

To the kind attention of **Frans Timmermans**
Executive Vice-President for the European Green Deal
Kadri Simson
Energy Commissioner

Electrical installations are the backbone of decarbonised buildings: the EPBD must make them safe, ready, efficient and smart

Brussels, 6 December 2021

Dear Executive Vice-President Timmermans,
Dear Commissioner Simson,

Our associations and companies are gathering the whole value chain enabling an efficient decarbonisation of buildings via electrification, which as stated in the energy system integration strategy¹ is expected to play a key role in buildings. The upcoming revision of the Energy Performance of Buildings Directive (EPBD) is a unique opportunity to ensure buildings are ready for this electrification and can contribute to a decarbonised energy system. With this letter we would like to stress the **importance for the EPBD to better consider in-building electrical installations as the backbone of decarbonised buildings**, and to share our recommendations to ensure their safety, future-readiness, efficiency and smartness.

The renovation wave is expected to further roll-out heat-pumps for heating and cooling, on-site renewable energy generation such as photovoltaic panels, charging points for electric vehicles, smart meters and smart equipments such as Building Automation and Control System (BACS) and on-site electrical storage such as home batteries. All these elements are contributing to highly energy efficient, renewable-based and flexible buildings integrated into the energy system. **Their common denominator is the reliance on electrical installations.**

Electrical installations are not specifically considered within the Energy Performance of Buildings Directive and several elements indicate that they should be:

- As acknowledged by the European Parliament in the EPBD Implementation report recently adopted by the ITRE Committee², **30 % of domestic and 50 % of domestic accidental fires have an electrical source**³.
- **132 million domestic electrical installations are considered to be obsolete**³ (built before 1990 and not renovated). Renovation must anticipate electrification of heating and cooling, EV

¹ https://ec.europa.eu/energy/sites/ener/files/energy_system_integration_strategy_.pdf

² [Procedure File: 2021/2077\(INI\) | Legislative Observatory | European Parliament \(europa.eu\)](#)

³ <https://www.feedsnet.org/>

charging, storage and on-site renewable but current Energy Performance Certificates (EPCs) do not include information about readiness of electrical installations.

- **2% of the electricity generated in the EU⁴** (64 TWh energy) is **lost in behind-the-meter networks** and roughly half of it could be avoided.
- Smart integration of highly efficient heat pumps, EV charging infrastructure, storage and renewable generation can contribute to an efficient and stable electrical grid via **demand side flexibility**, making it possible to integrate a large share of variable renewables smartly, safely and cost effectively into a decarbonised energy system, but this energy system performance aspect is not considered within the calculated energy performance of buildings.

We therefore recommend using the different tools of the existing EPBD (Long Term Renovation Strategies, Energy Performance Certificates, Smart Readiness Indicators, Inspections) and the tools considered during its revision (Building Renovation Passport, Minimum Energy Performance Standards, Deep Energy Renovation Standard) to **ensure that the renovation of the building stock adequately addresses electrical installations:**

- Deploy national **electrical inspection regimes** and electrical safety checks in dwellings according to national wiring rules, as called by the EU Parliament in the EPBD Implementation Report⁴
- Incorporate requirements and indicators of **readiness of electrical installations** for full (staged) decarbonisation and provide this information to property owners
- Include electrical installations in the definition of **Technical Building Systems (TBS)** and point to the relevant economic optimisation standards for their dimensioning⁵. Consider TBS on equal footing with technologies related to the building envelope within the EPBD
- Mainstream **Building Automation and Control Systems, smart EV charging, real time energy monitoring and smart meters**
- Introduce a metric to quantify the **demand side flexibility** at building and/or district level.

We count on the European Commission to embrace these recommendations in the EPBD revision to ensure safe, future-ready, efficient and smart electrical installations, as required for a climate neutral building stock.

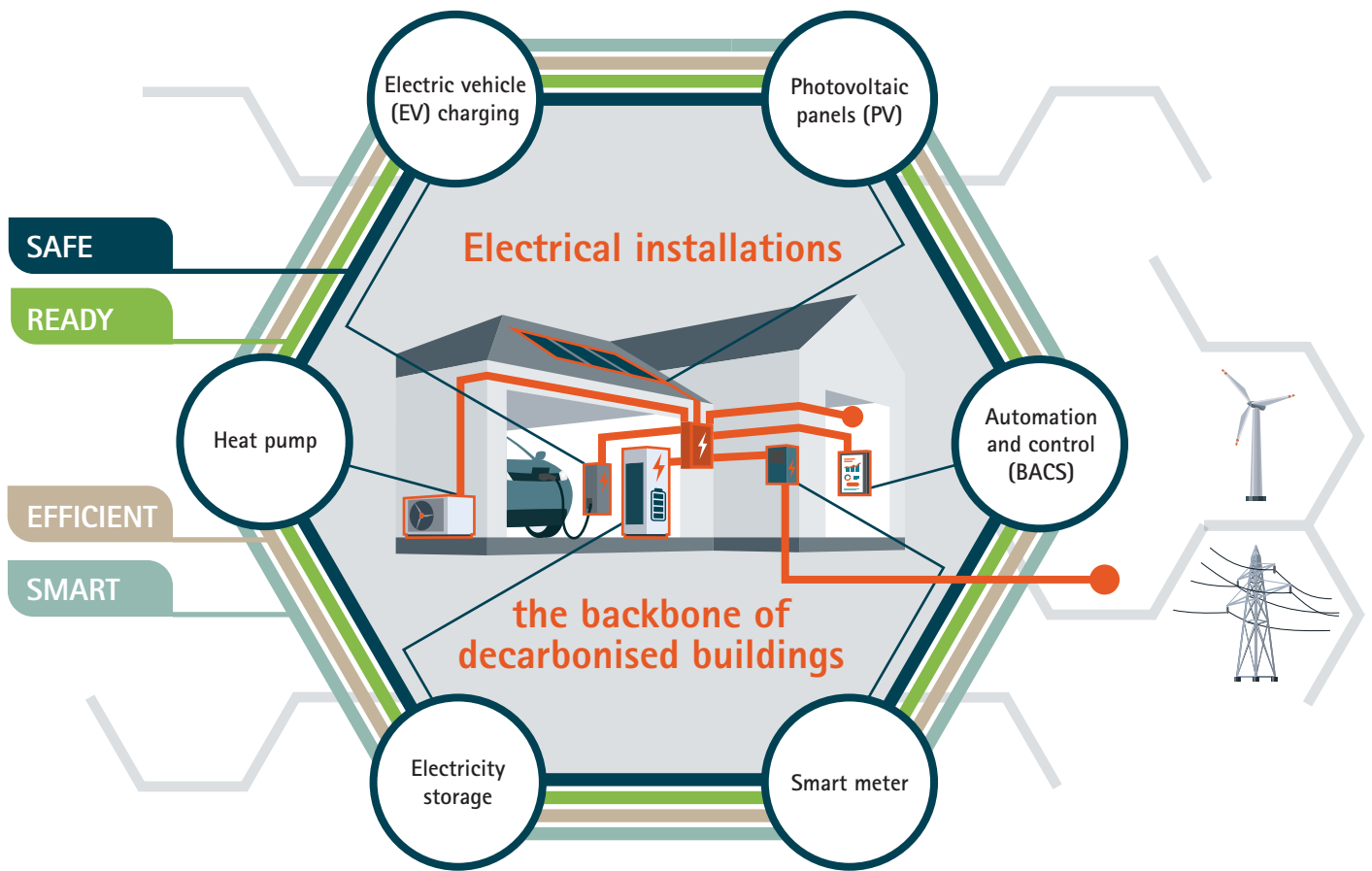
We are at your disposals for any clarification you may need.



Annex : Infographic summarizing our points

⁴ 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

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



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The EPBD must make them safe, ready, efficient and smart

THE ISSUES

OUR PROPOSALS

SAFE

30% of domestic and 50% of domestic accidental fires have an electrical source.

Deploy national electrical inspection regimes and electrical safety checks in dwellings according to national wiring rules.

READY

132 million domestic electrical installations are obsolete. Renovation must anticipate electrification of heating and cooling, EV charging, storage and on-site renewables.

Incorporate requirements and indicator of readiness of electrical installations for full (staged) decarbonisation.

EFFICIENT

64 TWh energy (2% of electricity generated in the EU) is lost in behind-the-meter networks (in-building electrical installations).

Include electrical installations in the definition of Technical Building Systems (TBS) and point to the relevant economic optimisation standards for their dimensioning.

SMART

Smart integration of highly efficient heat pumps, EV charging infrastructure, storage and renewable generation can contribute to an efficient and stable electrical grid via demand side flexibility.

Mainstream Building Automation and Control Systems (BACS), smart EV charging, real-time energy monitoring and smart meters.
Introduce a metric to quantify the demand side flexibility at building and/or district level.

TOOLS



- Long Term Renovation Strategy (LTRS)
- Energy Performance Certificate (EPC)
- Smart Readiness Indicator (SRI)
- Building Renovation Passport (BRP)
- Inspections (EPBD Art 14 and 15)
- Minimum Energy Performance Standards (MEPS)
- Deep Energy Renovation Standard