li>• A05 - Metered data aggregation</li> <li>• A06 - Imbalance settlement</li> <li>• A99 - Real-Time DGO Allocation (see )</li> <li>• Normally only A06 is part of the Imbalance message but theoretically other processType could also exist</li> </ul> |
| process.classificationType               | String [3]                                     | The classification mechanism used to group a set of objects together within a business process. Possible values: <ul style="list-style-type: none"> <li>• A01 - Detail</li> <li>• A02 - Summary</li> </ul> Normally only A01 is part of the Imbalance message but theoretically other classificationType could also exist   |
| sender_MarketParticipant.mRID            | codingScheme: String [3]<br>Value: String [16] | Fixed: <ul style="list-style-type: none"> <li>• codingScheme: A01 (EIC)</li> <li>• 10X1001A1001A094 (Elia EIC)</li> </ul>   |
| sender_MarketParticipant.marketRole.type | String [3]                                     | Fixed: Always A04 (System operator)   |
| receiver_MarketParticipant.mRID          | codingScheme: String [3]                       | <ul style="list-style-type: none"> <li>• codingScheme: Fixed A01 (EIC)</li> <li>• Value : EIC code of the BRP</li> </ul>  |

|  |  |   |
|--|--|---|
|  | Value: String [16]                             |   |
| receiver_MarketParticipant.marketRole.type | String [3]                                     | Fixed: Always A08 (Balance Responsible Party / BRP)   |
| createdDateTime                            | Date and time                                  | Time at which the message was created (in UTC time).  |
| period.timeInterval                        | Start / End: Date                              | Covered Period: Normally this is exactly one month (in UTC time). Example for the month August 2015:<br>Start time is 31/7/2015 at 22h. End time is 31/8/2015 at 22h<br>Any period is theoretically possible. |
| Domain.mRID                                | codingScheme: String [3]<br>Value: String [16] | Fixed: Always <ul style="list-style-type: none"> <li>codingScheme: A01 (EIC)</li> <li>10YBE-----2 (Belgian Area)</li> </ul>   |

Table 30 XML headers elements for Imbalance messages

The <TimeSeries> element describes the flow of the power for one component and related criteria and the schedule of actual power values.

Elia does not guarantee the order of Timeseries within the message.

```

<TimeSeries>
<mRID>A03-22XBRPA-----A</mRID>
<businessType>A03</businessType>
<!--OUT=Total export position of the BRP: Total energy going out the BRP balance perimeter on the Elia grid - IN=Total import position of the BRP: Total energy coming in the BRP balance perimeter on the Elia grid-->
<product>8716867000016</product>
<objectAggregation>A03</objectAggregation>
<area_Domain.mRID codingScheme="A01">10YBE-----2</area_Domain.mRID>
<marketParticipant.mRID codingScheme="A01">22XBRPA-----A
</marketParticipant.mRID>
<measure_Unit.name>KWT</measure_Unit.name>
<Period>
</TimeSeries>

```

Example 24 XML Imbalance message TimeSeries

The general meaning of these fields is given in The Metering Concept Manual. All elements are listed in the table below.

| Element name      | Content type   | Description   |
|-------------------|----------------|---|
| mRID              | String [1..35] | Time series unique identification within the message                      |
| businessType      | String [3]     | Fields identifying the characteristics of the component : See table below |
| product           | String [1..35] | Fixed. Always<br>8716867000016 - Active Power                             |
| objectAggregation | String [3]     | Fixed. Always A03   |

|                        |   |  |
|------------------------|---|--|
| area_Domain.mRID       | String [1..18]                            | Based on the table here below, can be an EAN or EIC code of the Area |
| marketParticipant.mRID | String [1..18]                            | Based on the table here below, is the EIC code of the Party          |
| measure_Unit.name      | String [3]                                | Power unit. Always KWT   |
| Period                 | See "2.7.7.2 XML Imbalance Period Fields" |  |

Table 31 XML <data> element for Imbalance messages

| Component                             | Business Type | Flow direction | Aggregation | Party/area                                 | XML Grouping |
|---------------------------------------|---------------|----------------|-------------|--|--------------|
| HubPurchasesTotal                     | A02           | In             | By Party    | BRP EIC code                               | Grouped      |
| HubSalesTotal                         | A02           | Out            | By Party    | BRP EIC code                               |              |
| CrossBorderExportTotal                | A03           | Out            | By Party    | BRP EIC code                               | Grouped      |
| CrossBorderImportTotal                | A03           | In             | By Party    | BRP EIC code                               |              |
| CDSInjection                          | A14           | In             | By Area     | CDS Network EAN code                       | Grouped      |
| CDSOfftake                            | A14           | Out            | By Area     | CDS Network EAN code                       |              |
| CDSInjectionTotal                     | A14           | In             | By Area     | ALL CDS EIC code: 22YBE-ALLCDS---3         | Grouped      |
| CDSOfftakeTotal                       | A14           | Out            | By Area     | ALL CDS EIC code: 22YBE-ALLCDS---3         |              |
| DGOInjection                          | A14           | In             | By Area     | DGO Network EAN code                       | Grouped      |
| DGOOfftake                            | A14           | Out            | By Area     | DGO Network EAN code                       |              |
| DGOInjectionTotal                     | A14           | In             | By Area     | ALL DGO EIC code: 22YBE-ALLDSO---0         | Grouped      |
| DGOOfftakeTotal                       | A14           | Out            | By Area     | ALL DGO EIC code: 22YBE-ALLDSO---0         |              |
| OffshoreInterconnectionInjectionTotal | A14           | In             | By Area     | ALL OIP EIC code: 22YBE-ALLOIP---F         | Grouped      |
| OffshoreInterconnectionOfftakeTotal   | A14           | Out            | By Area     | ALL OIP EIC code: 22YBE-ALLOIP---F         |              |
| TSOInjectionTotal                     | A14           | In             | By Area     | Total on the Elia network: 22YBE-TSO-----9 | Grouped      |
| TSOOfftakeTotal                       | A14           | Out            | By Area     | Total on the Elia network: 22YBE-TSO-----9 |              |
| CDSLosesTotal                         | A15           | Out            | By Area     | ALL CDS EIC code: 22YBE-ALLCDS---3         |              |
| DGOLosesTotal                         | A15           | Out            | By Area     | ALL DGO EIC code: 22YBE-ALLDSO---0         |              |
| TSOLosesTotal                         | A15           | Out            | By Area     | Total on the Elia network: 22YBE-TSO-----9 |              |
| ImbalanceRecipient                    | A20           | In             | By party    | BRP EIC code                               |              |
| ImbalanceRecipient                    | A20           | In             | By party    | HUB BRP EIC code                           |              |
| OtherDownCorrTotal                    | A23           | In             | By party    | BRP EIC code                               | Grouped      |
| OtherUpCorrTotal                      | A23           | Out            | By party    | BRP EIC code                               |              |
| ImbalanceResultofthePooling           | B32           | In             | By party    | BRP EIC code                               |              |



| Component                        | Business Type | Flow direction | Aggregation | Party/area                         | XML Grouping |
|----------------------------------|---------------|----------------|-------------|------------------------------------|--------------|
| CDSLoopLosses                    | Z01           | Out            | By Area     | CDS Network EAN code               |              |
| CDSLoopLossesTotal               | Z01           | Out            | By Area     | ALL CDS EIC code: 22YBE-ALLCDS---3 |              |
| DGOLoopLosses                    | Z01           | Out            | By Area     | DGO Network EAN code               |              |
| DGOLoopLossesTotal               | Z01           | Out            | By Area     | ALL DGO EIC code: 22YBE-ALLDSO---0 |              |
| mFRRDPpg&DA/IDDownBrpbspCorr     | Z20           | In             | By Party    | BRP EIC code                       | Grouped      |
| mFRRDPpg&DA/IDUpBrpbspCorr       | Z20           | Out            | By Party    | BRP EIC code                       |              |
| mFRRDPpg&DA/IDBrpBspCorrTotal    | Z22           | In             | By Party    | BRP EIC code                       |              |
| aFRRUpCorrTotal                  | Z27           | Out            | By Party    | BRP EIC code                       |              |
| aFRRDownCorrTotal                | Z27           | In             | By Party    | BRP EIC code                       |              |
| mFRRDPpg&DA/IDBrpSourceCorrTotal | Z30           | In             | By Party    | BRP EIC code                       |              |
| mFRRDPpg&DA/IDTotal              | Z31           | In             | By Party    | BRP EIC code                       |              |
| mFRRDPsuUpCorr Total             | Z37           | Out            | By Party    | BRP EIC code                       |              |
| mFRRDPsuDownCorr Total           | Z37           | In             | By Party    | BRP EIC code                       |              |
| RedispatchingUpCorr Total        | Z38           | Out            | By Party    | BRP EIC code                       |              |
| RedispatchingDownCorr Total      | Z38           | In             | By Party    | BRP EIC code                       |              |

Table 32 XML Time Series Imbalance component and related data

### 2.7.7.2. XML Imbalance Period fields

The <Period> element contains information to characterize the power value and quality for a period. It contains also the Period element: see

```
<Period>
<timeInterval>
<start>2015-07-31T22:00Z</start>
<end>2015-08-30T22:00Z</end>
</timeInterval>
<resolution>PT15M</resolution>
<Point>
```

All elements are mandatory and listed in the table below.

| Element name        | Content type      | Description  |
|---------------------|-------------------|--|
| period.timeInterval | Start / End: Date | Covered Period: Normally this is exactly one month in ISO 8601 format (see section "3.2 XML elements |
| resolution          | String            | Total number of minutes in the schedule. (! See also section 4.5, on the effect of daylight saving.) |
| Point               | See below         |  |

Table 33 XML period components and related data

### 2.7.7.3. XML Imbalance Point fields

The <Point> element contains information to characterize the power value and quality for a period

```
<Point>
<position>2</position>
<in_Quantity.quantity>113423.485</in_Quantity.quantity>
<in_Quantity.quality>A04</in_Quantity.quality>
<out_Quantity.quantity>542630.839</out_Quantity.quantity>
<out_Quantity.quality>A04</out_Quantity.quality>
</Point>
```

All elements are mandatory and listed in the table below.

| Element name          | Cardinality | Content type          | Description  |
|-----------------------|-------------|-----------------------|--|
| position              | Mandatory   | Integer<br>[1...2884] | The position of the quarter within the covered period  |
| in_Quantity.quantity  | Optional    | Double                | Value for the direction IN (if possible for the component) or the element is not present   |
| in_Quantity.quality   | Optional    | Element               | Quality for the direction IN (if possible for the component) or the element is not present<br>Possible values: <ul style="list-style-type: none"> <li>• Normal : "A04"</li> <li>• Inexact: "A02"</li> <li>• Substituted: "A01"</li> </ul>  |
| out_Quantity.quantity | Optional    | Double                | Value for the direction OUT (if possible for the component) or the element is not present  |
| out_Quantity.quality  | Optional    | Element               | Quality for the direction OUT (if possible for the component) or the element is not present<br>Possible values: <ul style="list-style-type: none"> <li>• Normal : "A04"</li> <li>• Inexact: "A02"</li> <li>• Substituted: "A01"</li> </ul> |

Table 34 XML <point> element for Imbalance messages

### 2.7.8. Excel Imbalance Value

The Excel file contains one sheet named "000000000000000000": This sheet contains all information about each imbalance component and related criteria's for a given month:

- The top rows contain information about the receiver, the status of the message and the time of creation (last update) of the message and the fact that this sheet follow the Imbalance message format
- Subsequent area of the sheet is divided into columns
- The first lines of the columns give information about the component name, Direction (Power Flow), Party or Area) described in "2.7.8.1 Header"
- The quarter hourly values give the power value and the quality for the mentioned metering data.
- Elia does not guarantee the order of components within the message.

|    | A           | B                     | C       | D                      | E       | F                                | G       | H                         | I       |
|----|-------------|-----------------------|---------|------------------------|---------|----------------------------------|---------|---------------------------|---------|
| 1  | Company     | 22XBRPB-----0         |         | BRP test               |         |                                  |         |                           |         |
| 2  | Last Update | 14-08-2020            |         | Imbalance              |         |                                  |         |                           |         |
| 3  | Status      | Final                 |         |                        |         |                                  |         |                           |         |
| 4  | Version     | 1                     |         |                        |         |                                  |         |                           |         |
| 5  |             |                       |         |                        |         |                                  |         |                           |         |
| 6  |             | Component             |         | CrossBorderExportTotal |         | DGOInjection                     |         | DGOInjection              |         |
| 7  |             | Direction             |         | Outgoing               |         | Incoming                         |         | Incoming                  |         |
| 8  |             | Description           |         | BRP test               |         | Infrax West (541453199767702817) |         | RESA (541453199449664358) |         |
| 9  |             |                       |         | Value                  | Quality | Value                            | Quality | Value                     | Quality |
| 10 |             | Monthly energy        |         | 1,962,781 KWh          | Valid   | 536,469 KWh                      | Valid   | 197,241 KWh               | Valid   |
| 11 |             |                       |         |                        |         |                                  |         |                           |         |
| 12 |             | Quarter hourly values |         |                        |         |                                  |         |                           |         |
| 13 |             | Date                  | From To |                        | W       |                                  | W       |                           | W       |

Example 25 Excel Imbalance message sheet

The Imbalance metering message consists of the following sections:

- A header
- A set of columns headers
- A set of columns values

### 2.7.8.1. Header

The header contains reference of the BRP and the state, version.

|   | A           | B             | C | D         |
|---|-------------|---------------|---|-----------|
| 1 | Company     | 22XBRPB-----0 |   | BRP test  |
| 2 | Last Update | 14-08-2020    |   | Imbalance |
| 3 | Status      | Final         |   |           |
| 4 | Version     | 1             |   |           |

Figure 10 Excel Imbalance message –header

| Excel Cell              | Name                         | Data type           | Comment   |
|-------------------------|------------------------------|---------------------|---|
| B1:C1<br>(merged cells) | Receiver identification code | String              | EIC company code of the receiver of the message.  |
| D1:F1<br>(merged cells) | Receiver name                | String              | Name of the company receiver of the message.<br>Note this is a “display name” that can be different from the official name of the company |
| B2:C2<br>(merged cells) | Message status               | Date and time       | Date and time of the creation of the highest version of this document.  |
| D2:F2<br>(merged cells) | Message type                 | String              | Fixed. Always “Imbalance”   |
| B3:C3<br>(merged cells) | Last update date             | String              | State of the message. Possible values:<br>-Intermediate<br>-Final<br>-Final Modified  |
| B4:C4<br>(merged cells) | version                      | Integer<br>[1..999] | The version of the message: An integer within range [1...999]. <b>Note:</b> The first message sent is not guaranteed to have version 1.   |

Table 35 Excel Access Point header fields

### 2.7.8.2. Columns header

From the 4<sup>th</sup> column, a set of 2 columns identifies the source of each metering data for one component. An Excel sheet can contain many sets of columns. For one column (example Column 4 and 5):

|    | A                     | B    | C  | D                      | E       |
|----|-----------------------|------|----|------------------------|---------|
| 6  | Component             |      |    | CrossBorderExportTotal |         |
| 7  | Direction             |      |    | Outgoing               |         |
| 8  | Description           |      |    | BRP test               |         |
| 9  |                       |      |    | Value                  | Quality |
| 10 | Monthly energy        |      |    | 0 KWh                  | Valid   |
| 11 | Quarter hourly values |      |    |                        |         |
| 12 | Date                  | From | To | W                      |         |

Figure 11 Excel Imbalance message –columns header

| Line | Name                      | Data type | Comment  |
|------|---------------------------|-----------|--|
| 6    | Component                 | String    | One of the possible components. See "2.7.1 Imbalance Components"   |
| 7    | Direction                 | String    | Identification of the direction of flow (see section see "2.7.2 Imbalance components ").<br>Possible values are: <ul style="list-style-type: none"> <li>Outgoing (OUT): the energy is going out the BRP Balance perimeter</li> <li>Incoming (IN): the energy is coming in the BRP balance perimeter</li> </ul> |
| 8    | Party or Area             | String    | The Party or Area related to the component: see "2.7.3 Imbalance components added parameters"  |
| 10   | Sum of the monthly energy |           | Excel formula = the sum of all quarter hourly values and related unit  |
| 11   | Power unit                | String    | Unit in which the power values are defined.<br>Possible values are:<br>- W   |

Table 36 Excel Imbalance column metering reference

### 2.7.8.3. Columns values

The same columns (starting from the 4<sup>th</sup> column), contain the metering values and their quality (on the next column) All the quarter hourly values of the month are present:

| Column                | Name    | Data type      | Comment   |
|-----------------------|---------|----------------|---|
| 4, 6, 8, 10, 12, etc. | Value   | Signed Decimal | Value of the transferred power for the given quarter. The value is expressed in the defined unit and contains a maximum of 3 digits after the decimal point.<br>In case of negative value the sign '-' is added   |
| 5, 7, 9, 11, 13, etc. | Quality | 1 char         | Indication as to the quality of the metered data for the given quarter (see Metering Manual Concepts).<br>Possible values are: <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul> |

Table 37 Excel Imbalance [schedule] fields

## 2.8. Transfer of Energy (ToE) Delivered volumes

The Transfer of Energy (ToE) Delivered volumes messages provide the volumes of energy delivered by DP<sub>PG</sub> delivery points (former non CIPU) , falling under a ToE regime, in the framework of the mFRR & DA/ID service.

These messages contain the data for one calendar month. The structure of the message identifies the BSP/FSP(s), Transfer of Energy (ToE), the time period, all the parameters used to describe the power values and the actual power values. This message content can be delivered in one of three formats; CSV format described in section 2.8.2, XML format described in section 2.8.3 and XLSX format described in section 2.8.4

### 2.8.1. Transfer of Energy (ToE) delivered volumes Components

The Transfer of Energy (ToE) delivered volumes message gives the Transfer of Energy (ToE) using following facets:

- Delivery direction: Up or Down
- Metering direction: Offtake or Injection
- Detail: Per Delivery Point or total

In detail, following components are available:

| Component   | Description  |
|---|--|
| TotalToEVolumesUpInjection_DeliveredVolume_PerDeliveryDirection&MeteringDirection     | Total volume delivered in the upward direction by the BSP/FSP with the injection counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)               |
| TotalToEVolumesDownInjection_DeliveredVolume_Total_PerDelivery&MeteringDirection      | Total volume delivered in the downward direction by the BSP/FSP with the injection counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)             |
| TotalToEVolumesUpOfftake_DeliveredVolume_PerDelivery&MeteringDirection                | Total volume delivered in the upward direction by the BSP/FSP with the offtake counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)                 |
| TotalToEVolumesDownOfftake_DeliveredVolume_PerDeliveryDirection&MeteringDirection     | Total volume delivered in the downward direction by the BSP/FSP with the offtake counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)               |
| ToEVolumesUpInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection   | Volume by delivery point delivered in the upward direction by the BSP/FSP with the injection counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)   |
| ToEVolumesDownInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection | Volume by delivery point delivered in the downward direction by the BSP/FSP with the injection counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules) |
| ToEVolumesUpOfftake_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection     | Volume by delivery point delivered in the upward direction by the BSP/FSP with the offtake counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)     |
| ToEVolumesDownOfftake_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection   | Volume by delivery point delivered in the downward direction by the BSP/FSP with the offtake counterpart of the delivery points DP <sub>PG</sub> falling under a ToE regime in the framework of the mFRR & DA/ID services (according to the ToE rules)   |



## 2.8.2. CSV Transfer of Energy (ToE) delivered volumes Value

Transfer of Energy (ToE) delivered volumes messages contain a [header] row, a [data] row describing the component and [schedule] sections. An example of a CSV Transfer of Energy (ToE) delivered volumes message is shown below:

```
[header];10X1001A1001A094;22X2example----4;2021-08-11T15:02:36Z;DPBSP;3;Final;10YBE-----2
[data];ToEVolumesDownInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection;5
41449200000555507;IN
[schedule];2021-04-29T22:00:00Z;1440;15;A;N;C;ULP;KW;695939;N;469[end]
```

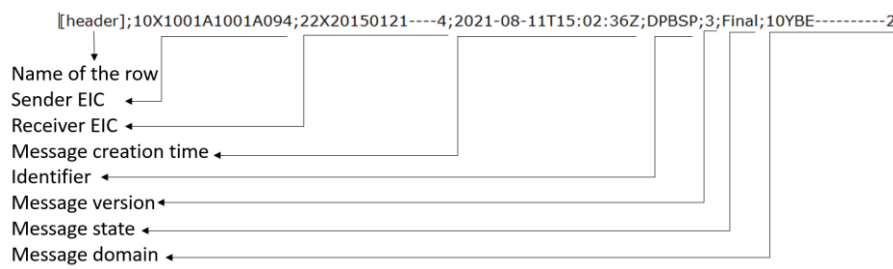
Example 26 CSV Transfer of Energy (ToE) delivered volumes message

The Imbalance Message consists of the following sections:

- a [header] section
- [data] sections
- [schedule] sections
- [end] – which is the last line indicating the end of the message. All characters following [end] must be ignored.

### 2.8.2.1. [header]

The [header] row contains information about the sender and the receiver of the message as well as the time of creation, the version number, state of the message and the fact that this is an Imbalance message. There is only one [header] row in the message.



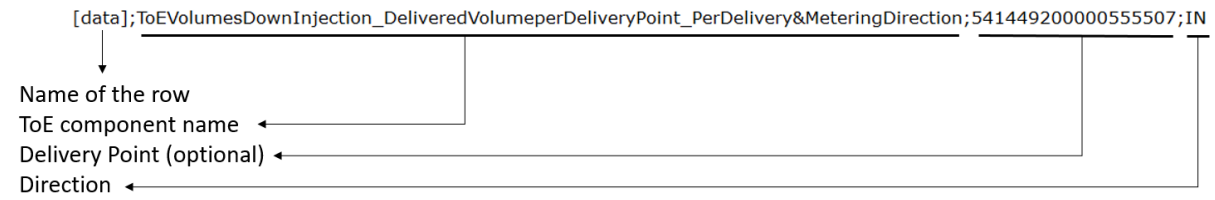
| Field | Name                         | Data type | Comment   |
|-------|------------------------------|-----------|---|
| 1     | Name of the row              | String    | Fixed. Always [header]  |
| 2     | Sender identification code   | String    | EIC code (Energy Identification Code) of the TSO (Elia): 10X1001A1001A094   |
| 3     | Receiver identification code | String    | EIC code (Energy Identification Code) of the BSP/FSP receiver of the message  |
| 4     | Message creation time        | Date      | Date and time of the file creation in Iso format  |
| 5     | Message type                 | String    | Fixed. Always DPBSP   |
| 6     | Version                      | String    | The version of the message: An integer within range [1...999]. <b>Note:</b> The first message sent is not guaranteed to have version 1. |
| 7     | Message status               | String    | Indicate if the message is 'Intermediate', 'Final' or 'FinalModified'   |

Table 38 CSV Transfer of Energy (ToE) Delivered volumes [header] fields



**2.8.2.2. [data]**

A [data] row contains information about the component and related criteria's. A [data] section is always followed by at least one [schedule] section. There are several [data] sections that correspond to different components.

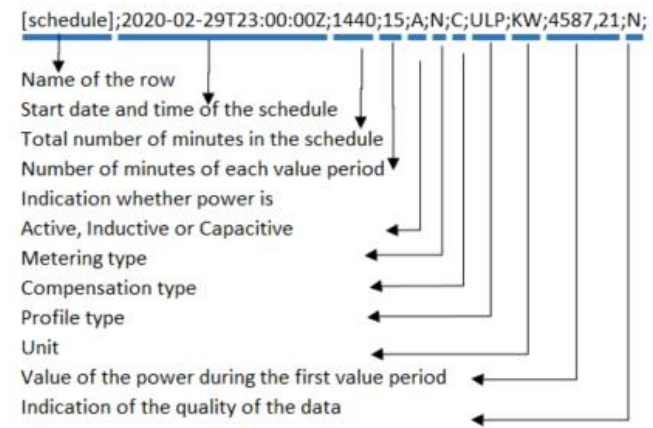


| Field | Name                    | Data type | Comment  |
|-------|-------------------------|-----------|--|
| 1     | Name of the row         | String    | Fixed. Always [data]   |
| 2     | Component               | String    | Name of the component: See "2.7.1 Imbalance Components"  |
| 3     | Party/Area              | String    | The party or Area related to the component: see Section 2.7.3 "Imbalance components added parameters"  |
| 3     | Direction of Power flow | String    | Identification of the direction of flow (see section see "2.7.2 Imbalance components ").<br>Possible values are: <ul style="list-style-type: none"> <li>• OUT: the energy is going out the BRP Balance perimeter</li> <li>• IN: the energy is coming in the BRP balance perimeter</li> </ul> |

Table 39 CSV Transfer of Energy (ToE) Delivered volumes message [data] fields

### 2.8.2.2.1. [schedule]

A [schedule] section contains the power values transferred over the specified time period and identifies the type of power. The Time period constitutes 1 day of 23, 24 or 25 hours. For any component identified in the [data] section, there can be a number of schedules. The fields contained in the [schedule] are listed below; the general meaning of these fields can be found in The Metering Manual Concepts.



| Field | Name                | Data type | Comment   |
|-------|---------------------|-----------|---|
| 1     | Name of the row     | String    | Fixed. Always [schedule]  |
| 2     | Start date and time | Date      | Start date and time of the schedule in ISO 8601 format  |
| 3     | Duration            | Integer   | Total number of minutes in the schedule.  |
| 4     | Period              | Integer   | Number of minutes for each value period. Always 15.   |
| 5     | Power type          | String    | Identification of the type of power* (see Metering Manual Concept). Possible values are: <ul style="list-style-type: none"> <li>• A: Active</li> <li>• I: Inductive</li> <li>• C: Capacitive</li> </ul> * Normally only Active power type are part of the Imbalance message but theoretically other power type could also exist                             |
| 6     | Metering type       | String    | Indication as to whether the values are net or gross* or specific (see Metering Manual Concept). Possible values are <ul style="list-style-type: none"> <li>• N: Net</li> <li>• G: Gross</li> <li>• GG: "Green Gross"</li> </ul> * Normally only Net metering type are part of the Imbalance message but theoretically other metering type could also exist |
| 7     | Compensation type   | String    | Indication as to whether the values are compensated or not* (see Metering Manual Concepts). Possible values are: <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> </ul>   |

|                         |              |                |  |
|-------------------------|--------------|----------------|--|
|                         |              |                | <ul style="list-style-type: none"> <li>• C: Compensated. Used for billing purposes</li> <li>• A: Reserved for future use</li> <li>• CC: Compensated Corrected Used for specific purposes</li> </ul> <p>* Normally only Compensated are part of the Imbalance message but theoretically other Compensation type could also exist</p>  |
| 8                       | Profile type | String         | <p>Indication of the load profile*. This field is reserved for probable future use and has no significant meaning. Currently, values could be:</p> <ul style="list-style-type: none"> <li>• ALP: Aggregated load profile</li> <li>• ULP: Undefined load profile</li> </ul> <p>* Normally only ULP are part of the Transfer of Energy (ToE) delivered volumes message but theoretically ULP type could also exist</p> |
| 9                       | Unit         | String         | <p>Unit in which the metered values are defined. Normally always KW</p>  |
| 10 to 202 in steps of 2 | Value        | Signed Decimal | <p>Value of the metered quantity in the unit defined in Field 9 above with a maximum of 3 digits after the decimal point.</p> <ul style="list-style-type: none"> <li>• If the value is positive then no "+" sign is added</li> <li>• If the value is negative then "-" sign is added</li> </ul>  |
| 11 to 203 in steps of 2 | Quality      | 1 char         | <p>Indication as to the quality of the metered data (see Metering Manual Concepts). Possible values are:</p> <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul>  |

Table 40 CSV Transfer of Energy (ToE) delivered volumes message [schedule] fields

### 2.8.3. XML Transfer of Energy (ToE) delivered volumes value

The XML Transfer of Energy (ToE) delivered volumes message respects the **IEC standard 62325-451-4**. The structure therefore is briefly explained in this document but whole description is available on the IEC web store: <https://webstore.iec.ch/publication/29116>.

The Reference XML Schema (XSD) address can be found in section "3.1 Reference XSD " p 116

```
<EnergyAccount_MarketDocument xsi:schemaLocation="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0 iec62325-451-4-settlement_v4.xsd"
xmlns="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
</EnergyAccount_MarketDocument>
```

#### *Example 27 XML Transfer of Energy (ToE) delivered volumes message root*

The message begins with information about the sender of the message (Elia) and the receiver as well as the time when the message was created plus some information about the state of this message: This header is valid for all the Time Series.

Remark: the XML comments indicated in the message here below are for the reader comprehension and are available in the message sent by Elia;

```
<EnergyAccount_MarketDocument xsi:schemaLocation="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0 iec62325-451-4-settlement.xsd"
xmlns="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <mRID>DPBSP_20200101_20200131</mRID>
  <revisionNumber>1</revisionNumber>
  <type>Z05</type>
  <docStatus>
    <value>A01</value>
  </docStatus>
  <process.processType>Z03</process.processType>
  <process.classificationType>A01</process.classificationType>
  <sender_MarketParticipant.mRID
codingScheme="A01">10X1001A1001A094</sender_MarketParticipant.mRID>
  <sender_MarketParticipant.marketRole.type>
    A04</sender_MarketParticipant.marketRole.type>
  <receiver_MarketParticipant.mRID codingScheme="A01">22X20131122----9</receiver_MarketParticipant.mRID>
  <receiver_MarketParticipant.marketRole.type>
    R12</receiver_MarketParticipant.marketRole.type>
  <createdDateTime>2020-12-29T17:49:12Z</createdDateTime>
  <period.timeInterval>
    <start>2020-07-31T22:00Z</start>
    <end>2020-08-31T22:00Z</end>
  </period.timeInterval>
  <domain.mRID codingScheme="A01">10YBE-----2</domain.mRID>
```

#### *Example 28 XML Transfer of Energy (ToE) delivered volumes) message header*

### 2.8.3.1.1. XML Transfer of Energy (ToE) delivered volumes Header fields

The following header fields are mandatory and are listed in the table below.

| Element name                               | Content type                                   | Description   |
|--|--|---|
| mRID                                       | String [1..35]                                 | The unique identification of the document.<br>Any implementation should only refer to this mRID to determine if this message instance was already treated or not.   |
| revisionNumber                             | Integer [1...999]                              | The version number of the document: It is not guaranteed that first document received by the BRP has version number 1. A more recent document has a higher version number   |
| type                                       | String [3]                                     | Fixed. Always Z05 (DP to BSP)   |
| docStatus                                  | String [3]                                     | The status of the Imbalance document. Possible values: <ul style="list-style-type: none"> <li>• A01 - Intermediate</li> <li>• A02 - Final</li> <li>• A03 - Final Modified</li> </ul>  |
| process.processType                        | String [3]                                     | <ul style="list-style-type: none"> <li>• Fixed. Always Z03</li> </ul>   |
| process.classificationType                 | String [3]                                     | The classification mechanism used to group a set of objects together within a business process. Possible values: <ul style="list-style-type: none"> <li>• A01 - Detail</li> <li>• A02 - Summary</li> </ul> Normally only A01 is part of the Imbalance message but theoretically other classificationType could also exist |
| sender_MarketParticipant.mRID              | codingScheme: String [3]<br>Value: String [16] | Fixed: <ul style="list-style-type: none"> <li>• codingScheme: A01 (EIC)</li> <li>• 10X1001A1001A094 (Elia EIC)</li> </ul>   |
| sender_MarketParticipant.marketRole.type   | String [3]                                     | Fixed: Always A04 (System operator)   |
| receiver_MarketParticipant.mRID            | codingScheme: String [3]<br>Value: String [16] | <ul style="list-style-type: none"> <li>• codingScheme: Fixed A01 (EIC)</li> <li>• Value : EIC code of the BSP</li> </ul>  |
| receiver_MarketParticipant.marketRole.type | String [3]                                     | Fixed: Always R12 (BSP)   |
| createdDateTime                            | Date and time                                  | Time at which the message was created (in UTC time).  |
| period.timeInterval                        | Start / End: Date                              | Covered Period: Normally this is exactly one month (in UTC time). Example for the month August 2015: Start time is 31/7/2015 at 22h. End time is 31/8/2015 at 22h<br>Any period is theoretically possible.  |

|             |  |  |
|-------------|--|--|
| Domain.mRID | codingScheme:<br>String [3]<br>Value: String<br>[16] | Fixed: Always <ul style="list-style-type: none"><li>codingScheme: A01 (EIC)</li><li>10YBE-----2 (Belgian Area)</li></ul> |
|-------------|--|--|

Table 41 XML header elements for Transfer of Energy (ToE) delivered volumes messages

### 2.8.3.1.1. XML Transfer of Energy (ToE) delivered volumes TimeSeries fields

The <TimeSeries> element describes the flow of the power for one component and related criteria and the schedule of actual power values.

Elia does not guarantee the order of Timeseries within the message.

```
<TimeSeries>
  <mRID>Z17_541448911000004100</mRID>
  <businessType>Z17</businessType>
  <product>8716867000030</product>
  <MeteringType>A01</MeteringType>
  <CalculationMethod>A01</CalculationMethod>
  <objectAggregation>A01</objectAggregation>
  <area_Domain.mRID codingScheme="A10">541448911000004100</area_Domain.mRID>
  <measure_Unit.name>KWT</measure_Unit.name>
  <Period>...</Period>
</TimeSeries>
```

Example 29 XML Transfer of Energy (ToE) delivered volumes message TimeSeries

The general meaning of these fields is given in The Metering Manual Concept. All elements are listed in the table below.

| Element name           | Content type                                      | Description   |
|------------------------|---|---|
| mRID                   | String [1..35]                                    | Time series unique identification within the message                      |
| businessType           | String [3]  | Fields identifying the characteristics of the component : See table below |
| product                | String [1..35]                                    | Fixed. Always<br>8716867000016 - Active Power                             |
| objectAggregation      | String [3]  | Based on the business type. See table here below                          |
| area_Domain.mRID       | String [1..18]                                    | Based on the business type. See table here below                          |
| marketParticipant.mRID | String [1..18]                                    | Based on the table here below, is the EIC code of the Party               |
| measure_Unit.name      | String [3]  | Power unit. Always KWT  |
| Period                 | See Section 2.7.7.2 "XML Imbalance Period Fields" |   |

Table 42 XML Time Series element for Transfer of Energy (ToE) delivered volumes messages



| Component   | Business Type | Flow direction | Aggregation | Party/area         | Market Participant | XML Grouping |
|---|---------------|----------------|-------------|--------------------|--------------------|--------------|
| TotalToEVolumesUpInjection_DeliveredVolume_PerDeliveryDirection&MeteringDirection     | Z33           | In             | By Party    | 10YBE-----2        | BSP/FSP<br>EIC     | Grouped      |
| TotalToEVolumesUpOfftake_DeliveredVolume_PerDelivery&MeteringDirection                | Z33           | Out            | By Party    | 10YBE-----2        | BSP/FSP<br>EIC     |              |
| TotalToEVolumesDownInjection_DeliveredVolume_Total_PerDelivery&MeteringDirection      | Z34           | In             | By Party    | 10YBE-----2        | BSP/FSP<br>EIC     | Grouped      |
| TotalToEVolumesDownOfftake_DeliveredVolume_PerDeliveryDirection&MeteringDirection     | Z34           | Out            | By Party    | 10YBE-----2        | BSP/FSP<br>EIC     |              |
| ToEVolumesUpInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection   | Z35           | In             | By Area     | Delivery Point EAN | Not used           | Grouped      |
| ToEVolumesUpOfftake_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection     | Z35           | Out            | By Area     | Delivery Point EAN | Not used           |              |
| ToEVolumesDownInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection | Z36           | In             | By Area     | Delivery Point EAN | Not used           | Grouped      |
| ToEVolumesDownOfftake_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection   | Z36           | Out            | By Area     | Delivery Point EAN | Not used           |              |

Table 43 XML Time Series Business ID element possible values and related data for Transfer of Energy (ToE) delivered volumes message

### 2.8.3.1.2. XML Transfer of Energy (ToE) delivered volumes Period fields

The <Period> element contains information to characterize the power value and quality for a period. It contains also the Period element: see

```
<Period>
<timeInterval>
<start>2015-07-31T22:00Z</start>
<end>2015-08-30T22:00Z</end>
</timeInterval>
<resolution>PT15M</resolution>
<Point>
```

All elements are mandatory and listed in the table below.

| Element name        | Content type      | Description  |
|---------------------|-------------------|--|
| period.timeInterval | Start / End: Date | Covered Period: Normally this is exactly one month in ISO 8601 format (see section "3.2 XML elements") |
| resolution          | String            | Total number of minutes in the schedule. (! See also section 4.5, on the effect of daylight saving.)   |
| Point               | See below         |  |

Table 44 XML Time Series period and related data for Transfer of Energy (ToE) delivered volumes message

### 2.8.3.1.3. XML Transfer of Energy (ToE) delivered volumes Point fields

The <Point> element contains information to characterize the power value and quality for a period

```
<Point>
<position>2</position>
<in_Quantity.quantity>113423.485</in_Quantity.quantity>
<in_Quantity.quality>A04</in_Quantity.quality>
<out_Quantity.quantity>542630.839</out_Quantity.quantity>
<out_Quantity.quality>A04</out_Quantity.quality>
</Point>
```

All elements are listed in the table below.

| Element name          | Cardinality | Content type          | Description  |
|-----------------------|-------------|-----------------------|--|
| position              | Mandatory   | Integer<br>[1...2884] | The position of the quarter within the covered period  |
| in_Quantity.quantity  | Optional    | Double                | Value for the direction IN (if possible for the component) or the element is not present   |
| in_Quantity.quality   | Optional    | Element               | Quality for the direction IN (if possible for the component) or the element is not present<br>Possible values: <ul style="list-style-type: none"> <li>• Normal : "A04"</li> <li>• Inexact: "A02"</li> <li>• Substituted: "A01"</li> </ul>  |
| out_Quantity.quantity | Optional    | Double                | Value for the direction OUT (if possible for the component) or the element is not present  |
| out_Quantity.quality  | Optional    | Element               | Quality for the direction OUT (if possible for the component) or the element is not present<br>Possible values: <ul style="list-style-type: none"> <li>• Normal : "A04"</li> <li>• Inexact: "A02"</li> <li>• Substituted: "A01"</li> </ul> |

Table 45 XML <point> element for Transfer of Energy (ToE) delivered volumes messages



### 2.8.4. Excel Transfer of Energy (ToE) delivered volumes value

The Excel file contains two sheets named "Summary" and "Detail": These sheets contain all information about all components and related criteria's for a given month:

- The top rows contain information about the receiver, the status of the message and the time of creation (last update) of the message and the fact that this sheet follow the Imbalance message format
- Subsequent area of the sheet is divided into columns
- The first lines of the columns give information about the component name, Direction (Power Flow), Party or Area)
- The quarter hourly values give the power value and the quality for the mentioned metering data.
- Elia does not guarantee the order of components within the message.

|    | A                     | B               | C     | D                    | E                        | F                      | G                          | H     | I       | J     | K       |
|----|-----------------------|-----------------|-------|----------------------|--------------------------|------------------------|----------------------------|-------|---------|-------|---------|
| 1  | Company               | 22XDPBSPEXAMPLE |       | BSPEXAMPLE           |                          |                        |                            |       |         |       |         |
| 2  | Last Update           | 11-08-2021      |       |                      |                          |                        |                            |       |         |       |         |
| 3  | Status                | Final           |       | DPBSP                |                          |                        |                            |       |         |       |         |
| 4  | Version               | 3               |       |                      |                          |                        |                            |       |         |       |         |
| 5  |                       |                 |       |                      |                          |                        |                            |       |         |       |         |
| 6  | Component             |                 |       | TotalToEVolumesUpInj | TotalToEVolumesUpOfftake | TotalToEVolumesDownInj | TotalToEVolumesDownOfftake |       |         |       |         |
| 7  |                       |                 |       | DeliveredVolume      | DeliveredVolume          | DeliveredVolume        | DeliveredVolume            |       |         |       |         |
| 8  | Party                 |                 |       | BSPEXAMPLE           | BSPEXAMPLE               | BSPEXAMPLE             | BSPEXAMPLE                 |       |         |       |         |
| 9  |                       |                 |       | 22XDPBSPEXAMPLE      | 22XDPBSPEXAMPLE          | 22XDPBSPEXAMPLE        | 22XDPBSPEXAMPLE            |       |         |       |         |
| 10 |                       |                 |       |                      |                          |                        |                            |       |         |       |         |
| 11 | Meterable type        |                 |       | Incoming             | Outgoing                 | Incoming               | Outgoing                   |       |         |       |         |
| 12 |                       |                 |       | Active               | Active                   | Active                 | Active                     |       |         |       |         |
| 13 |                       |                 |       | Net                  | Net                      | Net                    | Net                        |       |         |       |         |
| 14 |                       |                 |       | Compensated          | Compensated              | Compensated            | Compensated                |       |         |       |         |
| 15 |                       |                 |       |                      |                          |                        |                            |       |         |       |         |
| 16 |                       |                 |       | Value                | Quality                  | Value                  | Quality                    | Value | Quality | Value | Quality |
| 17 | Monthly energy        |                 |       | 0 KWh                | Valid                    | 188 KWh                | Valid                      | 0 KWh | Valid   | 0 KWh | Valid   |
| 18 |                       |                 |       |                      |                          |                        |                            |       |         |       |         |
| 19 | Quarter hourly values |                 |       |                      |                          |                        |                            |       |         |       |         |
| 20 | Date                  | From            | To    | W                    | W                        | W                      | W                          |       |         |       |         |
| 21 | 01-04-2021            | 00:00           | 00:15 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 22 | 01-04-2021            | 00:15           | 00:30 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 23 | 01-04-2021            | 00:30           | 00:45 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 24 | 01-04-2021            | 00:45           | 01:00 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 25 | 01-04-2021            | 01:00           | 01:15 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 26 | 01-04-2021            | 01:15           | 01:30 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 27 | 01-04-2021            | 01:30           | 01:45 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 28 | 01-04-2021            | 01:45           | 02:00 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 29 | 01-04-2021            | 02:00           | 02:15 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 30 | 01-04-2021            | 02:15           | 02:30 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |
| 31 | 01-04-2021            | 02:30           | 02:45 | 0                    | N                        | 0                      | N                          | 0     | N       | 0     | N       |

Example 30 Excel Transfer of Energy (ToE) delivered volumes message 'Detail' sheet

The Excel file is made of 2 sheets:

- The first sheet, named "Summary", contains the 'Total' components.
- The second sheet, named "Detail", contains the volumes per Delivery Point for the Bid directions Up and Down and metering directions injection and offtake.

The header is the same for all sheets.

### 2.8.4.1. Transfer of Energy (ToE) delivered volumes - "Summary" header

The header contains reference of the BSP/FSP and the state, version.

|   | A           | B                | C | D          | E |
|---|-------------|------------------|---|------------|---|
| 1 | Company     | 22XBSP--EXAMPLEZ |   | BSPEXample |   |
| 2 | Last Update | 29-12-2020       |   |            |   |
| 3 | Status      | Intermediate     |   | DPBSP      |   |
| 4 | Version     | 1                |   |            |   |

Figure 12 Transfer of Energy (ToE) delivered volumes - Excel sheet 'Summary' -header

| Excel Cell              | Name                         | Data type        | Comment  |
|-------------------------|------------------------------|------------------|--|
| B1:C1<br>(merged cells) | Receiver identification code | String           | EIC of the BSP/FSP receiver of the message.  |
| D1:F1<br>(merged cells) | Receiver name                | String           | Name of the BSP/FSP receiver of the message<br>Note this is a "display name" that can be different from the official name of the company |
| B2:C2<br>(merged cells) | Last update date             | Date and time    | Date and time of the creation of the highest version of this document.   |
| B3:C3<br>(merged cells) | Message status               | String           | Indicate if the message is 'Intermediate', 'Final' or 'FinalModified'  |
| D3:F3<br>(merged cells) | Message type                 | String           | Fixed. Always "DPBSP"  |
| B4<br>(merged cells)    | version                      | Integer [1..999] | The version of the message: An integer within range [1...999]. <b>Note:</b> The first message sent is not guaranteed to have version 1.  |

Table 46 Excel 'Transfer of Energy (ToE) delivered volumes 'header fields



**2.8.4.2. Transfer of Energy (ToE) delivered volumes - "Summary" Columns header**

From the 4<sup>th</sup> column, a set of 2 columns identifies the source of each metering data for a 'Transfer of Energy (ToE) delivered volumes' component.

This sheet can contain many sets of columns.

|    | A                     | B               | C     | D                               | E                        | F                               | G                            | H                               | I                          | J                               | K       |
|----|-----------------------|-----------------|-------|---------------------------------|--------------------------|---------------------------------|------------------------------|---------------------------------|----------------------------|---------------------------------|---------|
| 1  | Company               | 22XDPBSPEXample |       | BSPEXample                      |                          |                                 |                              |                                 |                            |                                 |         |
| 2  | Last Update           | 11-08-2021      |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 3  | Status                | Final           |       | DPBSP                           |                          |                                 |                              |                                 |                            |                                 |         |
| 4  | Version               | 3               |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 5  |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 6  | Component             |                 |       | TotalToEVolumesUpInjection      | TotalToEVolumesUpOfftake |                                 | TotalToEVolumesDownInjection |                                 | TotalToEVolumesDownOfftake |                                 |         |
| 7  |                       |                 |       | DeliveredVolume                 | DeliveredVolume          |                                 | DeliveredVolume              |                                 | DeliveredVolume            |                                 |         |
| 8  | Party                 |                 |       | BSPEXample                      | BSPEXample               |                                 | BSPEXample                   |                                 | BSPEXample                 |                                 |         |
| 9  |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 10 | Meterable type        |                 |       | Incoming Active Net Compensated |                          | Outgoing Active Net Compensated |                              | Incoming Active Net Compensated |                            | Outgoing Active Net Compensated |         |
| 11 |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 12 |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 13 |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 14 |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 15 |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 16 |                       |                 |       | Value                           | Quality                  | Value                           | Quality                      | Value                           | Quality                    | Value                           | Quality |
| 17 | Monthly energy        |                 |       | 0 KWh                           | Valid                    | 188 KWh                         | Valid                        | 0 KWh                           | Valid                      | 0 KWh                           | Valid   |
| 18 |                       |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 19 | Quarter hourly values |                 |       |                                 |                          |                                 |                              |                                 |                            |                                 |         |
| 20 | Date                  | From            | To    | W                               |                          | W                               |                              | W                               |                            | W                               |         |
| 21 | 01-04-2021            | 00:00           | 00:15 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 22 | 01-04-2021            | 00:15           | 00:30 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 23 | 01-04-2021            | 00:30           | 00:45 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 24 | 01-04-2021            | 00:45           | 01:00 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 25 | 01-04-2021            | 01:00           | 01:15 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 26 | 01-04-2021            | 01:15           | 01:30 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 27 | 01-04-2021            | 01:30           | 01:45 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 28 | 01-04-2021            | 01:45           | 02:00 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 29 | 01-04-2021            | 02:00           | 02:15 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 30 | 01-04-2021            | 02:15           | 02:30 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |
| 31 | 01-04-2021            | 02:30           | 02:45 | 0                               | N                        | 0                               | N                            | 0                               | N                          | 0                               | N       |

Figure 13 Excel 'Transfer of Energy (ToE) delivered volumes' message - Sheet 'Summary' - columns header

For one set of columns:

| Line | Name           | Data type | Comment   |
|------|----------------|-----------|---|
| 6    | Component      | String    | See table below   |
| 7    | N/A            | String    | Name of the BSP/FSP   |
| 8    | N/A            | String    | EIC of the BSP/FSP  |
| 11   | Meterable type | String    | Metering direction  |
| 12   | N/A            | String    | Identification of the power type<br>Fixed. Always "Active"            |
| 13   | N/A            | String    | Fixed. Always "Net"   |
| 14   | N/A            | String    | Fixed. Always "Compensated"   |
| 17   | monthly energy | String    | Excel formula = the sum of all quarter hourly values and related unit |
| 20   | Power unit     | String    | Unit in which the power values are defined.<br>Fixed. Always W        |

Table 47 Excel 'Transfer of Energy (ToE) delivered volumes' message – Sheet 'Summary' – columns references

| Component   | Delivery Direction | Metering Direction |
|---|--------------------|--------------------|
| TotalToEVolumesUpInjection_DeliveredVolume_PerDeliveryDirection&MeteringDirection | Delivery Up        | Injection          |
| TotalToEVolumesDownInjection_DeliveredVolume_Total_PerDelivery&MeteringDirection  | Delivery Down      | Injection          |
| TotalToEVolumesUpOfftake_DeliveredVolume_PerDelivery&MeteringDirection            | Delivery Up        | Offtake            |
| TotalToEVolumesDownOfftake_DeliveredVolume_PerDeliveryDirection&MeteringDirection | Delivery Down      | Offtake            |

Table 48 Excel 'Transfer of Energy (ToE) delivered volumes' message – Sheet 'Summary' – list of components

### 2.8.4.3. Transfer of Energy (ToE) delivered volumes - "Summary" Columns values

The same columns (starting from the 4<sup>th</sup> column), contain the metering values and their quality (on the next column) All the quarter hourly values of the month are present.

| Column                | Name    | Data type      | Comment   |
|-----------------------|---------|----------------|---|
| 4, 6, 8, 10, 12, etc. | Value   | Signed Decimal | Value of the power for the given quarter. The value is expressed in the defined unit and contains a maximum of 3 digits after the decimal point.<br>In case of negative value the sign '-' is added   |
| 5, 7, 9, 11, 13, etc. | Quality | 1 char         | Indication as to the quality of the metered data for the given quarter (see Metering Manual Concept)<br>Possible values are: <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul> |

Table 49 Excel 'Transfer of Energy (ToE) delivered volumes)' message – Sheet 'Summary' – Columns values





**2.8.4.4. Transfer of Energy (ToE) delivered volumes - "Detail" header**

The header content is the same as the one from the 'Summary' sheet. Refer to 2.8.4.1.

**2.8.4.5. Transfer of Energy (ToE) delivered volumes - "Detail" Columns header**

From the 4<sup>th</sup> column, a set of 2 columns identifies the source of each metering data for a 'Transfer of Energy (ToE) delivered volumes' component.

This sheet can contain many sets of columns. For one column (example Columns 4 and 5):

|    | A                      | B               | C     | D  | E | F  | G | H  | I | J  | K |
|----|------------------------|-----------------|-------|--|---|--|---|--|---|--|---|
| 1  | Company                | 22XDPBSPExample |       | BSPEXample                               |   |  |   |  |   |  |   |
| 2  | Last Update            | 11-08-2021      |       |  |   |  |   |  |   |  |   |
| 3  | Status                 | Final           |       | DPBSP                                    |   |  |   |  |   |  |   |
| 4  | Version                | 3               |       |  |   |  |   |  |   |  |   |
| 5  |                        |                 |       |  |   |  |   |  |   |  |   |
| 6  | Component<br><br>Party |                 |       | ToEVolumesUpInjecti<br>on                |   | ToEVolumesUpOfftak<br>e                  |   | ToEVolumesDownInj<br>ection              |   | ToEVolumesDownOff<br>take                |   |
| 7  |                        |                 |       | DeliveredVolumeper<br>BSPEXample         |   | DeliveredVolumeper<br>BSPEXample         |   | DeliveredVolumeper<br>BSPEXample         |   | DeliveredVolumeper<br>BSPEXample         |   |
| 8  |                        |                 |       | 5414Example                              |   | 5414Example                              |   | 5414Example                              |   | 5414Example                              |   |
| 9  |                        |                 |       |  |   |  |   |  |   |  |   |
| 10 | Meterable type         |                 |       | Incoming<br>Active<br>Net<br>Compensated |   | Outgoing<br>Active<br>Net<br>Compensated |   | Incoming<br>Active<br>Net<br>Compensated |   | Outgoing<br>Active<br>Net<br>Compensated |   |
| 11 |                        |                 |       |  |   |  |   |  |   |  |   |
| 12 |                        |                 |       |  |   |  |   |  |   |  |   |
| 13 |                        |                 |       |  |   |  |   |  |   |  |   |
| 14 |                        |                 |       |  |   |  |   |  |   |  |   |
| 15 |                        |                 |       |  |   |  |   |  |   |  |   |
| 16 |                        |                 |       | Value Quality                            |   | Value Quality                            |   | Value Quality                            |   | Value Quality                            |   |
| 17 | Monthly energy         |                 |       | 0 KWh Valid                              |   | 63 KWh Valid                             |   | 0 KWh Valid                              |   | 0 KWh Valid                              |   |
| 18 |                        |                 |       |  |   |  |   |  |   |  |   |
| 19 | Quarter hourly values  |                 |       |  |   |  |   |  |   |  |   |
| 20 | Date                   | From            | To    | W  |   | W  |   | W  |   | W  |   |
| 21 | 01-04-2021             | 00:00           | 00:15 | 0  | N | 0  | N | 0  | N | 0  | N |
| 22 | 01-04-2021             | 00:15           | 00:30 | 0  | N | 0  | N | 0  | N | 0  | N |
| 23 | 01-04-2021             | 00:30           | 00:45 | 0  | N | 0  | N | 0  | N | 0  | N |
| 24 | 01-04-2021             | 00:45           | 01:00 | 0  | N | 0  | N | 0  | N | 0  | N |
| 25 | 01-04-2021             | 01:00           | 01:15 | 0  | N | 0  | N | 0  | N | 0  | N |
| 26 | 01-04-2021             | 01:15           | 01:30 | 0  | N | 0  | N | 0  | N | 0  | N |
| 27 | 01-04-2021             | 01:30           | 01:45 | 0  | N | 0  | N | 0  | N | 0  | N |
| 28 | 01-04-2021             | 01:45           | 02:00 | 0  | N | 0  | N | 0  | N | 0  | N |
| 29 | 01-04-2021             | 02:00           | 02:15 | 0  | N | 0  | N | 0  | N | 0  | N |
| 30 | 01-04-2021             | 02:15           | 02:30 | 0  | N | 0  | N | 0  | N | 0  | N |
| 31 | 01-04-2021             | 02:30           | 02:45 | 0  | N | 0  | N | 0  | N | 0  | N |

Figure 14 Excel 'Transfer of Energy (ToE) delivered volumes' message – Sheet 'Detail' –columns header

For one set of columns:

| Line | Name           | Data type | Comment   |
|------|----------------|-----------|---|
| 6    | Component      | String    | See table below   |
| 7    |                | String    | Name of Delivery Point  |
| 8    | Domain         | String    | EAN of Delivery Point   |
| 9    |                | EAN       | EAN of Border Point (even if the component is an Interconnection Point)   |
| 11   | Meterable type | String    | <p>Identification of the Metering direction( direction of the flow)</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>Outgoing (OUT): the energy is going out of this Border Point or Interconnection Point</li> <li>Incoming (IN): the energy is coming in the Border Point or Interconnection Point</li> </ul> |
| 12   | N/A            | String    | Identification of the power type.<br>Always : "Active"  |
| 13   | N/A            | String    | Fixed. Always "Net"   |
| 14   | N/A            | String    | Always "Compensated"  |
| 17   | monthly energy | String    | Excel formula = the sum of all quarter hourly values and related unit   |
| 20   | Power unit     | String    | Unit in which the power values are defined.<br>Fixed. Always W  |

Table 50 Excel 'Transfer of Energy (ToE) delivered volumes' message – Sheet 'Detail' – Columns values

| Component   | DeliveryDirection | MeteringDirection |
|---|-------------------|-------------------|
| ToEVolumesUpInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection   | DeliveryUp        | Injection         |
| ToEVolumesDownInjection_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection | DeliveryDown      | Injection         |
| ToEVolumesUpOfftake_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection     | DeliveryUp        | Offtake           |
| ToEVolumesDownOfftake_DeliveredVolumeperDeliveryPoint_PerDelivery&MeteringDirection   | DeliveryDown      | Offtake           |

Table 51 Excel 'Transfer of Energy (ToE) delivered volumes' message – Sheet 'Detail' – Components

**2.8.4.6. Transfer of Energy (ToE) delivered volumes - "Detail" Columns values**

The same columns (starting from the 4<sup>th</sup> column), contain the metering values and their quality (on the next column) All the quarter hourly values of the month are present.

The format of values is the same as on the sheet "Summary". See Section 2.8.4.3.

**2.8.4.7. Transfer of Energy (ToE) delivered volumes - "Detail" Columns values**

The same columns (starting from the 4<sup>th</sup> column), contain the metering values and their quality (on the next column) All the quarter hourly values of the month are present.

The format of values is the same as on the sheet "Summary". See Section 2.8.4.3.

## 2.9. Real-Time DGO Allocation

One of the previous Section 2.7 introduced the imbalance message. Due to current market processes, the DGO Allocation component (DGOInjectionTotal and DGOOfftakeTotal described in section 2.7.1.1), the imbalance message for month M can be sent at earliest by the end of M+1, usually around M+2.

Based on machine-learning technique, real-time the DGO Allocation are estimated. The estimation algorithm is based on linear regression and uses a specific, per BRP, combination of variables.

$$RT\ DGO\ Alloc\ Estimate_{BRP_i}(qh) = Intercept_{BRP_i} + \sum_{j=1}^N Coeff_{BRP_i}(j) * Variable_j(qh)$$

Figure 15: Linear regression model for Real-Time DGO Allocation Estimation

The variables are grouped in different families (Infeed, Wind Forecast, Solar Forecast...) each variable providing specific details about an element (Infeed at border point A, Infeed at border point B... Wind Forecast for wind farm x, Wind forecast for wind farm Y...). In total, the regression model can use more than 700 variables. Note that these variables are not sent together with the message.

Given the similarity of the Real-Time DGO Allocation to the Imbalance components DGOInjectionTotal and DGOOfftakeTotal, the Real-Time DGO Allocation message is remarkably similar to an imbalance message. For that reason, the Real-Time DGO Allocation is published as a component of a Real-time Imbalance message (remarkably like the Imbalance message defined in "2.7 Imbalance"). This component is expressed in a single direction (DGONetInjectionEstimateTotal) that can take negative values (in case of net offtake).

Given the fact that this Real-Time DGO Allocation is an estimate made using variables in real-time, it can happen that some of these variables are not available at the moment the estimation must be made. In such circumstances, the estimation algorithm will nevertheless make an estimation, but of less quality than the estimate with all variables.

In order to inform message recipients of such situations, the Real-Time DGO Allocation has a second component, DGONetInjectionEstimateQualityTotal, giving the quality of the estimate in %. A quality of 100% means that all variables required for estimating the Real-Time DGO Allocation were available and used. A quality of less than 100% means that some variables could not be used for making an estimate.

All of the parameters used to describe power values are explained in the Metering Manual Concepts.

Real-Time DGO Allocation messages identify the BRP, the time period, all the parameters used to describe the power values, Real Time DGO Allocation Estimate (kW) and the Real Time DGO Allocation Estimate quality (%).

This message content can be delivered in one of three formats:

- CSV format described in Section 2.9.2.
- XML format described in Section 2.9.3.
- Excel (XLSX) format described in Section 2.9.4.

This message format is remarkably similar to the Imbalance message (see "2.7 Imbalance where the different values for publication are considered as a new imbalance component).

### 2.9.1. Real-Time DGO Allocation components

The components that can be presented to the BRP are:

| Component                    | Description   | XML Business type |
|------------------------------|---|-------------------|
| DGOAllocationEstimateTotal   | The latest calculated value of the real-time estimate in kW | Z22               |
| DGOAllocationEstimateQuality | The quality of the estimation (percentage)                  | Z23               |

### 2.9.2. CSV Real-Time DGO Allocation

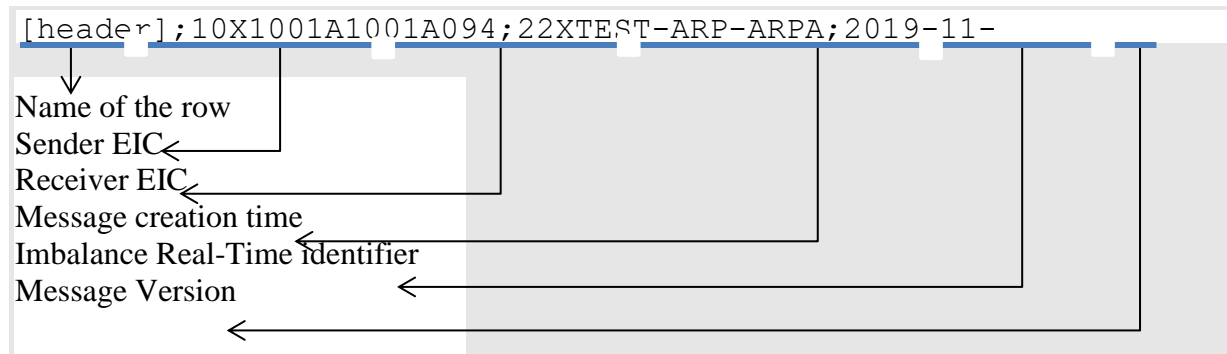
Real-Time DGO Allocation messages contain a [header] row, a [data] row, [schedule] sections and an [end] row. An example of a CSV Real-Time DGO Allocation message is shown below.

```
[header];10X1001A1001A094;22XTEST-ARP-ARPA;2019-09-14T22:00:00Z;IMBALANCERT;10;Intermediate
[data];DGOAllocationEstimateTotal;22XTEST-ARP-ARPA;OUT
[schedule];2019-09-13T22:00:00Z;1440;15;A;N;C;ALP;KW;-100,05;N;-110,89;N...
[data];DGOAllocationEstimateQuality;22XTEST-ARP-ARPA;OUT
[schedule];2019-09-13T22:00:00Z;1440;15;A;N;C;ALP;%;100,0;N;90,0;N...
...
[end]
```

Example 31 CSV Real-Time DGO Allocation message

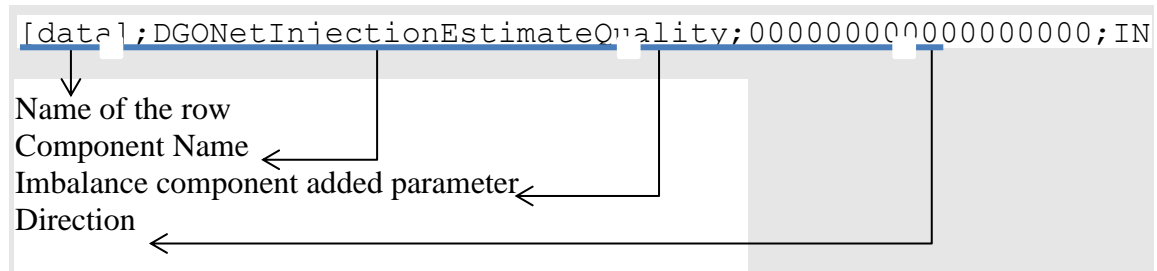
#### 2.9.2.1. [header]

The [header] row is the same as the "Imbalance" message and contains information about the sender and the receiver of the message as well as the time of creation, the version number, state of the message and the fact that this is an Imbalance message. There is only one [header] row in the message.



### 2.9.2.2. [data]

A [data] row contains information about the component and related criteria's. A [data] section is always followed by at least one [schedule] section. There are several [data] sections that correspond to different components.



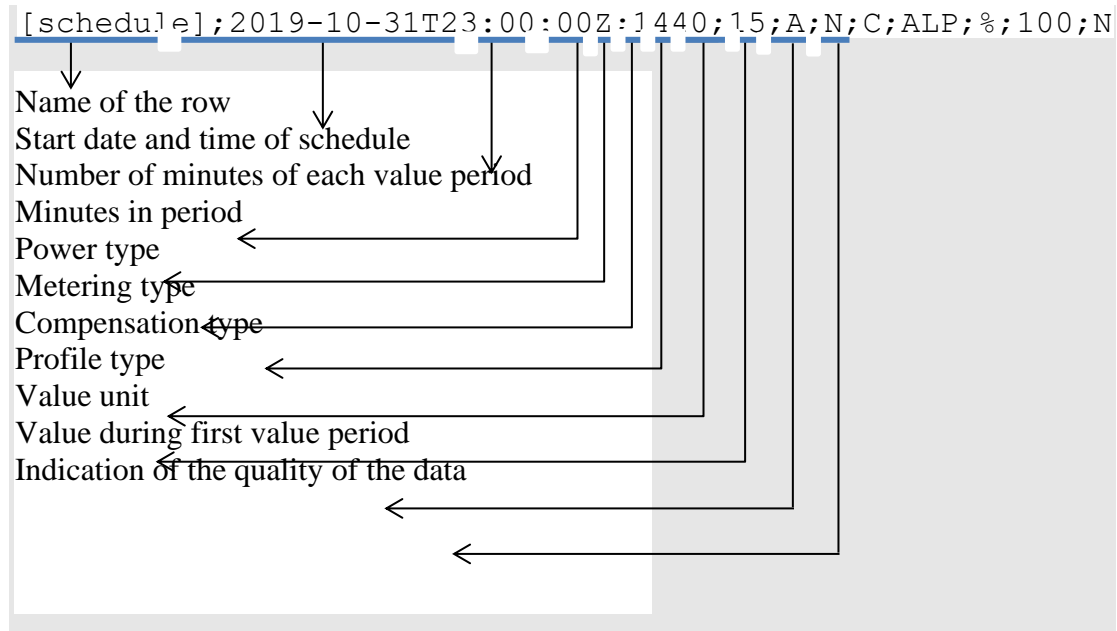
The possible components names for this Real-Time DGO Allocation messages are defined in section "2.9.1



Real-Time DGO Allocation components".

**2.9.2.3. [schedule]**

A [schedule] section contains the values transferred over the specified time period and identifies the type of value, in the case of Real-Time DGO Estimation it can be either power (KW) or an Estimate Quality (%). The Time period constitutes 1 day of 23, 24 or 25 hours. For any component identified in the [data] section, there can be a number of [schedules]. The fields contained in the [schedule] are listed below; the general meaning of these fields can be found in The Metering Manual Concepts.



### 2.9.3. XML Real-Time DGO Allocation

Real-Time DGO Allocation metering data is delivered in a format like the XML Imbalance message. The Real-Time DGO Allocation and Imbalance messages respect the **IEC standard 62325-451-4**. The structure therefore is briefly explained in this document but whole description is available on the IEC web store: <https://webstore.iec.ch/publication/29116>.

The XSD Schema reference is available on "3.1 Reference XSD".

```
<EnergyAccount_MarketDocument xsi:schemaLocation="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0 iec62325-451-4-settlement_v4.xsd"
xmlns="urn:iec62325.351:tc57wg16:451-4:energyaccountdocument:4:0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
</EnergyAccount_MarketDocument>
```

#### Example 32 XML Real-Time DGO Allocation message root

The message begins with information about the sender of the message (Elia) and the receiver as well as the time when the message was created plus some information about the state of this message: This header is valid for all the Time Series.

Remark: the XML comments indicated in the message here below are for the reader comprehension and are not available in the message sent by Elia;

```
<mRID>Prediction_20191101_20191130</mRID><revisionNumber>10</revisionNumber>
<type>A12<!-- Imbalance report --></type>
<docStatus><value>A01</value></docStatus><!-- Intermediate -->
<process.processType>A99</process.processType> <!-- DGO Allocation -->
<process.classificationType>A01</process.classificationType> <!-- Detail -->
<sender_MarketParticipant.mRID
codingScheme="A01">10X1001A1001A094</sender_MarketParticipant.mRID>
<sender_MarketParticipant.marketRole.type>A04</sender_MarketParticipant.marketRole.type>
<receiver_MarketParticipant.mRID codingScheme="A01">22XBRPA-----
A</receiver_MarketParticipant.mRID>
<receiver_MarketParticipant.marketRole.type>A08</receiver_MarketParticipant.marketRole.type>
<!-- Balance responsible party -->
<createdDateTime>2019-09-14T22:00:00Z</createdDateTime>
<period.timeInterval>
<start>2019-09-13T22:00:00Z</start>
<end>2019-09-14T22:00:00Z </end>
</period.timeInterval>
<domain.mRID codingScheme="A01">10YBE-----2</domain.mRID>
```

#### Example 33 XML Real-Time DGO Allocation message header



The <TimeSeries> element describes the flow of the power for one component and related criteria and the schedule of actual power values.

Elia does not guarantee the order of Timeseries within the message.

```

<TimeSeries>
<mRID>A03-22XBRPA-----A</mRID>
<businessType>Z22</businessType>
<!-- The latest calculated value of the real-time estimate in KW -->
<product>8716867000016</product>
<objectAggregation>A03</objectAggregation>
<area_Domain.mRID codingScheme="A01">10YBE-----2</area_Domain.mRID>
<marketParticipant.mRID codingScheme="A01">22XBRPA-----A
</marketParticipant.mRID>
<measure_Unit.name>KWT</measure_Unit.name>
...
</TimeSeries>
<TimeSeries>
<mRID>Z23_22X20121009---F4</mRID>
<businessType>Z23</businessType> <!-- The quality of the estimation, in % -->
<product>8716867000016</product>
<MeteringType>A01</MeteringType>
<CalculationMethod>A01</CalculationMethod>
<objectAggregation>A03</objectAggregation>
<area_Domain.mRID codingScheme="A01">22X20121009---F4</area_Domain.mRID>
<measure_Unit.name>%</measure_Unit.name>
...
</TimeSeries>

```

*Example 34 XML Real-Time DGO Allocation message TimeSeries*

The general meaning of these fields is given in The Metering Manual Concept. The business types for the components are listed in "2.9.1

Real-Time DGO Allocation components".



**2.9.4. Excel (XLSX) Real-Time DGO Allocation**

The Excel file contains one sheet. This sheet contains all information about the real-time DGO allocation, both the estimation and estimation quality:

- The top rows contain information about the receiver, the status of the message and the time of creation (last update) of the message and the fact that this sheet follow the Imbalance message format
- Subsequent area of the sheet is divided into columns
- The first lines of the columns give information about the component name, Direction (Power Flow), Party or Area) described "2.9.1 Real-Time DGO Allocation components".

The quarter hourly values give the power value and the estimated quality percentage for the mentioned metering data

|    |             |                       |             |                              |         |                            |         |
|----|-------------|-----------------------|-------------|------------------------------|---------|----------------------------|---------|
| 1  | Company     | A03-22XTEST-ARP-ARP   |             | Test ARP                     |         |                            |         |
| 2  | Last Update | 02-08-2020            |             | Prediction                   |         |                            |         |
| 3  | Status      | Intermediate          |             |                              |         |                            |         |
| 4  | Version     | 229                   |             |                              |         |                            |         |
| 5  |             |                       |             |                              |         |                            |         |
| 6  |             | Component             |             | DGOAllocationEstimateQuality |         | DGOAllocationEstimateTotal |         |
| 7  |             | Direction             |             | Incoming                     |         | Incoming                   |         |
| 8  |             | Description           |             |                              |         |                            |         |
| 9  |             |                       |             | Value                        | Quality | Value                      | Quality |
| 10 |             | Monthly energy        |             | 3 K%h                        | Valid   | -413.098 KWh               | Valid   |
| 11 |             |                       |             |                              |         |                            |         |
| 12 |             | Quarter hourly values |             |                              |         |                            |         |
| 13 |             | Date                  | From To     | %                            |         | W                          |         |
| 14 |             | 01-08-2020            | 00:00 00:15 | 100                          | N       | -14.340.000                | N       |
| 15 |             | 01-08-2020            | 00:15 00:30 | 100                          | N       | -14.150.000                | N       |
| 16 |             | 01-08-2020            | 00:30 00:45 | 100                          | N       | -14.140.000                | N       |
| 17 |             | 01-08-2020            | 00:45 01:00 | 100                          | N       | -14.340.000                | N       |
| 18 |             | 01-08-2020            | 01:00 01:15 | 100                          | N       | -13.460.000                | N       |
| 19 |             | 01-08-2020            | 01:15 01:30 | 100                          | N       | -14.220.000                | N       |
| 20 |             | 01-08-2020            | 01:30 01:45 | 100                          | N       | -14.320.000                | N       |
| 21 |             | 01-08-2020            | 01:45 02:00 | 100                          | N       | -13.950.000                | N       |
| 22 |             | 01-08-2020            | 02:00 02:15 | 100                          | N       | -13.670.000                | N       |
| 23 |             | 01-08-2020            | 02:15 02:30 | 100                          | N       | -13.220.000                | N       |
| 24 |             | 01-08-2020            | 02:30 02:45 | 100                          | N       | -13.350.000                | N       |
| 25 |             | 01-08-2020            | 02:45 03:00 | 100                          | N       | -13.410.000                | N       |
| 26 |             | 01-08-2020            | 03:00 03:15 | 100                          | N       | -13.300.000                | N       |
| 27 |             | 01-08-2020            | 03:15 03:30 | 100                          | N       | -13.260.000                | N       |
| 28 |             | 01-08-2020            | 03:30 03:45 | 100                          | N       | -13.070.000                | N       |
| 29 |             | 01-08-2020            | 03:45 04:00 | 100                          | N       | -13.050.000                | N       |
| 30 |             | 01-08-2020            | 04:00 04:15 | 100                          | N       | -12.970.000                | N       |
| 31 |             | 01-08-2020            | 04:15 04:30 | 100                          | N       | -12.750.000                | N       |
| 32 |             | 01-08-2020            | 04:30 04:45 | 100                          | N       | -12.660.000                | N       |

Example 35 Excel Real-Time DGO Allocation sheet

## Chapter 3 XML format messages

### 3.1. Reference XSD

Elia XML messages allow automatic validation by the client application using only the “XML Schemas” (XSD).

| Schema  | Description  |
|---|--|
| <a href="http://nedi1.elia.be/namespaces/public/metering/Publication.xsd">http://nedi1.elia.be/namespaces/public/metering/Publication.xsd</a>   | <ul style="list-style-type: none"><li>• Access Point messages.</li><li>• GEMP messages</li><li>• Metering Point messages</li></ul> |
| <a href="http://nedi1.elia.be/namespaces/public/metering/ELIA-iec62325-451-4-settlement.xsd">http://nedi1.elia.be/namespaces/public/metering/ELIA-iec62325-451-4-settlement.xsd</a><br><a href="http://nedi1.elia.be/namespaces/public/Metering/urn-entsoe-eu-wgedi-codelists.xsd">http://nedi1.elia.be/namespaces/public/Metering/urn-entsoe-eu-wgedi-codelists.xsd</a><br><a href="http://nedi1.elia.be/namespaces/public/Metering/urn-entsoe-eu-local-extension-types.xsd">http://nedi1.elia.be/namespaces/public/Metering/urn-entsoe-eu-local-extension-types.xsd</a> | Local implementation of the standard where 2 fields (meteringType and calculationMethod) and local codes have been added           |

## 3.2. XML elements

This section describes the XML elements that are contained within other elements. These include:

- "party" elements
- "point" elements
- "schedule" elements

### 3.2.1. Party elements

Party elements refer to:

- <sender> the sender of the metering message
- <receiver> the receiver of the metering message
- <partyFrom> the party from which the power is flowing
- <partyTo> the party to which the power is flowing

An example of a <sender> is shown below:

```
<sender>
  <code>5499770302608</code>
  <codeType>C01</codeType>
  <friendlyName>ELIA</friendlyName>
  <role>R01</role>
</sender>
```

*Example 36 XML Party elements*

The contents of the party element are listed in the table below. Details on the different data types are given in section 3.2.

| Element        | Cardinality | Data type | Description  |
|----------------|-------------|-----------|--|
| <code>         | mandatory   | string    | Party identification code  |
| <codeType>     | mandatory   | string    | Code type. Possible values are: <ul style="list-style-type: none"> <li>• C01: EAN code *(see note below)</li> <li>• C02: DVG code</li> <li>• C03: EIC code *(see note below)</li> <li>• C11: ELIA proprietary coding scheme</li> </ul>   |
| <friendlyName> | optional    | string    | Name to easily identify the party  |
| <role>         | mandatory   | string    | Role of the party. Possible values are: <ul style="list-style-type: none"> <li>• R01: Transmission System Operator (TSO)</li> <li>• R02: Metering Reading Company (MRCO)</li> <li>• R03: Grid User (GU)</li> <li>• R04: Access Contract Holder (ACH)</li> <li>• R05: Balance Responsible Party (BRP)</li> <li>• R06: Distribution Grid Operator (DGO)</li> <li>• R07: Supplier</li> <li>• R08: ENergy COordinator (ENCO)</li> <li>• R09: Metering Contract Holder (MCH)</li> </ul> |

Table 52 XML Party element contents

\* For messages concerning MRCO and DGO, the EAN code is used. For messages concerning direct clients, the EIC code is used.

### Point elements

Point elements are used to identify access or Metering Points. An example of an Access Point description is shown below:

```
<point>
  <code>8400001000009</code>
  <codeType>C01</codeType>
  <friendlyName>accessPoint4</friendlyName>
</point>
```

The contents of the <point> element are listed in the table below. Details on the different data types are given in section 3.2.

| Element        | Cardinality | Data type | Description                        |
|----------------|-------------|-----------|------------------------------------|
| <code>         | mandatory   | string    | Point identification code          |
| <codeType>     | mandatory   | string    | Fixed. Always C01 : EAN code       |
| <friendlyName> | optional    | string    | Name to easily identify the point. |

Table 53 XML Point element contents

## Schedule elements

<schedule> elements contain all the fields that describe the metered data as well as the data values themselves. They occur in all message types.

An example of a <schedule> element is given below. Not all data values are shown.

```
<schedule>
  <beginDateTime>2001-12-31T23:00:00Z</beginDateTime>
  <duration>4320</duration>
  <period>15</period>
  <unit>W</unit>
  <powerType>A</powerType>
  <meteringType>N</meteringType>
  <compType>C</compType>
  <profile>ULP</profile>
+ <v-list>
  <v>4000.000</v>
  Etc: not all values represented in this example
  <v>2874000.000</v>
</v-list>
+ <q-list>
  <q>N</q>
  Etc: not all quality flags represented in this example
  <q>N</q>
</q-list>
  <validated>>false</validated>
</schedule>
```

Example 37 XML <schedule> element

The contents of the <schedule> element are listed in the table below. Details on the different data types are given in section 3.2.

| Elements        | Cardinality | Data type | Description  |
|-----------------|-------------|-----------|--|
| <beginDateTime> | mandatory   | Date time | Date and time of the beginning of the schedule   |
| <duration>      | mandatory   | integer   | Total number of minutes of the schedule.<br>This must be a multiple of a period.   |
| <period>        | mandatory   | integer   | The number of minutes for each value period.<br>This always has the value 15 minutes.  |
| <unit>          | mandatory   | string    | Unit in which the values are defined. These are usually units of power (see Metering Manual Concepts) but can be other units for Metering Point messages.  |
| <powerType>     | optional    | string    | Identification of the type of power* (see Metering Manual Concepts).<br>Possible values are: <ul style="list-style-type: none"> <li>• A: Active</li> <li>• I: Inductive</li> <li>• C: Capacitive</li> </ul> * this has no meaning for Metering Point messages containing non-power values. |

|                |                           |                 |  |
|----------------|---------------------------|-----------------|--|
| <meteringType> | Optional<br>(default=N)   | string          | <p>Indication as to whether the values are net or gross* (see Metering Manual Concepts).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• N: Net</li> <li>• G: Gross</li> <li>• SP: Corrections for energy transactions performed in the context of Multiple BRPs.</li> <li>• FA: Corrections for energy transactions performed in the context of Individual Correction for aFRR.</li> <li>• FM : Corrections for energy transactions performed in the context of Individual Correction for mFRR.</li> </ul> <p>* this has no meaning for Metering Point messages containing non-power values.<br/>** FOR DGOs and MRCOs only Net is used.</p> |
| <compType>     | Optional<br>(default=NC ) | string          | <p>Indication as to whether the values are compensated* or not (see Metering Manual Concepts).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• NC: Non-Compensated. Used for metering purposes.</li> <li>• C: Compensated. Used for billing purposes</li> <li>• CC: Compensated Corrected used for billing purposes only if corrections for energy transactions performed in the context of Multiple BRPs or Individual Correction (aFRR &amp; mFRR) exist.</li> </ul> <p>* this has no meaning for Metering Point messages containing non-power values.</p>  |
| <profile>      | Optional<br>(default=ULP) | string          | <p>Indication of the load profile. This is field is only for information purposes and is ignored by the Metering Application.</p>  |
| <v>            | 0 <= n                    | list of decimal | <p>Value of the transferred power. The value is always positive. The value is expressed in the defined unit and contains a maximum of 3 digits after the decimal point.</p>  |



|             |           |                |  |
|-------------|-----------|----------------|--|
|             |           |                | The number of values = duration/period.  |
| <q>         | 0 <= n    | list of string | <p>Indication as to the quality of the metered data (see Metering Manual Concepts).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• N: Normal</li> <li>• I: Inexact</li> <li>• S: Substituted (Estimated replacement).</li> </ul> <p>Number of values must be =duration/period.</p> |
| <validated> | mandatory | boolean        | <p>Indication as to whether the values are valid or not (see Metering Manual Concepts).</p> <p>Possible values are:</p> <ul style="list-style-type: none"> <li>• True: validated by Elia</li> <li>• False: not validated by Elia</li> </ul>  |

Table 54 XML Schedule element contents

### 3.3. Data types

The following table describes all the data types allowed in XML data structure specifications.

| Data type | Typical XML representation                           | Lexical pattern  | Comments   |
|-----------|--|--|--|
| string    |  | .*   | The following constraints can be expressed: minimum length, maximum length, pattern, choice of valid values  |
| int       | -1,<br>0,<br>126789675<br>+100000                    | [ $-+$ ]?[0-9]+  | The following constraints can be expressed: minimum value, maximum value. Values must be between 2147483647 and -2147483648 inclusive.                                   |
| decimal   | -1.23,<br>12678967.543<br>233,<br>+100000.00,<br>210 | [ $-+$ ]?[0-9]+(\.[0-9]+)?   | The following constraints can be expressed: minimum value, maximum value. Values must have at most 28 digits.  |
| boolean   | 1, 0, true, false                                    | 1 0 true false   |  |
| code      |  | .*   | This is similar to string, but allowed values must be part of a documented "code table". The actual signification of the code table constraint is application-dependent. |
| datetime  | 1999-05-31T13:20:00+02:00                            | [0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}?( $[+-]$ )[0-9]{2}(:[0-9]{2})? | Represents a time instant. If the time zone offset is not indicated, UTC is assumed. See section 4.5.2 on time formatting and daylight saving time handling.             |
| time      | 13:20:00+02:00                                       | [0-9]{2}(:[0-9]{2}:[0-9]{2})?( $[+-]$ )[0-9]{2}(:[0-9]{2})?                          | Represents a time instant in the day. If the time zone offset is not indicated, UTC is assumed. See section 4.5.2 on time formatting and daylight saving time handling.  |
| date      | 1999-05-31   | [0-9]{4}-[0-9]{2}-[0-9]{2}   | Represents a calendar date. See section 4.5.2 on time formatting and daylight saving time handling.  |
| binary    |  | Encoded binary data (the default encoding is base64)                                 | Used to transfer data that is not unicode text.  |

Table 55 Data types in XML formatted messages

## Chapter 4 Accessing messages

Elia provides 3 different channels to deliver the messages to the clients:

- "eVMS B2C": The client can access on a dedicated metering webpage. He can manually download the messages on this web page. This channel is dedicated to Business operational persons wishing to easily download a few metering messages. Elia does not recommend implementing any automated way to download messages through "EvmsB2C"
- "EPIC": Grid Users can visualize their metering data in a graphical and tabular format on the EPIC Webportal as well as manually download the data. The EPIC export format is identical to the legacy .xlsx format available on eVMS B2C. This portal will fully replace the EVMS B2C webpage in the coming months.
- "SFTP": Clients can access their messages through the Elia SFTP servers.

### 4.1. Characteristics of the different channels

The 2 protocols have their own advantages and disadvantages. Here is a summary of the different advantages and disadvantages.

| Protocol | Description                   | Advantages   | Disadvantages  |
|----------|-------------------------------|--|--|
| eVMS B2C | Web site                      | No investment from the client<br>Zero learning time: Only a web browser is needed                                | The download is manual.<br>Requires different user IDs for each legal entity within your group<br>The password must be updated every 120 days.   |
| EPIC     | Website                       | No investment from client<br>Easily share access to other colleagues<br>Visualize data directly from the webpage | The download is manual.<br>Metering Data is currently only available to Grid Users via this channel.   |
| SFTP     | Secure File Transfer Protocol | Existing protocol<br>Allow full automatic connection to download the metering message in the client application  | This protocol is not widely permitted: Some IT department block the use of this protocol<br>The password must be updated every 120 days if no certificate is provided by the client: See "4.3.1<br>Use of certificates: Public key – private key " |

### 4.2. The eVMS B2C website

Elia provides a proprietary application allowing clients to access their metering data using the HTTPS protocol. This is the Elia Validated Metering system for Business to Consumer ("eVMS B2C"). Clients can manually download their metering messages and save them on their disks

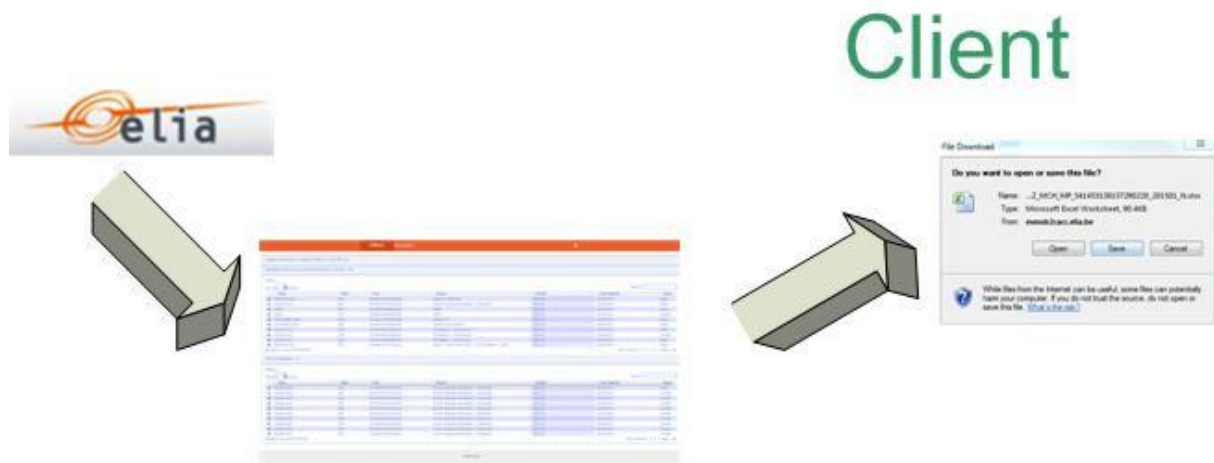


Figure 16 Delivery of metering data via the EVMSB2C web site

This delivery method is straightforward: When logged in, only one page is available with the last messages to be downloaded. A simple search can be used to easily retrieve the needed message

### 4.3. The EPIC Portal

Elia is working on the integration of its services to clients into one single 'one-stop shop' application. Metering Data is a cornerstone of this approach.

More information on how to create an account and access metering data on EPIC can be found on [the EPIC Help center](#).

### 4.4. SFTP server

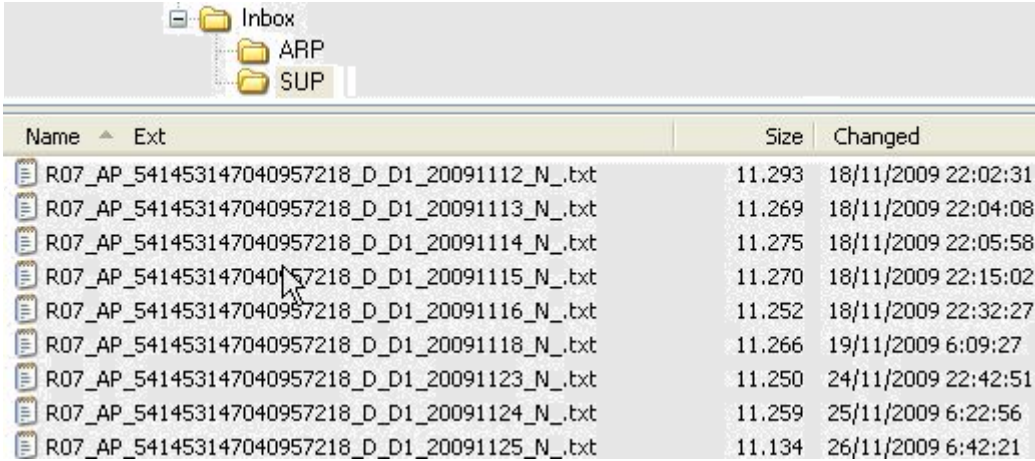
SFTP or "Secure File Transfer Protocol" is a standard network protocol used to exchange files over a network. The protocol is easy to implement and is available on all types of computers and operating systems.

Using FTP has the following advantages:

- it is a well-known standard
- it is easy to implement
- it is Operating System independent
- it provides a secured file transfer
- SFTP works with a user id /password (exception: see Section 4.3.1)

To manage the metering messages, the diverse types are stored in separate subfolders. The client can list the contents of each folder. The messages (or files) can be read and stored locally on the file system and can be deleted after successful treatment.

The figure below shows a typical screenshot of a graphical user interface (SFTP client) showing the different subfolders.



| Name                                       | Ext  | Size   | Changed             |
|--|------|--------|---------------------|
| R07_AP_541453147040957218_D_D1_20091112_N_ | .txt | 11,293 | 18/11/2009 22:02:31 |
| R07_AP_541453147040957218_D_D1_20091113_N_ | .txt | 11,269 | 18/11/2009 22:04:08 |
| R07_AP_541453147040957218_D_D1_20091114_N_ | .txt | 11,275 | 18/11/2009 22:05:58 |
| R07_AP_541453147040957218_D_D1_20091115_N_ | .txt | 11,270 | 18/11/2009 22:15:02 |
| R07_AP_541453147040957218_D_D1_20091116_N_ | .txt | 11,252 | 18/11/2009 22:32:27 |
| R07_AP_541453147040957218_D_D1_20091118_N_ | .txt | 11,266 | 19/11/2009 6:09:27  |
| R07_AP_541453147040957218_D_D1_20091123_N_ | .txt | 11,250 | 24/11/2009 22:42:51 |
| R07_AP_541453147040957218_D_D1_20091124_N_ | .txt | 11,259 | 25/11/2009 6:22:56  |
| R07_AP_541453147040957218_D_D1_20091125_N_ | .txt | 11,134 | 26/11/2009 6:42:21  |

Figure 17 Folder structure on the Elia FTP client

Please contact your KAM or “metering Services” (see coordinates on the first page) to obtain a username and password to access the Elia FTP server.

#### 4.4.1. Use of certificates: Public key – private key

One of the problems with the SFTP server is the use of a password: This password has an expiration time. Even if a reminder email can be sent to the client, it arrives that the password is expired, and the client is blocked if this one has an automated way to retrieve the messages.

To avoid the use of passwords, the client may use a certificate.

The certificate implements the concept of public and private key for authorization and authentication:

- A public key can be viewed as a lock device.
- A private key can be viewed as an actual key. This is the device used to open the 'lock' (Public key) that is stored on the other machine.

Like a regular key, the private key must be kept secret, safe, and out of the wrong hands.



Figure 18 Private and public key images

Just like a real-life key system, it is not a problem if there are hundreds of the same 'lock' on many systems if the private key stays ... private.

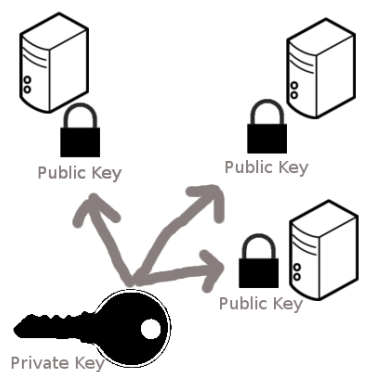


Figure 19 Private and public key on computers

This public key can therefore be distributed anywhere. Currently most companies have such a certificate composed of a private and public key: check with your IT department. When this public key is put on the Elia SFTP server, this one will be used and no longer the password.

Please contact your KAM or "metering Services" (see coordinates on the first page) to place your public key on the Elia's SFTP server.

## 4.5. Metering messages name

Each protocol uses a name (title) to allow distinguishing the message: It can be the file name downloaded from the EVMSB2C or the SFTP server.

This chapter lists, for each protocol how each file name or “message type” is constructed

### 4.5.1. eVMS B2C / EPIC message file names

The type of a metering message when downloaded is a string constructed as follows:

[Recipient EIC]\_[Recipient role]\_[MsgType]\_[Meterable EAN]\_[YearMonth]\_[Validity].[Extension]

- [Recipient EIC] is the EIC of the message recipient
- [RecipientRole] is the role of the recipient of the message and can take the values:

| [RecipientRole] | Description   |
|-----------------|---|
| ACH             | Access Contract Holder                                  |
| ARP             | Access Responsible Party<br>(Former name of the BRP)    |
| BSP             | Balance Service Provider / Flexibility Service Provider |
| GU              | Grid User   |
| GLOBAL          | Metering Contract Holder                                |
| PROD            | Producer  |
| SUP             | Supplier  |

- [MsgType] refers to the type of the message and can take the values:

| [MsgType] | Description                             | Remark                      |
|-----------|---|-----------------------------|
| AP        | Access Point & Real-Time DGO Allocation |                             |
| CA        | CDS Access Point                        | Same format as Access Point |
| GEMP      | Global Elia Metering Position           |                             |
| IMB       | Imbalance                               |                             |
| MP        | Metering Point                          |                             |
| SP        | SubAccess Delivery Point                | Same format as Access Point |

- [Meterable EAN] is the EAN code identifying the point referenced by this message. If there is no such object, then “00000000000000000000” is used
- [YearMonth] is the year and month covered... Format “YYYYMM”
- [Validity] indicate if the message is validated or not

| [Validity] | Description   |
|------------|---------------|
| V          | Validated     |
| N          | Not Validated |

- [Extension] is the publication format and can take the values:

| [PubFormat] | Description                |
|-------------|----------------------------|
| CSV         | Comma Separated Values     |
| XLSX        | Excel file                 |
| XML         | eXtensible Markup Language |

### FTP Metering message file names

The file name of the metering message. It is constructed according to the following pattern:

[RecipientRole]\_[MsgType]\_[EAN-code]\_M\_M1\_[schedule-time]\_Validity\_Id.Extension

- [RecipientRole]:

| [Recipient Role] | Description   |
|------------------|---|
| R03              | Grid User (GU)  |
| R04              | Access Contract Holder (ACH)  |
| R05              | Balance Responsible Party (BRP)                                     |
| R07              | Supplier  |
| R08              | Producer  |
| R09              | Metering Contract Holder (MCH)                                      |
| R12              | Balance Service provider (BSP) / Flexibility Service Provider (FSP) |

- [MsgType] refers to the type of the message and can take the values:

| [MsgType] | Description                             | Remark                      |
|-----------|---|-----------------------------|
| AP        | Access Point & Real-Time DGO Allocation |                             |
| CA        | CDS Access Point                        | Same format as Access Point |
| GEMP      | Global Elia Metering Position           |                             |
| IMB       | Imbalance                               |                             |
| MP        | Metering Point                          |                             |
| SP        | SubAccess Delivery Point                | Same format as Access Point |

- [EAN-code] is the EAN code identifying the point referenced by this message. If there is no such object, then "000000000000000000" is used
- [schedule-time]: yyymm
- [Validity] indicate if the message is validated or not

| [Validity] | Description   |
|------------|---------------|
| V          | Validated     |
| N          | Not Validated |

- Id = unique identifier of the message
- Extension] is the publication format and can take the values:

| [PubFormat] | Description                |
|-------------|----------------------------|
| CSV         | Comma Separated Values     |
| XLSX        | Excel file                 |
| XML         | eXtensible Markup Language |



Examples of non-validated filenames:

- R03\_AP\_541453166475361582\_M\_M1\_200603\_N\_1716367.txt
- R04\_AP\_541453199001109600\_M\_M1\_200603\_N\_1720579.txt
- R09\_MP\_541453155970400575\_M\_M1\_200603\_N\_1720367.txt

Example of validated filename:

- R03\_AP\_541453132606828217\_M\_M1\_200602\_V\_1716404.txt
- R12\_AP\_541453104544500333\_M\_M1\_201508\_V\_178954.txt
- R12\_SP\_541453104544500340\_M\_M1\_201611\_V\_123456.xlsx
- R12\_MP\_541453104544500357\_M\_M1\_201712\_V\_78954.xml
- R12\_CA\_541453104544500364]\_M\_M1\_201701\_V\_789654.txt

## 4.6. Time formatting and Daylight saving

This section describes the format of times and dates used in metering messages and deals with the issues arising from daylight saving.

### 4.6.1. Time and date formatting

Times and dates are presented in the ISO 8601 format in CSV and XML formats. Date and time are expressed in UTC (Coordinated Universal Time) usually denoted by the letter Z. Time zones are expressed as an offset from UTC.

ISO 8601 format is:

`yyyy-mm-ddThh:nn:ssZ` or `yyyy-mm-ddThh:nn:ss+xx:yy`

Where:

`YYYY` = year

`mm` = month

`dd` = day

`T`: flag to indicate Time

`hh` = hour

`nn` = minute

`ss` = second

`Z` = Flag indicating that the time is in UTC

Or:

`+` = a flag to indicate the positive offset of the time from UTC

`xx:yy` = is the offset from UTC expresses in xx hours and yy minutes.

If the time zone offset is not indicated, UTC is assumed.

### Examples

A local time of 1:20 pm on May 31st, 2009 in Brussels (which is 2 hours ahead of UTC) is written in UTC notation as:

`2009-05-31T11:20:00Z`

Or:

`2009-05-31T13:20:00+02:00`

The date, May the 31st 2019, is written as: `2019-05-31`

#### 4.6.2. Daylight saving

Due to daylight saving measures, twice during the year the local time is changed by one hour, meaning one day contains only 23 hours and another 25 hours. This has implications on the contents of metering messages.

Date and time are expressed in UTC (Coordinated Universal Time).

So, during winter time, the day begins at 23:00h UTC (the equivalent of 00:00h local time). During summer time, the day begins at 22:00h UTC (the equivalent 00:00h local time).

For example, in summer time:

| Local time                | ISO format                | UTC                 |
|---------------------------|---------------------------|---------------------|
| 1:20 pm on May 31st, 2009 | 2009-05-31T13:20:00+02:00 | 2009-05-31 11:20:00 |

In winter time

| Local time                    | ISO format                | UTC                 |
|-------------------------------|---------------------------|---------------------|
| 1:20 pm on January 31st, 2009 | 2009-01-31T13:20:00+01:00 | 2009-05-31 12:20:00 |

The example below shows the transition from summer time to winter time in Belgium on the 31<sup>st</sup> of October in 2010.

| Local time     | ISO format          | UTC              |
|----------------|---------------------|------------------|
| 0h             | 2010-10-31 00:00+02 | 2010-10-30 22:00 |
| 1h             | 2010-10-31 01:00+02 | 2010-10-30 23:00 |
| 2h             | 2010-10-31 02:00+02 | 2010-10-31 00:00 |
| at 3h it is 2h | 2010-10-31 02:00+01 | 2010-10-31 01:00 |
| 3h             | 2010-10-31 03:00+01 | 2010-10-31 02:00 |

The example below shows the transition from winter time to summer time in Belgium on the 28<sup>th</sup> of March in 2010.

| Local time     | ISO format          | UTC              |
|----------------|---------------------|------------------|
| 0h             | 2010-03-28 00:00+01 | 2010-03-27 23:00 |
| 1h             | 2010-03-28 01:00+01 | 2010-03-28 00:00 |
| at 2h it is 3h | 2010-03-28 03:00+02 | 2010-03-28 01:00 |
| 4h             | 2010-03-28 04:00+02 | 2010-03-28 02:00 |

### Value periods in a message

The metering message is composed of power values for each quarter ('value periods') of each day of a month. The number of value periods in a message depends on the number of hours in the day and the number of days in the month.

For a 'normal' 24 hour day:  
 number of minutes = 1440  
 number of value periods  $1440 / 15 = 96$   
 All 96 values and qualities are consecutive.

For a 23 hour day:  
 number of minutes = 1380  
 number of value periods  $1380 / 15 = 92$   
 The value periods between 2h and 3h are omitted. There are therefore 4 less value periods in the daily message and the corresponding message.

For a 25 hour day:  
 number of minutes = 1500  
 number of value periods  $1500 / 15 = 100$   
 Four additional values periods are inserted after the 2h-3h value periods. There are 4 additional values periods in both the daily message and the corresponding message

For a 28 day month:  
 number of minutes = 40320  
 number of value periods  $40320 / 15 = 2688$

For a 29 day month:  
 number of minutes = 41760  
 number of value periods  $41760 / 15 = 2784$

For a 30 day month:  
 number of minutes = 43200  
 number of value periods  $43200 / 15 = 2880$

For a 31 day month:  
 number of minutes = 44640  
 number of value periods  $44640 / 15 = 2976$

In Excel files, on 23 hours day, the hour is not present:

|     |            |       |       |           |   |         |   |   |
|-----|------------|-------|-------|-----------|---|---------|---|---|
| 96  | 29-03-2014 | 23:30 | 23:45 | 7,360,478 | N | 560,082 | N |   |
| 97  | 29-03-2014 | 23:45 | 00:00 | 7,085,324 | N | 280,774 | N | 1 |
| 98  | 30-03-2014 | 00:00 | 00:15 | 6,991,489 | N | 0       | N | 2 |
| 99  | 30-03-2014 | 00:15 | 00:30 | 6,782,802 | N | 610,176 | N |   |
| 000 | 30-03-2014 | 00:30 | 00:45 | 6,464,641 | N | 804,201 | N |   |
| 001 | 30-03-2014 | 00:45 | 01:00 | 6,337,327 | N | 800,291 | N |   |
| 002 | 30-03-2014 | 01:00 | 01:15 | 6,170,427 | N | 824,727 | N |   |
| 003 | 30-03-2014 | 01:15 | 01:30 | 6,160,408 | N | 815,686 | N |   |
| 004 | 30-03-2014 | 01:30 | 01:45 | 6,175,070 | N | 808,844 | N |   |
| 005 | 30-03-2014 | 01:45 | 03:00 | 6,031,384 | N | 810,554 | N |   |
| 006 | 30-03-2014 | 03:00 | 03:15 | 6,000,350 | N | 774,388 | N |   |
| 007 | 30-03-2014 | 03:15 | 03:30 | 5,902,849 | N | 766,813 | N |   |

In Excel files, on 25 hours day, the hour is present 2 times with an asterisk

## Appendix A. Glossary of terms

### Client

A company that holds a contract with Elia, which entitles the latter to metering messages. The messages received depend on the market "roles" that the client has. One client may perform several roles. A client receives metering messages for each of its market roles.

### Injection

Energy (produced by a producer) that is injected into the Elia grid

### Non-regulated metering

A message containing specific metering data requested by a client and defined in a contract. This one can contain values for quantities other than power.

### Offtake

Consumption of energy by a client connected to the Elia Grid

### Protocol

A set of rules governing the format of messages that are exchanged between computers

### Receiver

The recipient of a metering message

### Region

A region within Belgium that is controlled by a specific regulator

### Role

A function executed by a client, as defined in a contract. See section "1.1.1 Market roles "

### Schedule

The series of values contained in a metering message. A schedule contains values for each day of a month. The time is indicated by the value of the duration field which is given in minutes.

### Sender

Party who sends a metering message

### Source

The provider of the metering data

### Validation

This is the process whereby the quantities referred to in a message are deemed to be correct. See section 1.1.3

### Volt-Amperes-Reactive

Unit of reactive power (VAR)

### Watt

Unit of active power (W)