Amendment C10/11 edition 2.2 of 17 October 2024

Publication date 17/10/2024

Date of entry into force 17/04/2025

Subject: Power generating installations without a fixed connection

("on-board" chargers for electrical vehicles, inverters with domestic plug, plug-and-play, …)

Adapted and final proposal after public consultation (14/02/2024 to 14/03/2024)

Content

1 TEXT C10/11 ED2.2 (03/2021) - §2.1 GENERAL, §5 PROCEDURE FOR COMMISSIONING AND DECOMMISSIONING, §7.2 CONNECTION

1.1 C10/11, §2.1 General (Scope of application)

Without prejudice to the specific cases mentioned in §2.2 hereunder, this document is applicable to all power-generating plants downstream from a connection to the distribution network:

- that is considered being new of adapted as described in chapter 3 ;
- which is technically capable to operate in parallel with the distribution network (without limitation regarding the duration of this operation in parallel) ;
- with a maximum power below 25 MW (which is de limit used to distinguish type B and type C plants according to the Belgian application of the European Regulation (EU) 2016/631 of the Commission3) ;
- without limitation regarding the nominal voltage level of the distribution network the plant is connected to ;
- without limitation regarding the voltage level with which the power-generating unit itself is connected to the local network of the distribution system user (DSU) (low-voltage or high-voltage) ;
- without limitation regarding the connection's energy balance ("net consumption from" or "net injection to" the distribution network ;
- without limitation regarding the possibility of actually injecting energy to the distribution net-work ; this means, for example, that this document is also applicable to power-generating plants equipped with a zero export relay. In fact, the latter operate in parallel to the distribution network and may therefore influence its operation, even if they do not physically inject energy to the distribution network ;
- without limitation regarding the nature of the energy source feeding the power-generating unit (a primary energy like oil, gas or biofuel, hydro energy, wind energy, solar energy, etc., or other sources such as batteries);
- without limitation regarding the technology used (rotating machinery, static conversion, etc.) ;

(…)

1.2 C10/11 §5.2 Standard process, STEP 4: Inspection

The DSU must subject the power-generating plant to the following conformity inspections:

- Inspection of compliance with the General Regulations for Electrical Installations GREI). This inspection is performed by an authorized body. The list of authorized inspection bodies for electrical systems is available on the website of FPS Economy.
- Inspection of compliance with the DSO's connection prescriptions.

(…)

In case of any infringement, the power-generating plant shall be modified and then reinspected.
The inspection report free of infringements must be submitted to the DSO in order to complete the technical file.

1.3 C10/11 §5.3 Simplified process for a small power-generating plant, STEP 4: Inspection

The DSU must have the power-generating plant inspected by an authorized inspection body. The list of authorized inspection bodies for electrical systems is available on the website of FPS Economy16.
The employee of the authorized body will check compliance of the power-generating plant with the GREI prescriptions.
Only an installation declared compliant may be notified to the GRD and put into service.

1.4 C10/11, §7.2 Connection

The power-generating module must be connected to the DSU's electrical system by means of fixed cabling (that cannot be removed without tools).
It is therefore forbidden to operate a power-generating unit in parallel with the distribution network if it is connected by a (domestic) outlet[18]. If a URD wishes to connect such system to its electrical installation, it must replace the connection through an outlet by a fixed cable connection and follow the commissioning procedure as described in chapter 5 of this document.

[18] Often these are small portable inverters that can be connected to portable photovoltaic panels and that can power common applications (lighting, ventilation, computers, mobile phones, etc.) on 230 V AC or 12 V DC. These systems are currently marketed by various manufacturers. Except for the models that only operate off-grid, for example in places where the electricity distribution network is not available, other models are equipped with a standard household plug for connection to the household electricity system. The use of these systems with a household plug may present risks, as well for the operation of the distribution network as for the internal electrical installation and its users:

- The behaviour of such systems during disturbances on the network (frequency or voltage variations, voltage dips, etc.) is unknown: it is unclear whether the necessary protections and settings have been integrated. (without homologation via the C10/26 list)
- If the converter with plug feeds back energy to the network, and a large consumer is connected to that same circuit, there may be larger currents locally circulating in the installation of the DSU than at the beginning of the circuit where its protection is located. The protection of that circuit may also be unable to detect these larger currents and, there-fore, be unable to de-energize in time if the anticipated maximum value for that circuit were to be exceeded.
- There is also the possibility of internal circulation of large fault currents that compensate each other at the level of the differential protection to below the threshold level, as a result of which the differential protection may not respond correctly.
- If the equipment is not provided with an adequate de-energizing protection in the converter, the prongs of the plug may become charged, meaning there is a shock-hazard. The plug prongs in other sockets in the same circuit may also inadvertently and unexpectedly become charged.

2 AMENDMENT 2.2 (10/2024) – ADAPTED C10/11 TEXT FOR §2.1 GENERAL, , §5 PROCEDURE FOR COMMISSIONING AND DECOMMISSIONING, §7.2 CONNECTION

2.1 C10/11, §2.1 General (Scope of application)

Without prejudice to the specific cases mentioned in §2.2 hereunder, this document is applicable to all power-generating plants downstream from a connection to the distribution network:

- that is considered being new of adapted as described in chapter 3 ;
- which is technically capable to operate in parallel with the distribution network (without limitation regarding the duration of this operation in parallel) ;
- with a maximum power below 25 MW (which is de limit used to distinguish type B and type C plants according to the Belgian application of the European Regulation (EU) 2016/631 of the Commission3) ;
- without limitation regarding the nominal voltage level of the distribution network the plant is connected to ;
- without limitation regarding how the unit or installation is connected (fixed connection, temporary connection, connection with domestic socket, etc.)
- without limitation regarding the voltage level with which the power-generating unit itself is connected to the local network of the distribution system user (DSU) (low-voltage or high-voltage) ;
- without limitation regarding the connection's energy balance ("net consumption from" or "net injection to" the distribution network ;
- without limitation regarding the possibility of actually injecting energy to the distribution net-work ; this means, for example, that this document is also applicable to power-generating plants equipped with a zero export relay. In fact, the latter operate in parallel to the distribution network and may therefore influence its operation, even if they do not physically inject energy to the distribution network ;
- without limitation regarding the nature of the energy source feeding the power-generating unit (a primary energy like oil, gas or biofuel, hydro energy, wind energy, solar energy, etc., or other sources such as batteries);
- without limitation regarding the technology used (rotating machinery, static conversion, etc.) ;

(…)

2.2 C10/11 §5.2 Standard process, STEP 4: Inspection

The DSU must subject the power-generating plant to the following conformity inspections:

- Inspection of compliance with the General Regulations for Electrical Installations GREI) , unless an inspection (or reinspection) according to the GREI is not mandatory. This inspection is performed by an authorized body. The list of authorized inspection bodies for electrical systems is available on the website of FPS Economy.

(…)

In case of any infringement, the power-generating plant shall be modified and then reinspected.

Unless an inspection (or reinspection) according to the GREI is not mandatory, the inspection report free of infringements must be submitted to the DSO in order to complete the technical file.

2.3 C10/11 §5.3 Simplified process for a small power-generating plant, STEP 4: Inspection

The DSU must have the power-generating plant inspected by an authorized inspection body, unless an inspection (or reinspection) according to the GREI is not mandatory. The list of authorized inspection bodies for electrical systems is available on the website of FPS Economy16.

The employee of the authorized body will check compliance of the power-generating plant with the GREI prescriptions.

Unless an inspection (or reinspection) according to the GREI is not mandatory, only an installation declared compliant may be notified to the GRD and put into service.

2.4 C10/11, §7.2 Connection

The power-generating unit shall be connected to the DSU's electrical installation in a safe way, in compliance with:

- the applicable legal obligations;
- the rules of good practice;
- the relevant standard references.

3 INFO – FOCUS ON CERTAIN SPECIFIC REQUIREMENTS OF C10/11 WHEN MODIFYING § 7.2.

The prescription C10/11 remains fully applicable. Specifically, the following conditions already apply today and will continue to do so:

- Full compliance with C10/11 and C10/26-homologation are still required for these units.
- The C10/11 connection procedure will continue to apply:
    - "small power-generating installations" follow §5.3 with notification ("fit and inform"). Socket connections do not require GREI (AREI / RGIE) inspection.
    - all other installations follow §5.2 (standard procedure with network study).
- Respecting the power limits remains mandatory, particularly for "small power-generating installations".

Safety and compliance with the GREI (AREI / RGIE) do not fall within the scope of the prescription C10/11, but in practice the manufacturer's safety instructions and legal warnings already seem to include them (e.g. only on a fixed socket, not in a power strip, no multiple appliances on the same circuit, ….). This may also be relevant, or even essential, for the network user's fire insurance.