aFRR – Communication Requirements

General communication requirements

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Table of contents

Introduction

This document describes the communication requirements for the aFRR services. This document is in complement of the T&C BSP aFRR and needs to be read in compliant of the T&C BSP aFRR.

For the aFRR service, different types of communication are required between BSP and Elia:

- SCADA to SCADA connection (for delivery point DP_{SU} and for the communication between Elia and the BSP), as described in Chapter 1.
- Connection to Real-Time Communication Platform for delivery point DP_{PG} as described Chapter 2.
- XML messages used in the framework of the availability test and prequalification test as described in Chapter 3.

1 Real time communication using SCADA to SCADA

1.1 Introduction

The following information is transmitted from the BSP to Elia via the SCADA to SCADA connection:

- The data as described in annex 10.D (“communication requirements for activation”) of the T&C BSP aFRR
- For delivery points DP_{SU}, the required parameters as described in annex 9.E (“communication requirements for aFRR energy bids”) of the T&C BSP aFRR.

The following information is transmitted from Elia to the BSP via the SCADA to SCADA connection:

- The aFRR requested as described in annex 10.D (“communication requirements for activation”) of the T&C BSP aFRR.

This chapter describes the technical requirements for the SCADA to SCADA connection.

1.2 Process

For the correct and effective functioning of the aFRR services, the aFRR processes require:

- A secure and redundant communication channel between Elia and the BSP via a communication protocol determined by Elia.

- The BSP to be able to receive and interpret the signals as defined in T&C BSP aFRR.
- The BSP to continually guarantee and maintain in real time the accuracy of the information sent to ELIA.
- The BSP to guarantee, without additional delay, the processing of the aFRR requested (i.e. the set-point) obtained from ELIA.
- The BSP to make available to Elia the feedback signal of the aFR requested sent from Elia to the BSP without any delay to allow Elia to read it at any moment. The feedback signal should be returned by the BSP to Elia as soon as the aFRR requested is received by the BSP and before the BSPs forwards the aFRR requested to the physical assets participation at the aFRR services.
- The BSP to guarantee, without additional delay, the real time communication of the final aFRR requested to his physical assets as well as the automatic processing of these aFRR requested by the assets.

- In the event of ELIA wanting to improve certain procedures and/or real time exchanges, the BSP guarantees to apply the new procedures proposed by ELIA within a reasonable time period.

1.3 IT solution (standard solution)

Based on the importance of the aFRR service, in terms of a technical solution Elia requests the following:

- The physical connection must be implemented on a leased line and a secured VPN.
- The TASE2/ICCP software of the BSP must be in conformity with the IEC 60870-6 TASE2 standard. Version 2000 of TASE2/ICCP (IEC 60870-6) is required. Elia will define the TASE2/ICCP connection as initiator. The BSP must define the connection as responder.
- In case the system of the BSP does not support this protocol then the BSP must install a protocol convertor. A change of protocol may only be done after coordination and mutual agreement between the Elia and the BSP.
- The entire real-time communication system and its processes must be redundant. This means separated physical communication links and separated UPS (with an autonomy of at least 8 hours) per physical link.
- Elia reserves the right to transmit the aFRR activation signal (i.e. the aFRR Requested) as a measurement data type or a set-point data type in TASE2/ICCP
- All data points (included aggregated data points) sent by both Elia and the BSP must contain a timestamp (precision at least 1 second) and a quality bit (valid, invalid, manual)
- It is advisable to define a bidirectional link in TASE2/ICCP instead of defining 2 unidirectional links. However if the ICCP/TASE2 provider is not able to provide the bidirectional link, 2 unidirectional links are acceptable.

- Before starting the configuration, Elia will draft a proposal of the “ICCP bilateral agreement”: this is a document of all the detailed technical parameters of the TASE2/ICCP link.
- For accelerating the setup of the TASE2/ICCP connection and for analyzing the availability of the connection during operation Elia will send in real-time a fast changing measurement (triangle or sawtooth signal) to the partner. This signal must be read by the partner at least every 10 seconds and it must be made available again (loop back) to allow Elia to read the signal in real-time.
- It is advisable that the partner generates another fast changing measurement that Elia can loop back to the partner. Our experience is that it can be helpful for troubleshooting during operation.
- New partners must sign up in time since depending on the provider of the TASE2/ICCP software it could take 3 months to configure it on both systems to achieve a stable communication channel.

1.4 Responsibilities

With regard to the level of quality and reliability that the process demands, Elia and the BSP share responsibilities, for the purpose of:

- Setting up dedicated physical links between their own systems;
- Deploying all available means to ensure duplication of the system throughout the communication chain;
- Deploying all available means to ensure the reliability of their own systems.
- The BSP should assure a minimum availability of 95% for the real-time data transfer on monthly basis.

1.5 Actions in case of deviation from the standard solutions

The following measures are required in case of problems with the standard solutions:

- based on the controls introduced, the parties will contact their respective contact persons to report the existence of a problem;
- the parties make every effort to install the back-up solution (see section 1.6) as quickly and effectively as possible;
- the parties make every effort to collaborate on solving the problem and making the standard solution (see section 1.3) operational again as fast as possible.

1.6 Back-up solution (in case of unavailability of the aFRR request)

In the event of problems regarding the availability of aFRR requests (among others due to “TASE2/ICCP” unavailability) Elia may determine the set-point for aFRR to be followed and communicates this with each BSP by telephone. The BSP is obliged to use all the means available to him in order to set up and guarantee the duplication of the telephone connections linking him to Elia (of which one must be dedicated, direct with Elia).

Any other exchange of information in real time shall take the form of an electronic message, according to the protocols defined by Elia, and shall be confirmed by telephone if needed.

2 Connection to the real-time communication platform

2.1 Introduction

The required parameters for delivery points DP_{PG} as described in annex 9.E (“communication requirements for aFRR energy bids”) of the T&C BSP, are transmitted to the Real-Time Communication Platform.

2.2 Technical requirements

The technical requirements are described in the following documents:

- “The technical guide for gateway management“: this document can be found here.
- “The explanatory note gateway management”: this document can be found here.

2.3 Service level agreement between Real-Time Communication Platform and local gateway

On top of the gateway specifications, as described in the section above, the BSP has also to be compliant with the communication requirements described in this section.

Real-time communication cannot always be guaranteed due to network latency, power outage, connection issues … , Therefore, Elia will work with the following distribution to determine latency compliance:

- 95% of the data must be received with t ≤60s
- 90% of the data must be received with t ≤ 15s
- 80% of the data must be received with t ≤ 2s

With t equal to the difference between the snapshot timestamp taken during the power measurement (by measurement device or gateway) and the timestamp of the message

reception by the Real-Time Communication Platform (in seconds).

3 XML message

3.1 Introduction

A prequalification test is triggered by Elia by notifying the BSP via an electronic message, as described in annex 6.F (“communication requirements for prequalification test”) of the T&C BSP aFRR. For this electronic message, an XML data format is required. In order to trigger an availability test, Elia notifies the BSP by an electronic message as specified in annex 11.F (“communication requirements for availability test”) of the T&C BSP aFRR. For this electronic message, an XML data format is required. The BSP should be able to receive the XML message and be able to understand its content.

3.2 Technical requirements

The XML communication is used to communicate to the BSP the availability test signal and the prequalification test signal. The following document can be used:

The link to the document will be provided later.