



The recast of the Energy Performance of Buildings Directive

smartEn Analysis and Policy Recommendations for improvement

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Overall assessment

With the proposal for the [Energy Performance of Buildings Directive \(EPBD\)](#), the Commission is setting policy measures to accelerate the renovation rate of buildings and to achieve the vision of a zero-emission building stock by 2050. smartEn welcomes this legislative proposal and suggests the following improvements:

- anticipate the phasing-out of the worst-performing buildings through EU-level minimum Energy Performance Standards (MEPS) to ensure a timely achievement of the 2050 target.
- focus the measurement of the energy performance of a building around the new carbon metric to calculate operational greenhouse gas emission. This new metric should also open the possibility to quantify the benefits from demand-side flexibility, measure and incentivise progress through national building renovation plans and financial incentives.
- strengthen the new requirements to allow third parties to access building data to support the development of demand-side flexibility business models.
- improve the timid provisions for bidirectional charging in buildings to complement the requirements on smart charging.

The present document aims to outline the content of key provisions for smartEn and to set out targeted recommendations to inspire the positions that the European Parliament and Council need to shape on this legislative proposal.

smartEn policy recommendations follow a colour code ('traffic-light') approach: **SUPPORT**, **IMPROVE**, **OPPOSE** to facilitate the consultation of our assessment.

Article 1 – subject matter

- §1: the Directive promotes the improvement of the energy performance of buildings and the reduction of greenhouse gas emission from buildings with a view to achieving a zero-emission building stock by 2050.

SUPPORT this ambition which also include the objective to reduce the building's greenhouse gas emission.

Article 2 - definitions

- Recital 20: Energy needs of an efficient building can come from on-site renewables, Citizens or Renewable Energy Communities and district heating and cooling.
- (2): 'Zero-emission building' is defined as a building with a very high energy performance where the energy required is fully covered by renewable energy coming from on-site, from a renewable energy community or from a district heating and cooling system.

SUPPORT the introduction of this new concept which complements the existing Nearly-Zero Energy Buildings (NZEB) and looks at the full decarbonisation of each building. **WELCOME** that renewable energy consumed in zero-emission buildings is not limited to on-site generation but **IMPROVE** by:

- Expanding this scope to renewables coming from the grid and certified by a real-time Guarantee of Origin, including renewable electricity coming from electric vehicles (via V2H/V2B). Annex III setting requirements for new and renovated zero-emission buildings should be made aligned with this scope.
 - Clarifying that the garage, parking lot and EV charging infrastructure are included in the perimeter of the "Zero-emission building" definition as this will account for a significant share of the building's load and consumption.
 - Stressing that the flexible consumption and storage of variable renewables in buildings shall be done in a dynamic and time-dependant way so that buildings are flexible assets integrated in the energy system and contributing to local system efficiency.
- (3): 'nearly-zero energy building' is defined as a building with a very high energy performance where the energy required is covered to a very significant extent by renewables produced on-site or nearby.
WELCOME the possibility to consume renewable energy from the local grid but **IMPROVE** by:
 - including also renewables coming from the grid certified by real-time GOs.

- ensuring the flexible consumption of renewables in buildings in a time-dependant way and in reaction to external signals from the system they are connected to.
- (4): ‘minimum energy performance standards’ is defined as requirements for existing buildings to meet a certain energy performance in a period of time or by a specific date, thereby triggering renovation of existing buildings;
- (6): ‘technical building system’ is defined as a building’s technical equipment including for building automation and control, on-site renewable generation and storage.
WELCOME now the inclusion of storage as part of the technical building system but IMPROVE by including EV charging infrastructure as part of the technical building system.
- (8): ‘energy performance of a building’ means the calculated or metered amount of energy needed to meet its energy demand
WELCOME the change to now include metered energy but IMPROVE the definition by ensuring that metered energy also includes consumption data from sub-metering or/and energy management system in order to allow for actual quantification of a building’s carbon and energy performance.
- (22): “operational greenhouse gas emissions” means greenhouse gas emissions associated with energy consumption of the technical building systems during use and operation of the building. It is expressed in kg CO₂/(m² year)
WELCOME this definition which creates opportunities for actual quantification of benefits stemming from the activation of demand-side flexibility provided improvements made in the related article 4.

Article 3 – national building renovation plan

- §1: Member States shall establish a national building renovation plan – which replaces the long term renovation strategy - with the objective to transform the existing buildings into zero-emission buildings by 2050. Each building renovation plan shall include:
 - (a) an overview of the national building stock whose mandatory and optional elements are set in annex II as well as an overview of market barriers and market failures and an overview of the capacities in the construction, energy efficiency and renewable energy sectors.
 - (b) & (d) a roadmap with national targets and measurable progress indicators towards zero-emission buildings. Targets for 2030, 2040 and 2050 shall be included regarding the annual energy renovation rate, the primary and final energy consumption of the national building stock and its operational greenhouse gas emission reductions. The roadmap shall also include an estimate of the contribution of the building renovation plan to achieve the EU energy efficiency target and the indicative EU-target for RES in buildings.
 - (c) an overview of implemented and planned policies and measures supporting the implementation of the roadmap
- §2: Member States shall submit the first draft building renovation plan to the Commission by 30 June 2024 which shall be prepared then every five years.
- Annex II sets the template for the national building renovation plan which includes mandatory and optional indicators:
 - For the overview of the national building stock as per article 3§1(c). The share of RES in the building sector (MW generated), both on-site and off-site is part of the mandatory indicators.
WELCOME the consideration of RES coming from the grid as part of mandatory indicators but IMPROVE annex II by ensuring the consideration of the actual measurement of EPCs.
 - For the roadmap for 2030, 2040, 2050 as per article 3§1(b&d), mandatory indicators include *inter alia* targets for greenhouse gas emissions (kgCO₂eq/(m².y) and the contribution to the EU energy efficiency and RES targets.

- For the overview of implemented and planned policies and measures, mandatory indicators include *inter alia* policies and measures for the promotion of RES in buildings and for the promotion of smart technologies for mobility in buildings.

IMPROVE the list of mandatory indicators to be included in the roadmap for 2030, 2040 and 2050 by explicitly including targets for the share of RES-E in buildings covering both on-site and from the grid, as well as targets for DSF activation which will contribute to the achievement of the national minimum target for the reduction of peak demand by 2030 that we propose under article 3 of the Renewable Energy Directive to support the cost-efficient penetration of renewables. This should be supported by mandating the inclusion of corresponding policies and measures.

The template should also mandate having policies and measures for digitalisation and smart technologies development in buildings beyond those for mobility in buildings, since they are key to activate the DSF potential of a building, contributing to the achievement of operational greenhouse gas emission reduction target.

Article 4 – Adoption of a methodology for calculating the energy performance of buildings

- Member States shall apply a methodology, to be adapted at national or regional level, for calculating the energy performance of buildings in accordance with the common general framework set out in Annex I.
- Recital 17: The Commission should lay down a comparative methodology framework to enable to calculation of both energy and emission performance.
- Annex I sets a common general framework for the calculation of energy performance of buildings.
 - The energy use shall be representative of actual operating conditions and reflect the user behaviour which can be based on metered data with readings of at least hourly intervals.
 - The energy performance shall be expressed by a numeric indicator of primary energy use in kWh/(m².y)
 - The energy needs and use for space heating, ventilation, EV charging and other technical building systems shall be calculated using hourly and sub-hourly time calculation intervals to account for varying conditions.
 - Member States may define additional numeric indicators to express the energy performance of a building such as operational greenhouse gas emissions in kgCO₂eq/(m².y)

WELCOME this article and Annex I which considers actual CO₂ emission performance indicators but IMPROVE definition of ‘Energy Performance of a building’ in Annex I to allow actual quantification of the building energy consumption based on all available building-related consumption data, including coming from sub-meter, sensors and BEMS.

Annex I should ensure that the activation of the flexibility potential from all installed Decentralised Energy Resources, including on-site renewables, EV charging, demand-response and storage are fully recognised in the building’s actual energy performance calculation.

ENSURE that the energy performance can also be expressed by a numeric indicator of final energy use to support electrification and to enable a better engagement by end-users.

MANDATE the definition of numeric indicators to express the operational greenhouse gas emissions and energy performance of buildings (‘shall’ instead of ‘may’) as this allows for the actual quantification of benefits, crucial for the valorisation and activation of demand-side flexibility.

CLARIFY that the operational greenhouse gas emissions should rely *inter alia* on the close to real-time information shared by system operators on the greenhouse gas emission content of the electricity supplied in each bidding zone, as set in article 20a§1 of the Renewable Energy Directive proposal, for the share of electricity that does not come from behind-the-meter renewables but from the grid.

Article 5 – setting minimum energy performance requirements

- Recital 13: Member States should set minimum requirements for the energy performance of buildings and buildings elements. No longer left to their sole responsibility.

- §1: Member States to set minimum energy performance requirements for buildings with a view to at least achieving cost-optimal levels.
- §1: Member States may differentiate between new and existing buildings and different categories of buildings.
- §1: minimum energy performance requirements shall be set for building elements that form part of the building envelope and that have a significant impact on the energy performance of the building envelope.

WELCOME this article to ensure a satisfactory depth of renovations. IMPROVE by including the application of minimum requirements to the energy performance of technical buildings systems whenever they are installed, replaced or upgraded (in line with article 1) and not limited to the building envelope.

- §1: cost-optimal levels shall be calculated based on a comparative methodology framework that the Commission will define via delegated acts, in line with elements set in annex VII.
- Annex VII:
 - the comparative methodology framework shall enable Member states to determine the energy and emission performance of buildings and the costs of measures in order to identify the cost-optimal level.
 - It shall take into account *inter alia* use patterns, OPEX, CAPEX, earnings from energy produced.
 - Member States are required to define energy efficiency measures to be assessed for the reference buildings and assess the final and primary energy need and resulting emission of the reference building with the energy efficiency measures applied.

IMPROVE the cost-optimal level determination to take into account contribution of demand-side flexibility to system efficiency and ENSURE that demand-side flexibility is part of the energy efficiency solutions to be assessed in line with the Energy Efficiency First principle.

Article 7 – new buildings

- §1: New public buildings shall be zero-emission from 2027 and all new buildings, including residential, shall be zero-emission from 2030. Until then, all new buildings must be nearly-zero energy.
- Annex III specifies that the primary energy use of a building shall be fully covered by on-site RES, RES from renewable energy communities and RES from efficient district heating and cooling.

WELCOME the ambition of this provision but ACOMPANY this article and annex III with an IMPROVED definition of zero-emission buildings and nearly zero energy buildings in article 2 to include certified RES-E also coming from the grid and allow for its flexible consumption in reaction to external signals as this is key to ensure that buildings become flexible assets contributing to system efficiency.

Article 9 – minimum energy performance standards

- §1: Public buildings, as well as non-residential buildings shall achieve at the latest Energy performance class F by 2027, EPC class E by 2030. Residential buildings shall achieve at the latest energy performance class F by 2030, EPC class E by 2033.
- §1 Member States shall establish in their roadmap as part of their national building renovation plan, specific timelines for these buildings to achieve higher energy performance classes by 2040 and 2050 in view of transforming the national building stock into zero-emission buildings.
- §2: each Member States may establish MEPS for the renovation of all other existing buildings

SUPPORT the introduction of EU-level MEPS leading to a phase-out of the worst-performing buildings but IMPROVE the ambition of this article by anticipating the implementation deadline both in non-residential and residential buildings as this will ensure that the objective of having a zero-emission building stock by 2050 can be achieved in a timeline manner.

MAKE EXPLICIT the complementarity with the new ETS for buildings and the renovation trajectory for tertiary buildings set in article 6 of the EED which should target both buildings owned by public entities and private ones.

Article 10 – renovation passports

- § 1 & 2: By 31 December 2024 Member States shall establish a scheme of renovation passport based on a prior delegated act adopted by the Commission by 31 December 2023 to establish a common European framework for renovation passports.
- §3(c): Renovation passports shall indicate *inter alia* the expected benefits on energy savings, savings on energy bills and operational greenhouse gases emission reductions.

WELCOME renovation passports as they could be a useful tool to guide renovations based on a comprehensive range of metrics to tackle progress and allow a quantification of benefits from the activation of buildings' flexibility.

Article 12 – infrastructure for sustainable mobility

- Recital 39: smart and bidirectional charging are key for the energy system integration of buildings. V2G should be made available when it would assist further penetration of renewable electricity by electric vehicle fleets in transport and the electricity system in general.
- §1: New non-residential buildings and non-residential buildings undergoing major renovations with more than five parking spaces shall ensure the installation of at least one recharging point as well as the installation of pre-cablings for every parking space.
- §2: All non-residential buildings with more than twenty parking spaces shall be equipped with at least one recharging point for every ten parking spaces by January 2027. If owned or occupied by public authorities, buildings shall ensure pre-cablings for at least one in two parking spaces by 2033.
- §4: New residential buildings and residential buildings undergoing major renovations with more than three parking spaces shall ensure the installation of pre-cablings to enable the installation of recharging points for EVs.

IMPROVE by:

- raising the level of ambition in §1 targeting new non-residential buildings and non-residential buildings undergoing major renovations with more than 4 parking spaces instead of 5.
- including a timeline for §1 and §4 in coherence with §2. Timelines in §2 for having at least one recharging point for every ten parking space in non-residential buildings should be brought to 2025 (instead of 2027) and to 2028 for pre-cablings requirements for non-residential buildings owned by public authorities (instead of 2033).

INCLUDE new categories of buildings even if not renovated:

- Existing buildings of less than 20 spaces shall ensure the installation of at least 1 charging point
- Existing buildings with more than 20 parking spaces shall ensure the installation of one charging point every twenty parking spaces, and pre-cablings for 20% of the parking spaces.
- §6: Member States shall ensure that recharging points referred to in §1, 2 and 4 are capable of smart charging and where appropriate bidirectional charging, and that they are operated based on non-proprietary and non-discriminatory communication protocols and standards and in an interoperable manner.

SUPPORT the requirements on smart and bidirectional charging that complement RED and AFIR provisions. IMPROVE by requiring bidirectional charging capabilities (V2B/H) when there is on-site renewable generation, or when the building is part of a renewable energy community to increase local system efficiency. Member States should ensure that support schemes for on-site renewable generation are not applicable to electricity withdrawn from the grid and fed back to the grid from bidirectional charging.

- §7: Member States shall remove regulatory barriers that hamper the deployment of recharging points e.g., the need to obtain consent from the landlord or co-owners for the installation of recharging points in residential buildings.

WELCOME the inclusion of a 'right to plug' which breaks one of the major barriers to the deployment of recharging points in buildings. IMPROVE by ensuring that it applies as a 'right to smart plug', which would allow tenants to bypass the consent from landlord or co-owners to install a smart or bidirectional capable charging point.

Article 13 – smart readiness of buildings

- Recital 43: the SRI is recognised particularly beneficial for large buildings with high energy demand. For other buildings, the SRI should be optional for Member States.
- §2: The Commission shall adopt by 31 December 2025 a delegated act for a common Union scheme for rating the smart readiness of non-residential buildings with a power output of over 290 kW.
- §4: After having consulted the relevant stakeholders, the Commission shall adopt by 31 December 2025 an implementing act detailing the technical modalities for the application of the scheme rating the smart readiness of non-residential buildings with a power output of over 290 kW.

WELCOME the publication of these acts by the Commission that will support a better rollout of the SRI across the EU by making SRI a mandatory requirement for large non-residential buildings. IMPROVE this article by requiring an Implementing act detailing the technical modalities for the application of the SRI for non-residential buildings with a power output of over 70kW, aligning with the new requirement under article 20 which mandates BACS in such buildings by 31 December 2029.

Article 14 – data exchange

- Recital 42: In order to support a competitive market for smart building services, Member States should ensure direct access to building systems' data by interested parties and shall facilitate full interoperability of services and of the data exchange.
- §1: Building owners, tenants and managers shall have direct access to their building systems' data. At their request, these data shall be made available to third parties.
- §1: Building systems data shall at least include energy performance of buildings elements, energy performance of buildings services, building automation and control systems, meters and e-mobility charging points.

SUPPORT this requirement that allows third parties to access building data thus supporting prosumer business models, while empowering the building owners and tenants regarding their data management.

IMPROVE by explicitly mentioning near real-time data access, both locally and remotely, and by including both the utility smart meter and all relevant submetering devices aggregated through Energy Management System (BEMS). Near real-time data at disaggregated level for individual devices should also be made available to building owners, tenants and managers as well as to eligible parties, following the consumer's explicit consent to allow the activation of their respective flexibility potential.

- §2: Member States or competent authorities shall specify the rules on the access to building system data by eligible parties.
- §3: No additional costs shall be charged to the building owner, tenant or manager for access to their data or for a request to make their data available to a third party. Member States are responsible for setting the relevant charges for access to data by eligible parties such as aggregators, energy suppliers or energy service providers. Member States or authorities shall ensure that any charges imposed by regulated entities are reasonable and justified.

IMPROVE §2 and §3 by explicitly stating that these rules and charges shall not constitute a barrier nor create discrimination for third parties to access the building's data.

- §5: The Commission shall adopt implementing acts detailing interoperability requirements and non-discriminatory and transparent procedures for access to the data.

SUPPORT this provision that should take good inspiration from recital 42 to ensure full interoperability of services and of data exchange to avoid excessive costs for third parties and to clarify specific requirements such as the point of data access, the eligible parties with whom data are shared and for what purpose.

Article 15 – financial incentives and market barriers

- §1: Members shall address market barriers through financing, measures and instruments to stimulate investments in renovation and charging infrastructure installation in multi-dwelling buildings in line with their national building renovation plan and in view of transforming their building stock into zero-emission building by 2050

SUPPORT this provision that can help steering investment towards the transformation of buildings into smart and flexible assets.

- §9: Member States shall link financial incentives with energy performance improvements. SUPPORT this provision that links from now on financial incentives with energy performance, and no longer with efficiency improvements. This should be accompanied by an IMPROVED methodology for calculating both the operational carbon and energy performance of buildings. This would allow financial incentives to be linked with the actual, measured (not theoretical) reduction of the building's carbon footprint, also resulting from the activation of their demand-side flexibility.

IMPROVE by linking financial incentives notably in residential buildings with the achievement of the MEPS, zero-emission and nearly-zero energy buildings and savings expected under the renovation passports as well as with the SRI.. New incentives schemes where the level of support is at least equivalent to the yearly amount of actual saved CO2 compared to average building baselines should be considered.

ADD a new paragraph related to e-mobility making financial incentives conditional on the fulfilment of minimum access to charging infrastructure as per article 12 and introducing the possibility to provide additional support mechanisms for bidirectional charging when there is no on-site renewable generation and when foreseen as an additional functionality contributing to system efficiency and creating socio-economic welfare as demonstrated by the assessment set by article 20a.3 of REDIII and article 14.4 of AFIR.

Article 16 – energy performance certificates

- §1: The energy performance certificate shall include the energy performance of a building expressed as primary energy use in kWh/ (m2.y), and reference values such as minimum energy performance requirements, minimum energy performance standards, nearly zero-energy building requirements and zero-emission building requirements
- §2: The EPC shall comply with the template in annex V by 31 December 2025 at the latest, and it shall specify the energy performance class of the building. The letter A corresponding to zero-emission buildings and the letter G to the 15% worst performing buildings.
- §3: Member States shall ensure the quality, reliability and affordability of EPC. They shall ensure EPC are issued by independent expert following on-site visit.

IMPROVE this article by allowing Member States to use “certified digital carbon and energy performance metering systems” that can measure the actual operational performance of a building. Buildings that use this alternative approach would be exempt from the independent expert inspection following an on-site visit.

This should be accompanied by the establishment from the European Commission of a European certification approach of such digital metering systems, in line with the action identified under the Renovation Wave and including also cybersecurity requirements.

- §4 and §5: EPC shall include recommendations for the cost-effective improvement of the energy performance and the reduction of operational greenhouse gas emissions. The information included in the EPC shall provide an estimate for the energy savings.
- §11: Member States shall make simplified procedures for updating an energy performance certificate available where only individual elements are upgraded or where measures identified in the renovation passport are put in place.

IMPROVE this provision to ensure that the actual energy performance measured by certified digital carbon and energy performance metering systems are considered for updating EPC.

- Annex V on template for energy performance certificates:
 - §1: The EPC shall include, *inter alia*, the following mandatory elements:
 - (b) the annual primary energy use in kWh/ (m2 year)
 - (c) the annual primary energy consumption in kWh or MWh
 - (d) the annual final energy use in kWh/ (m2 year)
 - (e) the annual final energy consumption in kWh or MWh
 - (f) renewable energy production in kWh or MWh

- (g) renewable energy in % of energy use
- (h) operational greenhouse gas emissions (kg CO₂/ (m² year))

WELCOME the EPC template which now includes as part of the mandatory elements the final energy use and operational greenhouse gas emissions which allow for actual energy performance calculation.

COMPLEMENT the mandatory elements of the EPC by:

- specifying in (g) that renewable energy may come from both on-site and off-site. Therefore point (b) from §2 should also be part of the mandatory elements.
 - adding the level of digitalisation of a building enabling the activation of demand-side flexibility from decentralised energy resources (e.g., presence of smart and sub-meters and BEMS interoperable with the grid).
 - adding actual performance metrics on the demand-side flexibility provided by all behind-the-meter assets in a building.
- Annex V §2: The EPC may include, *inter alia*, the following optional elements:
 - (a) energy use, peak load, size of generator or system, main energy carrier and main type of element for each of the uses: heating, cooling, domestic hot water, ventilation and in-built lighting
 - (b) renewable energy produced on site, main energy carrier and type of renewable energy source
 - (l) number and type (bidirectional or not) of charging points for electric vehicles
 - (m) presence, type and size of energy storage systems
 - (p) metered energy consumption
 - Annex V: §2: The EPC may include links to other initiatives:
 - (a) a yes/no indication whether a smart readiness assessment has been carried out for the building
 - (b) the value of the smart readiness assessment (if available)
 - (c) a yes/no indication whether a Digital Building Logbook is available for the building.

IMPROVE by making SRI a mandatory part of EPC for large non residential buildings

Article 19 – Databases for energy performance of buildings

- §1: Member States shall set up a national database for energy performance of buildings which allows data to be gathered on the energy performance of the buildings and on the overall energy performance of the national building stock.
This database shall allow data related to EPCs, inspections, building renovation passport, SRI and the calculated metered energy consumed from the building
- §6: The database shall be interoperable and integrated with other ones such as the digital building logbooks.

WELCOME the creation of databases for energy performance of buildings integrating data from EPCs, building renovation passport, SRI and metered energy consumption. This has the potential to facilitate informed decision making and information sharing within the construction sector, among building owners and occupants, and other market parties. This information can be used as a baseline to provide incentives to residential buildings in reaching net zero ambitions.

Article 20 – Inspections

- §7: Member States shall ensure, when economically and technically feasible, that non-residential buildings with an output of over 290 kW are equipped with building automation and control system by 31 December 2024. The threshold shall be lowered to 70 kW by 31 December 2029.

WELCOME this lower threshold for mandating the deployment of building automation and control system for large non-residential buildings as it supports the optimisation of their energy consumption and facilitate their participation in demand-response.

- §8: From 2025, new residential and residential buildings undergoing major renovation shall be equipped with:
 - (a) the functionality of continuous electronic monitoring that measures systems' efficiency
 - (b) control functionalities to ensure optimum generation, distribution, storage and generation of energy

WELCOME that this provision is now mandatory and extended to include residential buildings undergoing major renovation as it would enable a larger share of the building stock to activate their flexibility potential.

IMPROVE this article by requiring these buildings to also be equipped with the functionality of certified continuous electronic monitoring systems that measure and benchmark the actual primary energy use of a building and its operational GHG emission.

Article 26 – Information

- §1: Member States shall inform owners and tenants, as well as all relevant market actors on ways to improve the building energy performance.
- §3: Member States shall ensure guidance and training are made available for those responsible for implementing this Directive. Such guidance and training shall address improvements in energy efficiency, reduction of greenhouse gas emissions, use of energy from renewable sources and use of district heating and cooling.

IMPROVE this requirement by adding the activation of demand-side flexibility as part of the guidance and training.

About smartEn - Smart Energy Europe

smartEn is the European business association integrating the consumer-driven solutions of the clean energy transition. We create opportunities for every company, building and car to support an increasingly renewable energy system. Our membership consists of the following companies:



The positions expressed in this document represent the views of smartEn as an association, but not necessarily the opinion of each specific smartEn member.

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