



Solar Panels

Fisuel Seminar – 07-08 of October 2026

Rome - Italy

2
0
/
1
0
/
2
0
2
6

Photovoltaic systems

*Supporting innovation
Safely!*



STANDARDS AND GUIDES FOR PHOTOVOLTAIC INSTALLATIONS

- French example:
 - Series of NF C 15-100 standards of 2024
 - AFNOR Guide C 15-712-1 of July 2013 = installations without battery storage and connected to a public distribution network
 - Experimental standard XP C 15-712-3 of May 2019 = installations with battery storage and connected to a public distribution network
 - AFNOR Guide C 15-712-2 of July 2013 = installations not connected to a public network. (known as: "autonomous")
- Belgium:
 - RGIE (Book 1): Framework for safety rules, cable sections, protection devices (circuit breakers, differentials) and grounding
- Poland
 - Specific standards: The installation must comply with the PN-EN 62446-1 standard (requirements for testing, documentation and maintenance of photovoltaic systems)
- UK
 - MIS3002: This is the official technical standard managed by the Microgeneration Certification Scheme for the supply, design, installation and commissioning of parallel connected solar PV systems (up to 50 kWp)
- Data collection in progress for European countries

4
0
/
1
0
/
2
0
2
6

Main goal of this reference system: Electrical safety

- **Grounding of the installation**→ diagram of AC earthing connections, AC/DC galvanic separation arrangement, grounding of grounds, equipotentiality.
- **Protection against electric shocks**→ protective measures against direct and indirect contact on the AC and DC sides. Special provisions for the case of a generator and in the presence of battery storage.
- **Overcurrent protection**→ Protection of PV cables and modules depending on the PV field architecture and the possible presence of battery storage, rules for the different parts AC, DC PV and, if applicable, DC distribution with battery.
- **In the case of self-consumption**→ verification of the compatibility of existing consumption installation
- **Decoupling Protection** →To protect energy supplier workers

5
0
/
1
0
/
2
0
2
6

Main goal of this reference system: Electrical safety

- **operation in autonomous mode** → Switchover from grid-connected mode to stand-alone mode, with re-establishment of a grounding scheme compatible with stand-alone installation.
- **Sectioning, shutting off, control** → disconnecting arrangements for maintenance and intervention for each piece of equipment, emergency AC, DC PV and DC battery shut-offs, other possible sources, and uses, with special features in the home.
- **Choice and implementation of** → equipment Choice, implementation and compliance of the various materials that make up the installation, implementation and compliance of the batteries (lead or Lithium family), location of the batteries
- **Protection against atmospheric surges** → This is the protection of the installation against the effects of lightning, therefore the protection of the equipment and the preservation of the performance of the PV generator.
- **Signaling** → Standardized labelling with the notable objectives of clearly identifying emergency cut-off devices and signaling the presence of a generator, and the presence of daytime voltage on the DC side.

INNOVATION –

Adaptation requires a permanent technical watch...

- **Regular exchanges with manufacturers and designers of PV equipment:** In some countries frequent meetings with innovative manufacturers to verify that their new configurations and equipment are compatible with the safety provisions of the standards. A manufacturer can also be consulted when a new configuration is identified in building sites,
- **Innovative products, equipment or configuration:** It is recommended to carry out an electrotechnical analysis on electrical safety and compliance with the safety provisions of the standards, and adapts inspection and file processing methods accordingly if necessary.

MERCI - THANKS

