

## General technical requirements of the submetering solutions for grid users directly connected to the Elia Grid

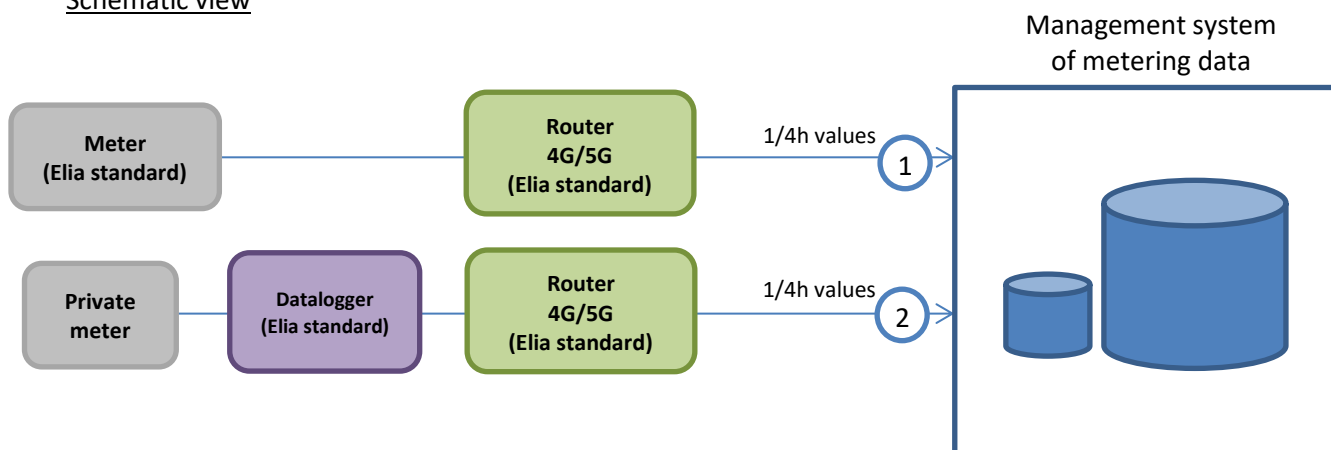
This document describes the general technical requirements for submetering solutions (i.e. energy meters), for clients connected to the Elia grid.

The document is applicable for ancillary services as mFRR, VSP, OPA/SA, ... as well as for multiple BRP designation and metering needs in CDS networks (where metering is not outsourced to Elia).

The following options are possible:

1. The use of a meter (Elia standard) that communicates directly the 1/4h-values of active/reactive energy to the Elia metering data management system by using a 4G/5G router.
2. The use of a datalogger (Elia standard) that collects the metering pulses of a private meter and communicates the 1/4h-values of active/reactive energy to the Elia metering data management system by using a 4G/5G router.

### Schematic view



These solutions apply exclusively to Delivery Points within the electrical facilities of a grid user connected to the ELIA Grid.

The metering system meets the following minimum requirements:

- Options 1 and 2:
  - The accuracy class of the measurement core of current transformers (CT) meets at least the requirements specified in the table 1.
  - The accuracy class of the voltage transformers (VT) meets at least the requirements specified in the table 1.
- Option 2:
  - Only digital technology meters are accepted.
  - The accuracy class of the metering system (energy meter, CT, VT) meets at least the requirements specified in the table 1 or 2.

All Wh-meters should be MID compliant for classes 2, 1 and 0.5%. A Wh-meter with precision class 0.2% may only be used if the 0.5% version of the same brand/type is MID compliant. It is up to the private meter owner to prove MID compliancy.

| Power of measured process  | VT                 | CT                  | Wh-meter |
|----------------------------|--------------------|---------------------|----------|
| $\geq 10$ MVA              | 0.2 <sup>(2)</sup> | 0.2S <sup>(2)</sup> | 0.2S     |
| $\geq 5$ MVA à $< 10$ MVA  | 0.2 <sup>(1)</sup> | 0.2S <sup>(1)</sup> | 0.5S     |
| $\geq 1$ MVA à $< 5$ MVA   | 0.2 <sup>(1)</sup> | 0.2S <sup>(1)</sup> | 0.5S     |
| $\geq 100$ kVA à $< 1$ MVA | 0.5                | 0.5S                | 1.0S     |
| $< 100$ kVA                | NA                 | 0.5S                | 2.0S     |

Table 1: Common technical requirements applying to metering installations for grid users (of Elia and CDS) connected to the federal transmission grid (70 kV < voltage level  $\leq$  380 kV)

<sup>(1)</sup> Elia can allow an accuracy of 0.5 or 0.5S for installation put into service before 01/12/2023

<sup>(2)</sup> Elia can allow an accuracy 0.5 or 0.5S for installation put into service before 01/12/2023, yet it must be replaced by 0.2 or 0.2S in the next shutdown

| Power of measured process  | VT  | CT   | Wh-meter |
|----------------------------|-----|------|----------|
| $\geq 20$ MVA              | 0.2 | 0.2S | 0.2S     |
| $\geq 5$ MVA à $< 20$ MVA  | 0.2 | 0.2S | 0.2S     |
| $\geq 1$ MVA à $< 5$ MVA   | 0.2 | 0.2S | 0.5S     |
| $\geq 250$ kVA à $< 1$ MVA | 0.2 | 0.5S | 1.0S     |

Table 2: Common technical requirements applying to metering installations for grid users (of Elia and CDSs) connected to the local transmission grid (voltage level  $\leq$  70 kV)

#### 1 Common technical requirements applying to all metering installations.

- Any cable connecting the current or voltage transformers to a meter must be as short as possible.
- The section of the connection wires between the meter and the current transformer is ideally minimum 4 mm<sup>2</sup>.
- The section of the connection wires between the meter and the voltage transformer is ideally minimum 10 mm<sup>2</sup>. Remark: depending on the length on the connecting wires/cable between the VT and the meter, greater section might be necessary.
- The connection wires to current and voltage transformers may not be located in the same cable.
- An earthing terminal is available near the installation.
- The signal level for 4G/5G router must be sufficient (Proximus reference) to enable a communication with the Elia management system of metering data. If necessary, an extra antenna will be added to the system.

## 2 Specific technical requirements

Depending on the chosen option, the following requirements must be observed as well:

- Options 1: Elia submeter
  - A system of 3 current and 3 voltage transformers is required for measurement of imbalanced loads.
  - The current and voltage signals are available on a dedicated terminal close to the place where the Elia submeter will be installed.
  - The needed space for the installation of an Elia submeter is: W600 mm x H800 mm (indicative values). Optional, the active metering pulses or all metering pulses are made available to the grid user.
  - It is necessary to switch off the electrical load downstream the meter for the installation and commissioning of the metering equipment.
  - The Elia submeter can be compliant with class 0.2S (option 1A), can be compliant with class 0.5S (option 1B) or can be compliant with class 1S (option 1C)
- Option 2: Datalogger (Elia standard) and private meter
  - The metering pulses for active energy are made available on a dedicated terminal close to the datalogger. The impulse contacts need to be potential free.
  - The weight of the metering impulses is known (and programmable). If necessary, this weight will be adapted to ensure a maximum accuracy. Maximum pulse frequency= 4 Hz.
  - The space for the installation of a datalogger is: W600 x H800 (indicative values).
  - It is not necessary to switch off the electrical load downstream for the installation and commissioning of the datalogger equipment.

-----oOo-----