Documentation to use the System Imbalance service

Elia

Version 1.1.

2016-12-06

Table of Contents

Chapter 1. Introduction

1.1. Elia System Imbalance publications

Currently, some values related to the system imbalance and net regulation volumes are published on the Elia web site : see www.elia.be / Grid Data / Balancing

The publications are available graph format and table format. Data displayed in the table can be exported into XLS format.

Download of monthly values within similar granularity is also available in XLS : see www.elia.be / Grid Data / Data Download.

To offer the possibility to automatically retrieve the data, some publications are available through web services.

1.2. Elia System Imbalance web service

Given the fact that the data can be useful to multiple persons or companies, web services are provided in a fully open manner.

No client program is provided and thus it is up to the interested person to implement the call and the decomposition of the response. This document explains the way to communicate with the web services.

1.3. Availability of Balancing web services

Currently, the calls to the Elia web services are anonymous and do not require any pre-registration.

However Elia may, at any time and without any notice, restrict the usage of these web services for security reasons.

Chapter 2. HTTP Communication

This section describes the way to communicate with the web services to retrieve the values of balancing publications.

2.1. Available publication through web service

The values of the **Current System Imbalance** is available through web services.

It is used to get both the actual imbalance of the system and the different product categories to regulate it, either automatically or manually.

- Granularity: 1 minute
- Scope: 1 hour
- Available measures:
  - Time
  - SI
  - NRV
  - SR
  - GUV
  - IGCCUp
  - R2Up
  - BidsUp
  - R3Std
  - R3Flex
  - ICHUp
  - Inter-TSOImport
  - GDV
  - IGCCUp
  - R2Up
  - BidsUp
  - Inter-TSOExport

  For more information about the measures, please visit www.elia.be / Grid Data / Balancing / Current System Imbalance).

- URL of the web service:
  http://publications.elia.be/Publications/Publications/InternetImbalance.v1.svc/GetImbalanceMeasuresByTime

2.2. Connecting to the Elia Balancing web services

Handling the connection

To establish an Internet connection with the Elia System Imbalance web service, the following rules must be observed:

- HTTP must be used. No user id or password is required.
- Request must be sent by HTTP GET method.
- The content type should be "text/xml" and character set "ISO-8859-1".

Error handling

In case of an error (invalid request, internal error or else), each method returns:

- an Error message or
- an HTTP status of 510, 400, 401, etc.

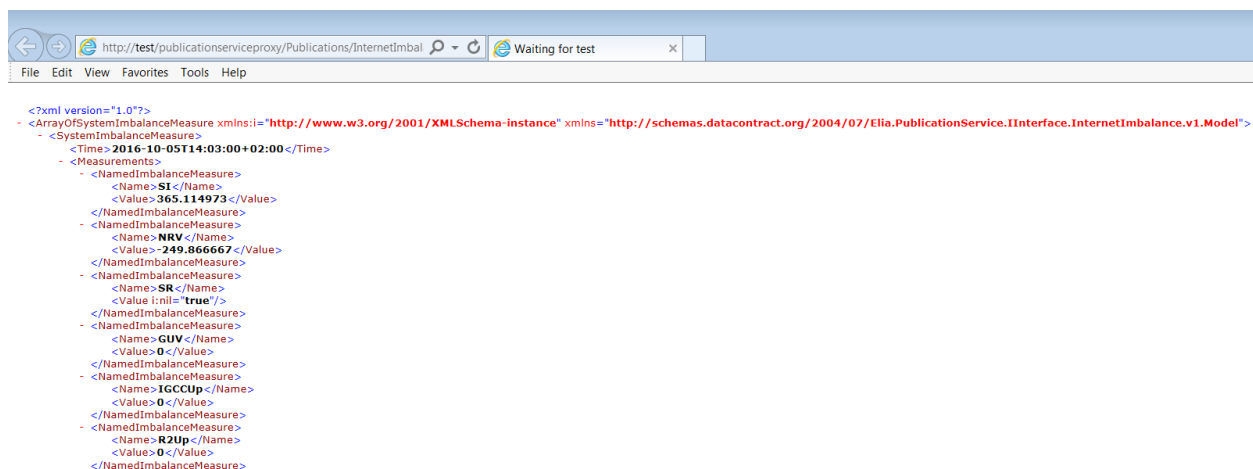## 2.3. HTTP communication through the Web browser

The Web services can be called via an Web browser.

Here is an example of how to communicate with the Elia Balancing web services with your browser: When typing the web service complete URL address on the URL of the web browser, the answer appears as a XML method:

Following tests are made using Internet Explorer 10.

Note that following browsers are also supported (some compatibility problems may arise):

- Chrome
- Opera
- Mozilla
- FireFox

```xml
<?xml version="1.0"?>
<ArrayOfSystemImbalanceMeasure xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://schemas.datacontract.org/2004/07/Elia.PublicationService.IInterface.InternetImbalance.v1.Model">
  <SystemImbalanceMeasure>
    <Time>2016-10-05T14:03:00+02:00</Time>
    <Measurements>
      <NamedImbalanceMeasure>
        <Name>SI</Name>
        <Value>365.114973</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>NRV</Name>
        <Value>-249.866667</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>SR</Name>
        <Value i:nil="true"/>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>GUV</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>IGCCUp</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R2Up</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
```

Chapter 3. Annex – example of reply

3.1. Example of System Imbalance answer

```xml
<?xml version="1.0"?>
<ArrayOfSystemImbalanceMeasure xmlns:i="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://schemas.datacontract.org/2004/07/Elia.PublicationService.IInterface.InternetImbalance.v1.Model">
  <SystemImbalanceMeasure>
    <Time>2016-12-06T15:05:00+01:00</Time>
    <Measurements>
      <NamedImbalanceMeasure>
        <Name>SI</Name>
        <Value>42.713</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>NRV</Name>
        <Value>-33.193</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>SR</Name>
        <Value i:nil="true"/>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>GUV</Name>
        <Value>8.69</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>IGCCUp</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R2Up</Name>
        <Value>8.69</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>BidsUp</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R3Std</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R3Flex</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>ICHUp</Name>
        <Value i:nil="true"/>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>InterTsoImport</Name>
        <Value i:nil="true"/>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>GDV</Name>
        <Value>41.883</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>IGCCDown</Name>
        <Value>41.883</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R2Down</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>BidsDown</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>InterTsoExport</Name>
        <Value i:nil="true"/>
      </NamedImbalanceMeasure>
    </Measurements>
  </SystemImbalanceMeasure>
  <SystemImbalanceMeasure>
    <Time>2016-12-06T15:06:00+01:00</Time>
    <Measurements>
      <NamedImbalanceMeasure>
        <Name>SI</Name>
        <Value>50.010</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>NRV</Name>
        <Value>-45.169</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>SR</Name>
        <Value i:nil="true"/>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>GUV</Name>
        <Value>4.848</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>IGCCUp</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R2Up</Name>
        <Value>4.848</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>BidsUp</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R3Std</Name>
        <Value>0</Value>
      </NamedImbalanceMeasure>
      <NamedImbalanceMeasure>
        <Name>R3Flex</Name>
        <Value>0</Value>
```