

## Electrical installations are the backbone of zero emission buildings, they must be better considered within EPBD.

Joint position paper on the proposed recast of the Energy Performance of Buildings Directive (EPBD)

March 2022

The recast of the EPBD must better consider electrical installations to ensure buildings' efficiency, future-readiness, smartness and safety.

- Electrical installations<sup>1</sup> must be considered as a **Technical Building System** (TBS Art 2.6) and TBS must be upgraded to reach optimal level (Art 8).
- Electrical installations in non residential buildings must be covered by energy efficiency **Inspections** (Art 20)
- **National inspection regimes** of existing electrical installations in residential buildings must be deployed as part of **National Building Renovation Plans** (Art 3, Annex II)
- **Energy Performance Certificates** (Art 16 and Annex V) **must integrate information about the latest inspection of electrical installations and their readiness** to install equipment such as an EV charging point, solar photovoltaic, a heat pump or a home battery
- **Electrical installations must also be integrated in the Smart Readiness Indicator (Annex IV) and Renovation Passports (Article 10)**

**Electrical installations play a critical role in the energy performance of buildings, enabling the efficient consumption of electricity and production of renewable energy as well as facilitating system integration. While it aims to foster energy savings and achieve fully energy performant buildings, the current EPBD proposal does not effectively consider electrical installations.**

**Yet, 2% of the electricity generated in the EU<sup>2</sup> (64 TWh energy) is lost in behind-the-meter networks and roughly half of these losses could be avoided by addressing electrical installations.**

**Electrical installations will be essential to achieve targets such as 49% of renewable energy in buildings<sup>3</sup> or to transition new and existing buildings to zero-emission standards.** Indeed, reliable and adequately dimensioned electrical systems are a pre-requisite to integrate the energy performant devices already available today, such as solar PV, battery storage, heat pumps, EV charging points and Building Automation and Control Systems (BACS). As stated in the energy system integration strategy<sup>4</sup>,

<sup>1</sup> 'electrical installation' means the system composed of all the fixed components (such as switchboards, electrical cables, earthing systems, sockets, switches and light fittings) aiming to distribute electrical power within a building to all points of use or transmit electricity generated on-site;

<sup>2</sup> White paper economic conductor size optimisation in buildings, ECI, December 2020 : [https://help.leonardo-energy.org/hc/en-us/article\\_attachments/360023760519/Cu0268\\_WP\\_Cable\\_Sizing\\_Buildings\\_v1\\_bis.pdf](https://help.leonardo-energy.org/hc/en-us/article_attachments/360023760519/Cu0268_WP_Cable_Sizing_Buildings_v1_bis.pdf)

<sup>3</sup> 2021 RED revision proposal

<sup>4</sup> [https://ec.europa.eu/energy/sites/ener/files/energy\\_system\\_integration\\_strategy.pdf](https://ec.europa.eu/energy/sites/ener/files/energy_system_integration_strategy.pdf)

electrification is expected to “play a central role” in buildings’ efficiency and their ability to interlink various aspects of our energy systems.

**Yet, 132 million domestic electrical installations are considered to be obsolete<sup>6</sup>** (built before 1990 and not renovated) and the proposed EPBD recast is falling short on considering electrical installations as a key enabler of the above-mentioned objectives.

Our associations are gathering the whole value chain enabling an efficient decarbonisation of buildings via electrification, and believe that the recast of the EPBD is a unique opportunity to ensure buildings are ready for this electrification and can contribute to a decarbonised energy system. However, the impact of electrical infrastructure on energy performance has only been considered when requirements apply for EV charging points. This reasoning must be extended. Indeed, a successful EPBD must rely on electrical installations that are ready to accommodate all devices that are conducive to a zero-emission building (e.g.: on-site renewable energy generation with PV, storage with home batteries, heat pumps, etc).

To this end, we draw European policymakers’ attention to the following asks:

- **To achieve efficient electrical installations, the latter must be considered as Technical Building Systems (TBS)** by extending the definition (Art 2.6) that is currently covering equipment for space heating, space cooling, ventilation, domestic hot water, built-in lighting, building automation and control, on-site generation and storage. Considering electrical installations as TBS and pointing to the available standard<sup>5</sup> for their optimal design, dimensioning, management and monitoring is paramount for energy efficiency.
- In line with their inclusion in the definition of TBS, **inspections (Art 20) must also cover non residential electrical installations** so as to improve energy efficiency according to same available standard.
- **Reducing buildings energy consumption will be “Mission: Impossible” without effectively promoting the use of active energy efficiency solutions and electrical installations. Hence, it requires efficient and optimised technical building systems (art. 8).** However, the current EPBD provisions are inadequate as they only lay down that when a technical building system is installed, replaced or upgraded, its performance is assessed. The EPBD should go one step further by requiring 1) that when a TBS is installed, replaced or upgraded, its efficiency is optimized in order to improve the energy performance of the building; 2) alongside the introduction of Minimum Energy Performance Standards (MEPS), the EPBD should mandate upgrade of technical building systems at trigger points, when the assessment concluded that it was necessary.
- As highlighted by the European Parliament within the EPBD Implementation report (2021/2077(INI)), electrical installations are also important to consider for safety reasons: **30 % of domestic fires and 50 % of domestic accidental fires have an electrical source<sup>6</sup> and the European Parliament has therefore called on Member States to deploy national electrical inspection regimes in residential buildings. This ask should be integrated into the National Renovation Plans (Art 3 and Annex II).** Several Member States have inspection schemes in place, but mainly on a voluntary basis<sup>7</sup> or with a limited scope. National electrical inspection regimes of residential buildings should follow existing national wiring rules, ensure mandatory regular inspections of existing installations and when any major electrical equipment is installed (EV charging point, PV, battery).
- **Energy Performance Certificates (EPCs) (Art 16 and Annex V) must integrate information about the latest inspection of the electrical installations and its readiness to install new major**

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<sup>5</sup> Measures to reduce losses are defined into International Standard IEC/HD 60364-8-1:2019 “Low-voltage electrical installations –Part 8-1: Functional aspects – Energy efficiency”

<sup>6</sup> FEEDS : <https://www.feedsnet.org/>

<sup>7</sup> See FEEDS for more information

**equipments.** The proposed template for EPCs suggests including information about the presence of heat-pump, EV charging, storage or on-site renewable, but should also include information about the readiness and latest safety check of the electrical installations to integrate such equipment. While electric vehicle charging points requirements are focused on new buildings or large renovation with multiple parking places, every dwelling owner or tenant should have an easy access to information about the possibility to add an EV charging point and other equipment.

- The **Smart Readiness Indicator** (Annex IV) must reflect the extent to which the basis infrastructure is present. Pre-installed adequate components of electrical installations, such as wiring and connectors, is a prerequisite for the implementation of smart technologies.
- The **Renovation Passport** must include the electrical installation into any staged renovation plan and anticipate future needs.

