

# Consultation on the revision of the Energy Performance of Buildings Directive 2010/31/EU

Fields marked with \* are mandatory.

## Introduction

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As announced in the [European Green Deal](#), the Commission adopted on 14 October 2020 a strategic Communication "[Renovation Wave for Europe - greening our buildings, creating jobs, improving lives](#)". It contains an action plan with specific regulatory, financing and enabling measures for the years to come and pursues the aim to at least double the annual energy renovation rate of buildings by 2030 and to foster deep renovations. It is expected that mobilising forces at all levels towards these goals will result in 35 million building units renovated by 2030.

The [Renovation Wave](#) confirms that the existing legislative measures on buildings will neither suffice to achieve the increased EU 2030 climate target of at least 55% emission reduction target and the planned increase in the ambition for energy efficiency, nor the 2050 climate neutrality objective. Therefore, the Renovation Wave communication announces a revision of the Energy Performance of Buildings Directive 2010/31/EU (EPBD) together with a number of areas of legislative and non-legislative reinforcement in relation to building renovation and decarbonisation of buildings. The EPBD is the cornerstone of European legislation in the area of energy performance of buildings. It aims at accelerating the transformation of the EU building stock into a highly energy efficient and decarbonised building stock by 2050.

The Renovation Wave already indicated some specific aspects which will be addressed in the revision of the EPBD, namely: the phased introduction of mandatory minimum energy performance standards for all types of buildings (public and private), an update of the framework for Energy Performance Certificates, the introduction of Building Renovation Passports and the introduction of a 'deep renovation' standard in the context of financing and building decarbonisation objectives. The requirements for new buildings and measures fostering sustainable mobility are also considered to be updated in line with the enhanced climate ambition of the European Green Deal and the Climate Target Plan 2030. This includes addressing resource efficiency and circularity principles in order to reduce whole lifecycle emissions, digitalisation in design, construction and operation of buildings, climate resilience and health and environmental requirements, as well as accessibility for persons with disabilities, and energy poverty, requires consideration. More information is provided in the [Inception Impact Assessment](#).

This questionnaire is part of a larger stakeholder consultation which will feed into the Commission's work on the revision of the EPBD. It builds upon the results from the very extensive and in-depth public consultation for the Renovation Wave that took place between January and September 2020, whose results have been assessed in a [dedicated report](#).

## About you

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\* Language of my contribution

- Bulgarian
- Croatian
- Czech
- Danish
- Dutch
- English
- Estonian
- Finnish
- French
- German
- Greek
- Hungarian
- Irish
- Italian
- Latvian
- Lithuanian
- Maltese
- Polish
- Portuguese
- Romanian
- Slovak
- Slovenian
- Spanish
- Swedish

\* I am giving my contribution as

- Academic/research institution
- Business association
- Company/business organisation
- Consumer organisation
- EU citizen
- Environmental organisation
- Non-EU citizen
- Non-governmental organisation (NGO)

- Public authority
- Trade union
- Other

\* First name

Michael

\* Surname

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\* Scope

- International
- Local
- National
- Regional

\* Level of governance

- Local Authority
- Local Agency

\* Level of governance

- Parliament
- Authority
- Agency

\* Organisation name

smartEn, the European business association integrating the consumer-driven solutions for the clean energy transition

\* Organisation size

- Micro (1 to 9 employees)
- Small (10 to 49 employees)

Medium (50 to 249 employees)

Large (250 or more)

Transparency register number

569379418624-07

\* Country of origin

Please add your country of origin, or that of your organisation.

Afghanistan

Djibouti

Libya

Saint Martin

Åland Islands

Dominica

Liechtenstein

Saint Pierre  
and Miquelon

Albania

Dominican  
Republic

Lithuania

Saint Vincent  
and the  
Grenadines

Algeria

Ecuador

Luxembourg

Samoa

American  
Samoa

Egypt

Macau

San Marino

Andorra

El Salvador

Madagascar

São Tomé and  
Príncipe

Angola

Equatorial  
Guinea

Malawi

Saudi Arabia

Anguilla

Eritrea

Malaysia

Senegal

Antarctica

Estonia

Maldives

Serbia

Antigua and  
Barbuda

Eswatini

Mali

Seychelles

Argentina

Ethiopia

Malta

Sierra Leone

Armenia

Falkland Islands

Marshall  
Islands

Singapore

Aruba

Faroe Islands

Martinique

Sint Maarten

Australia

Fiji

Mauritania

Slovakia

Austria

Finland

Mauritius

Slovenia

Azerbaijan

France

Mayotte

Solomon  
Islands

Bahamas

French Guiana

Mexico

Somalia

- Bahrain
- Bangladesh
- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bermuda
- Bhutan
- Bolivia
- Bonaire Saint Eustatius and Saba
- Bosnia and Herzegovina
- Botswana
- Bouvet Island
- Brazil
- British Indian Ocean Territory
- British Virgin Islands
- Brunei
- Bulgaria
- Burkina Faso
- Burundi
- French Polynesia
- French Southern and Antarctic Lands
- Gabon
- Georgia
- Germany
- Ghana
- Gibraltar
- Greece
- Greenland
- Grenada
- Guadeloupe
- Guam
- Guatemala
- Guernsey
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
- Heard Island and McDonald Islands
- Honduras
- Hong Kong
- Micronesia
- Moldova
- Monaco
- Mongolia
- Montenegro
- Montserrat
- Morocco
- Mozambique
- Myanmar /Burma
- Namibia
- Nauru
- Nepal
- Netherlands
- New Caledonia
- New Zealand
- Nicaragua
- Niger
- Nigeria
- Niue
- Norfolk Island
- Northern Mariana Islands
- South Africa
- South Georgia and the South Sandwich Islands
- South Korea
- South Sudan
- Spain
- Sri Lanka
- Sudan
- Suriname
- Svalbard and Jan Mayen
- Sweden
- Switzerland
- Syria
- Taiwan
- Tajikistan
- Tanzania
- Thailand
- The Gambia
- Timor-Leste
- Togo
- Tokelau
- Tonga

- Cambodia
- Cameroon
- Canada
- Cape Verde
- Cayman Islands
- Central African Republic
- Chad
- Chile
- China
- Christmas Island
- Clipperton
- Cocos (Keeling) Islands
- Colombia
- Comoros
- Congo
- Cook Islands
- Costa Rica
- Côte d'Ivoire
- Croatia
- Cuba
- Curaçao
- Cyprus
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Iraq
- Ireland
- Isle of Man
- Israel
- Italy
- Jamaica
- Japan
- Jersey
- Jordan
- Kazakhstan
- Kenya
- Kiribati
- Kosovo
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- North Korea
- North Macedonia
- Norway
- Oman
- Pakistan
- Palau
- Palestine
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Pitcairn Islands
- Poland
- Portugal
- Puerto Rico
- Qatar
- Réunion
- Romania
- Russia
- Rwanda
- Saint Barthélemy
- Trinidad and Tobago
- Tunisia
- Turkey
- Turkmenistan
- Turks and Caicos Islands
- Tuvalu
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- United States Minor Outlying Islands
- Uruguay
- US Virgin Islands
- Uzbekistan
- Vanuatu
- Vatican City
- Venezuela
- Vietnam
- Wallis and Futuna
- Western Sahara
- Yemen

- Czechia
- Lebanon
- Saint Helena  
Ascension and  
Tristan da  
Cunha
- Zambia
- Democratic  
Republic of the  
Congo
- Lesotho
- Saint Kitts and  
Nevis
- Zimbabwe
- Denmark
- Liberia
- Saint Lucia

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#### \* Contribution publication privacy settings

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## Part A. Planning and policy instruments

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### Decarbonisation of buildings

**Question 1.** The [long-term decarbonisation strategy](#) has introduced the concept of zero emission buildings by 2050, in view of achieving carbon neutrality in the long term. Do you agree that such a novel concept should be defined in the EPBD?

- Yes**
- No, it is not needed in the EPBD
- No opinion

If yes,

- It should include greenhouse gas emissions covering the whole life-cycle of buildings
- It should include minimum renewable energy share in buildings and city neighbourhoods
- It should refer to a timeline to gradually phase out fossil fuels, in particular for heating and cooling systems
- Other - please specify in comment box

\* Please specify:

*500 character(s) maximum*

Buildings can contribute to climate neutrality and their cost-effective decarbonisation can only be met by activating demand-side flexibility (DSF) potential of all their decentralised energy resources (e.g onsite RES generation, storage & demand response). Flexible buildings consume, generate and store carbon-neutral electricity in a smart/time-dependent way contributing to the efficiency of the local system they are connected to, while reducing carbon footprint and boosting consumer empowerment

**Question 2.** Long-Term Renovation Strategies (LTRS) set the vision, roadmap, concrete policy measures and actions, and dedicated financing mechanisms to decarbonise national building stocks by 2050. The [first 13 LTRS](#) submitted have been assessed by the Commission. Under the existing legal framework the LTRS are due every 10 years, with a possibility for updates as foreseen under the Governance Regulation.

Should the EPBD provisions on the Long Term Renovation Strategies be modified?

- Yes
- No

\* If yes, how?

*1000 character(s) maximum*

Currently Member States (MS) are only required to provide an overview of national initiatives promoting smart technologies and well-connected buildings (EPBD, Article 2a.1.(f)). As energy system integration is key for a successful energy transition, the revised EPBD should require that MS' LTRS include a roadmap of concrete policies and a timeline with clear milestones of actions to activate the DSF potential of buildings. In particular, plenty of 'non-dedicated assets' already installed in buildings, such as H&C systems and smart chargers, can become flexibility assets (200GW in 2020, as calculated by Delta-EE). They can provide flexible loads besides their primary purpose without requiring significant upfront costs. Such resources need to be activated and targeted first in the LTRS as low-hanging fruits of the flexibility potential. This activation would also enable end-users' active participation and empowerment in the clean energy transition while improving system efficiency.

**Question 3.** Should the monitoring of the objectives identified by MSs in their LTRS be strengthened?

- Yes
- No

If yes,

- Through a specific monitoring tool to be developed by the Commission
- By requiring a 5-year revision of the LTRS
- By developing a common template and requesting specific data and indicators, in order to make the information provided by Member States more comparable
- By requesting more data, especially on greenhouse gas emission effects, to allow assessing the contributions to the EU climate policy targets

- By linking the LTRS to other policies (heating and cooling, renewables, products, etc.)
- Other - please specify in comment box
- No opinion

\* Please specify:

*500 character(s) maximum*

The requested data should also cover the deployment and activation of the DSF potential of decentralised energy sources in buildings such as distributed renewable generation, demand-response and energy storage and smart charging points for electric vehicles. LTRS should be linked to EV strategies since charging occurs mostly in buildings' garage/parking lot. Thanks to digitalisation, actual performance data should be provided to complement information on building's theoretical potential.

**Question 4.** Which measures would you add in the EPBD to further support district and city authorities to increase energy efficiency in buildings and to accelerate the rate of replacement of boilers by carbon free ones based on renewable energy?

*1000 character(s) maximum*

Local authorities should acknowledge the potential of flexible buildings to increase local system efficiency, beyond the individual building level (e.g. seeking synergies between buildings with different yet complementary energy profiles). Targeted renovation plans need to be required based on enhanced EPCs with both climate and flexibility metrics, to boost smart building renovations, in particular of publicly owned buildings (public offices, schools & hospitals) and social housings to deploy DERs and/or activate the DSF potential (following end-user's consent) of existing non-dedicated assets. Turning buildings into flexible ones would optimize energy use and the load profile at Building/District/Communities (e.g. energy communities) level hence enabling a more efficient use of RES and limiting the use of fossil fuels at building and system level which would help cities to become net-zero carbon while cost-optimising network by offering non-wire alternatives to grid reinforcement.

#### **Resource efficiency and climate resilience in buildings renovation**

The European Green Deal points to energy and resource efficiency. Following this, the new [Circular Economy Action Plan \(CEAP\)](#) adopted in March 2020 acknowledges that reaching climate neutrality by 2050 requires highly energy and resource efficient buildings equipped with renewable energy, considering life cycle performance and a more efficient use of resources for building renovation and construction. The Renovation Wave equally sets our actions in this regard, such as the development of a 2050 whole life cycle performance roadmap to reduce carbon emissions from buildings.

**Question 5.** Do you think a revised EPBD should include measures to report on whole life-cycle carbon emissions from buildings (manufacturing and construction, use and end of life)?

- Yes
- No, the EPBD is not the right tool for this
- I don't know/ No opinion

If yes,

- For all buildings (new buildings and renovations)
- For all new buildings
- For renovations only
- For all new public buildings
- For renovations of public buildings only
- For a subset of private non-residential buildings such as shopping centres or datacenters
- The opportunity should be considered in the context of the revision evaluation mandated for 2026

Comment:

*500 character(s) maximum*

**Question 6.** Should the EPBD require that the likely impacts of climate change are taken into account in the planning of new buildings and major renovations?

- Yes
- No, the EPBD is not the right tool for this
- No opinion

If yes,

- For new private buildings (residential and non-residential)
- For new public buildings
- For private renovations
- For renovations of public buildings
- In the case of private buildings, only if they are above a certain size
- In case of private buildings, only for a subset of non-residential buildings such as offices or commercial buildings
- The opportunity should be considered in the context of the revision evaluation mandated for 2026

**Question 7.** As announced in the Renovation Wave, the Commission will develop a 2050 whole life-cycle performance roadmap<sup>1</sup> to reduce carbon emissions from buildings and advancing national benchmarking with Member States. How do you

think the EPBD could contribute to this roadmap?

1000 character(s) maximum

The whole life-cycle performance roadmap to reduce carbon emissions from buildings should be a voluntary evolution to recognize the importance of improving the operation of buildings as it represents an important share in a building's carbon footprint. This includes reducing CO2 emissions from their energy use by activating their demand-side flexibility potential on a voluntary and consented basis. The deployment of smart technologies and digital processes (e.g. BIM/digital twin) would also facilitate whole life-cycle performance monitoring, analysis and optimization.

<sup>1</sup>The Roadmap is one of the actions foreseen in the Renovation Wave Communication (COM(2020) 662 final) to make the construction ecosystem fit to deliver sustainable renovation.

### Nearly zero-energy buildings (NZEB)

**Question 8.** The EPBD requires all new buildings from 2021 (public buildings from 2019) to be nearly zero-energy buildings (NZEB). According to [Article 2](#) "nearly zero-energy building" means a building that has a very high energy performance, as determined in accordance with Annex I. The nearly zero or very low amount of energy required should be covered to a very significant extent from renewable sources, including sources produced on-site or nearby. Do you think that the current definitions for NZEBs are ambitious enough to contribute towards a fully decarbonised building stock?

- Yes, the current definition is ambitious enough
- No
- No opinion

If no,

- The current definition should be updated to put clear limits to energy use and minimum levels of renewables and incorporate green-house gas emissions targets
- The current definition should be replaced by a definition of "zero emissions buildings"
- Other - please specify in comment box

\* Please specify:

500 character(s) maximum

The NZEB scope should be expanded. Looking at the individual building energy performance does not reflect the evolution promoted by the ESI Strategy of buildings as integrated assets in the energy system. The NZEB requirement should consider also the building contribution to local system efficiency. This will support a more decentralised energy system where buildings consume/store/produce energy

in a flexible way, also in reaction to external signals from the system they are connected to.

**Question 9.** Numeric thresholds or ranges for NZEBs are not defined in the EPBD. While this allows Member States to set their NZEB levels taking into account their national context, it also results in widely differing definitions from country to country. Is a more harmonised definition of NZEB necessary?

- Yes
- No, it is not necessary
- I don't know/ No opinion

If yes,

- Minimum thresholds for primary energy use in the building's operation should be defined in the EPBD for different climate zones
- Minimum renewable energy sources share should be introduced in the EPBD for different climate zones
- Both minimum thresholds for primary energy use and renewable energy sources share in the building's operation should be introduced in the EPBD for different climate zones
- Life-cycle greenhouse-gas performance should also be included
- Other - please specify in comment box

\* Please specify:

*500 character(s) maximum*

Expanding the NZEB scope to ensure buildings are flexible assets implies relying on an additional set of metrics & data such as the carbon footprint of a building and its DSF potential. Minimum thresholds for RES & GHG emission from final energy use should be included, as well as for DSF, reflecting the ability of the end-user to consume/produce/store clean energy at the right time, increasing the overall system efficiency. Hence, the NZEB definition should be linked to the new set of MEPS/MMR.

### Deeper building renovations

**Question 10.** Deep renovation is understood to be a renovation that should generate at least 60% energy savings, whether carried out in a single stage or in a number of staged renovations. In your view, would it be beneficial to provide a legal definition of "deep renovation" in the EPBD?

- Yes
- No, a definition would add further complexity
-

I don't know/ No opinion

If yes,

- The definition should relate to energy savings only
- The definition should relate to energy savings also expressed in terms of greenhouse gas emissions related to the use of energy
- The definition should relate to both operational and embodied greenhouse gas emissions covering emissions from the full life-cycle of buildings
- The definition should cover broader aspects that have an impact on the quality of renovations, such as health and environmental standards, accessibility for persons with disabilities, climate resilience or others - please specify in comment box
- Other - please specify in comment box

\* Other broad aspects? Please specify:

*500 character(s) maximum*

'Deep renovations' should relate to fully integrated renovations that stimulate the flexible consumption of clean electricity, both from the grid & produced on-site, to increase the carbon performance of individual buildings & the system as a whole. Hence, the revised definition should consider the reduced CO2 emissions following the activation of the consented demand-side flexibility of buildings, energy efficiency measures and increased penetration of renewables in heating & charging.

\* Please specify:

*500 character(s) maximum*

'Deep renovations' must not only lead to on-site optimisation of energy consumption, but also contribute to unleash the DSF of buildings to increase (local) system efficiency and CO2 reductions. The definition of a deep renovation should reflect consented DSF activation of non-dedicated assets & the deployment of smart meters, smart appliances, smart chargers, BEMS and other digital & decentralised assets, that would enable the end-user to consume, produce & store clean energy at the right time.

### **Mandatory minimum energy performance standards ('MEPS')**

Mandatory renovation/minimum performance requirements are one of the most impactful measures for increasing the rate of building renovation and have already been explored and implemented in some Member States. Their aim is to firm up investors' expectations by setting a path for the improvement of the energy performance of different classes of buildings thus gradually increasing the average performance of the national building stock. Mandatory renovation/minimum performance requirements could be introduced progressively and target specific segments as a priority.

**Question 11.** In your opinion, should the EPBD introduce mandatory minimum energy performance standards to be applied in the EU, subject to specific

conditions to be determined?

- Yes
- No
- I don't know/ No opinion

Please explain your answer:

*1000 character(s) maximum*

Mandatory minimum energy performance standards (MEPS) should set Minimum Mandatory Requirements (MMR) contributing to the rate and depth of renovations. MEPS should support massive increase in building renovation rate and set a clear path towards measures enabling all new and renovated buildings to electrify efficiently and interact with the system through the deployment of decentralised energy resources (DERs) providing flexibility. MEPS should ensure that buildings can become integral part of the energy system by activating their distributed flexibility in line with the Energy System Integration Strategy. In this light, they should set minimum standards for: 1) primary and final energy performance of buildings; 2) CO2 emissions; 3) Digitalisation requirements enabling DSF (i.e.. presence of smart meters and EMS interoperable with the grid) and links with national DSF 10% peak demand reduction target.

**Question 12.** What type of minimum energy performance standards do you consider most appropriate?

- Building-level performance standards, focusing on the overall energy efficiency of the building (for example linked to an Energy Performance Certificates ('EPC') class or the energy codes, specific energy consumption, another carbon metric, etc.)
- Building element-level performance standards, setting specific minimum levels of building elements (for the envelope and/or the technical building systems including heating and cooling)
- Minimum quality standards, including also other aspects beyond energy performance, such as thermal comfort - please specify in comment box
- Others - please specify in comment box
- I don't know / No opinion

\* Please specify:

*500 character(s) maximum*

A recent study from GdW (Germany) shows that building renovation measures aiming at mere efficiency improvements did not achieve the expected results due to a rebound effect in consumption patterns resulting in similar energy consumption levels in buildings despite major/costly renovations. Hence, MEPS should look beyond the reduction in energy consumption by striving for GHG emission reduction with clear milestones and actions to allow for the activation of buildings' demand-side flexibility.

Please explain your answer:

1500 character(s) maximum

In order to reach system efficiency and to valorise buildings as decentralised energy resources, MEPS should cover Mandatory Minimum Requirements (MMR) to unlock the demand-side flexibility of buildings based on end-user consent, as well as for the building's primary and final energy consumption and CO2 emissions. These metrics should be reflected in EPCs to ensure consistency and provide actual performance information. MMRs should specify how to activate the distributed flexibility of buildings to contribute to their reduced carbon footprint – not only reducing the total amount of energy consumed, but also enabling the maximization of the consumption of renewables. This would give a clear signal to end-users and investors on how to increase the system efficiency through demand-side flexibility in buildings while reducing their carbon footprint. Specific eligible actions should be contemplated such as mandating in all new and renovated buildings from 2025 Energy Management Systems (EMS) interoperable with the grid that would allow automated flexibility. Increased self-consumption also in reaction to external signals, through the installation and operation of PV and storage systems, which contributes positively to the reduction of CO2 and system efficiency, should be taken into account in the calculation of the building energy performance.

**Question 13.** In your view, for which category of buildings should mandatory minimum energy performance standards be applied?

at most 2 choice(s)

- All residential and non-residential buildings
- All residential buildings being sold and/or rented out
- All residential buildings
- A subset of residential buildings to be defined (please specify in comment box)
- All non-residential buildings
- All non-residential buildings being sold and/or rented out
- A subset of non-residential buildings to be defined (please specify in comment box)
- All public buildings (with a total floor area of more than 250 m2)
- Only to worst-performing buildings irrespective of their ownership and use profile
- Other (please specify in comment box)
- I don't know / No opinion

\* Please specify subset of residential buildings:

500 character(s) maximum

\* Please specify subset of non-residential buildings:

500 character(s) maximum

Non-residential buildings in the EU make 32% of the final energy use in buildings/13% of total CO2 emissions. Private non-residential buildings have a higher decarbonisation potential compared to residential ones for the same level of investment. Mandatory milestones through MMRs targeting non-residential buildings as a first-mover would therefore give a push to the decarbonisation of tertiary buildings. The French Tertiary Decree setting clear milestones by 2050 should be used as a benchmark.

\* Other? Please specify:

500 character(s) maximum

**Question 14.** Do you think that mandatory minimum energy performance standards should be introduced:

- Yes
- No, I don't believe that mandatory minimum standards are appropriate
- I don't know / No opinion

If yes,

- Linked to specific moments in the life cycle of a building, for example a transaction (e.g. the sale, rental or lease of a building)
- On the basis of a timetable for a staged approach to achieve specific energyperformance levels
- Other - please specify in the comment box

\* Please specify:

500 character(s) maximum

MMRs for smart and flexible buildings should help contribute to the achievement of the 10% peak reduction binding national target in 2030 that each Member State should set to valorise the contribution of demand-side flexibility for a cost-efficient and renewables-based energy system. Therefore, MMRs on the demand-side flexibility of a building should be made mandatory.

**Question 15.** In your view, what are the most important elements that could guarantee a successful roll-out of mandatory minimum energy performance standards?

- The availability of financial support to buildings owners
-

The correct identification of the worst-performing buildings

The presence of a stable legal framework

The availability of adequate workforce capacity to do renovations

- The availability of emerging technologies facilitating rapid renovation works
- Other - please specify in comment box
- I don't know / No opinion

\* Please specify:

*500 character(s) maximum*

MEPS must be defined in a transparent way based on a stable legal framework enabling demand-side flexibility and relying on the contribution of all digital and decentralised energy resources (DERs) (e.g. distributed resources, BACS, BEMS, smart controllers, V1B/V2B) and data driven energy services (e.g. demand-response aggregators) needed to activate the demand-side flexibility potential of buildings – once consented by the end-user.

#### Public buildings

**Question 16.** In your view, which of the following regulatory measures should be envisaged to increase the rate and depth of renovation of public buildings in a sustainable manner?

- Introduction of more stringent minimum energy performance requirements for renovation of public buildings
- Introduction of minimum energy performance standards in public buildings, with an obligation to achieve progressively more ambitious levels
- Introduction of life cycle aspects in the design, construction and operation of refurbished public buildings (e.g. circular approaches like extension of service life, adaptability and flexibility, reuse and recycling of materials)
- Introduction of climate resilience aspects in the design and operation of new and refurbished public buildings
- Other - please specify in comment box
- I don't know / No opinion

\* Please specify:

*500 character(s) maximum*

While the focus on public building is important in leading the way, the EPBD should nonetheless target in priority residential and commercial buildings since they represent a significant source of flexibility supporting the decarbonisation of the energy system. It is also where occupants, when opting in, can fully reap the concrete benefits of flexible buildings, such as reduced energy bills and better living/working conditions thanks to

**the digitalisation and automation of the building.**

**Electromobility**

**Question 17.** The provisions on electromobility in Article 8 of the EPBD targeting the installation of recharging points in car parks adjacent to buildings were recently introduced. With the strengthened climate ambition and the increased incentives towards the uptake of electric cars but also with the strong increase in (electric) bike /cargo-bike use, do you think there is a need to strengthen the requirements?

	Yes	No	I don't know/ No opinion
For new residential buildings	X		
For refurbished buildings	X		
For new non-residential buildings	X		
For refurbished non-residential buildings	X		

**Question 18.** In your view, what kind of requirement would be needed?

	Yes	No	I don't know/ No opinion
The installation of recharging points to support smart charging, allowing to monitor, control and optimise energy usage when recharging electric vehicles	X		
The inclusion of provisions for recharging points for vehicles other than cars (e.g. e-bikes)			X
To give owners of an apartment in multi-dwelling buildings the right to install a recharging point for their parking spot in the shared parking garage (right to plug)	X		

Other measures? Please specify:

*500 character(s) maximum*

Smart charging is key to cope with growing electricity demand from EVs & for EV integration with buildings/power system as DERs. EV charging in all new/renovated multi-family/non-residential buildings should have 'smart-ready' charging capabilities able to communicate w/ the grid & building (e.g. BEMS). This might also include V2B/H when there is on-site PV & self-consumption. When installed in current buildings, new chargers should also be made smart-ready even though no major renovation occurs

**Question 19.** Are you aware of administrative barriers preventing the deployment of charging points in buildings in your country?

- Yes
-

No

\* If yes, please elaborate:

*1000 character(s) maximum*

Several administrative barriers prevent the deployment of smart chargers, such as double taxation, complex connection process, barriers to feed energy back to the grid, barriers to use flexible assets behind the meter or no 'right to plug', etc. The 'right-to-plug' shall be applied while costs and schedules being controlled. Costly and inefficient individual charging points with their own grid connection and meter are still favored although centralised and coordinated smart charging installations is more cost-efficient. Other barriers, such as non-discrimination between charging payment methods would also need to be tackled. Financial incentives to smart charging should be supported, building on the positive examples based on capacity payments in FR, UK or FI. Requiring the share of building flexibility achieved with smart charging to be proportionate to the share of EV chargers should also be considered to support the quantification of the building carbon footprint.

## Part B. Information provision and energy performance certificates

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### Energy performance certificates (EPCs)

Energy performance certificates (EPCs) is an instrument aimed at informing building owners, tenants and users about the cost of heating and cooling, savings that investments would bring and offer benchmarks to compare similar buildings. EPCs are also needed to link preferential financing conditions to quality renovations. Under the existing EU regulatory framework, EPCs are compulsory for buildings being built, sold or rented and the energy class of the EPC must also be shown in advertisement media. They are also compulsory for buildings over 250 m<sup>2</sup> occupied by a public authority and frequently visited by the public. EPCs can also be used to plan policy or to monitor the performance of measures when these are implemented. However, the coverage of such certificates strongly differs across Member States.

**Question 20.** Do you agree that the framework for Energy Performance Certificates should be updated and their quality improved?

- Yes
- No, it's not necessary
- Other - please specify in the comment box
- I don't know / No opinion

\* Please specify:

*500 character(s) maximum*

EPCs should provide information on building's actual energy performance to reflect the actual performance requested by MEPS, including the carbon footprint, final & primary energy consumption & demand-side flexibility. It should integrate recommendations on how to improve, integrating key features of BRPs and rely on digital assets providing accessible real-time data such as BEMS, integrating key features of the Digital Building Logbook. Key is to avoid multiplication of tools.

**Question 21.** Is harmonization of EPCs needed to accelerate the increase of building performance and how can it be achieved?

- Yes, it is needed and can be achieved by introducing a common template
- Yes, it is needed and can be achieved by other means - please specify in comment box
- Yes, it is needed but some national specification should be retained - please specify in comment box
- No, harmonisation is not needed
- I don't know / No opinion

\* Other means? Please specify:

*1500 character(s) maximum*

To trigger a genuine renovation wave across Europe, harmonisation of EPCs is needed in terms of scope, quality and availability of information and implementation process, while ensuring sufficient flexibility to cater for each Member State's specificities. EPCs need to provide reliable and accurate building-related information to occupants and third parties. This should be based on smart and accurate data (disclosed intentionally and freely by the user) that reflect the actual carbon footprint and DSF of a building. Upon user's consent, these data should be made easily accessible across MS and allow for comparability with similar buildings, supporting the development of a clear EU market. Good practices should be taken from countries which have a well-designed EPC framework that gathers public support and contribute to the uptake of building renovations. To reach this goal, the activation of the flex potential of all installed DERs in buildings (incl. on-site RES, DR and storage) should be fully recognized in the actual EPC.

\* National specifications? Please specify:

*500 character(s) maximum*

Please explain your choice:

*500 character(s) maximum*

DSF & smart data usage are not covered in current EPC framework which should be expanded to reflect the CO2 footprint of a building & include actual performance metrics to support their carbon neutrality. Based on the contribution of all installed DERs, the quantification of both actual CO2 & DSF performance of a building would provide a more accurate information, empowering end-users, rather than providing a theoretical energy performance figure.

**Question 22.** How would you rate the following elements in order to improve the

## quality and impact of EPC requirements?

0 – No opinion

1 – Not important

2 – Of little importance

3 – Moderately important

4 – Important

5 – Very important

	0	1	2	3	4	5
Improve training for independent experts				X		
Develop professional qualification schemes or labels for installers of technical buildings systems					X	
Improve quality control mechanisms						X
Include further information on estimated costs, energy savings or cost savings						X
Include information on non-financial benefits such as increased comfort and climate resilience					X	
Tailor the recommendations towards deep renovations					X	

Develop an accessible EPC database with further information on the EPC, explanation of the different terms, benchmarks and comparison with similar buildings						X
Increase the number of mandatory indicators to include: greenhouse gas emissions, generation of renewable energy, breakdown of different energy uses (e.g. heating, ventilation, lighting, etc.) or type of systems installed						X
Increase the interoperability with other tools such as digital building logbooks, SRIs and renovation passports.						X

## Comment:

500 character(s) maximum

The new EPC framework should be transparent, providing accurate data to buildings occupants and to third parties. To avoid multiplication of tools, EPC should also integrate key elements of Building Renovation Passports, SRI and Building Digital Logbooks. SRIs should become a mandatory part of EPC, at least for large non-residential buildings in line with art. 14 and 15 of the current EPBD. The impact of EV charging should also be considered.

## Question 23. Which elements are the most important to ensure compliance with EPC requirements?

at most 3 choice(s)

- Provision of detailed guidelines for EPC (including use of visual identity, common logo, recommended indicators)
- More stringent penalties in case of non-compliance, for instance in relation to the advertisement of sales or rent of buildings
- Extend liability to all the market actors involved in the selling/renting of properties
- Making EPCs mandatory to access any financial incentive targeting buildings renovations
- Accessible EPC database with benchmarks allowing comparison with similar buildings
- Introduce information flow and cross-checks between EPC databases and other databases containing information on buildings or products (e.g. national building registry or cadastre, energy labelling database for products, digital building logbooks, other national statistics, etc.)
- Other measures - please specify in comment box

## \* Please specify:

500 character(s) maximum

EPC framework should be harmonized to allow for a clear EU market and comparability.

Third parties and service providers should access the EPC database which should be part of a data exchange platform. EPC information should support other policies (e.g. TEN-E), to valorise the demand-side flexibility potential of buildings as non-wire alternatives to grid reinforcements. EPC should be seen as a level of outcome performance mandatory to access financial incentive targeting buildings renovations.

### Smartness of buildings and wider modernization

**Question 24.** The objective of the Building Renovation Passport (BRP) is to provide a long-term, step-by-step renovation roadmap for a specific building based on quality criteria, following an energy audit, and outlining relevant measures and renovations that could improve the energy performance and the quality of the building. The BRP schemes and initiatives in the EU are diverse and most of them have not reached their full potential, while some are still at the research phase.

Which measures do you think could best support the uptake of a building renovation passport?

*at most 3 choice(s)*

- Guidelines and best practice exchange on how the BRP can support the objectives of the Long Term Renovation Strategy
- National/regional communication campaigns to increase awareness of the BRPs
- Training of energy experts
- Making funds, such as the European Energy Efficiency Fund or ELENA, available to the Member States for BRP development and implementation
- Guidelines on how to support and enable banks to offer a favourable interest rate on loans/mortgages which are linked to a BRP
- Legal requirement to be introduced in the EPBD review for the Commission to develop a common template for BRPs
- Legal requirement to be introduced in the EPBD review for the Commission to develop a voluntary BRP scheme
- Legal requirement to be introduced in the EPBD review stating that BRP becomes mandatory for certain building types (replicating the EPC regulations, buildings for sale, etc.) after 2030.
- No measure is necessary
- Other - please specify in comment box
- I don't know / No opinion

\* Other? Please specify:

*500 character(s) maximum*

The EPBD should mandate the integration of key features of BRPs in the EPCs in order to document the renovation roadmap to carbon neutrality of a specific building especially when the need for renovation has been identified. This will avoid the multiplication of tools and simplify access to information for end-users. It will also support the uptake of BRPs making sure that they are available to all consumers as a way of empowering them.

**Question 25.** The Commission has created a uniform scheme for Smart Readiness Indicators in the EU. The scheme is currently voluntary, and has the potential to promote the digitalisation of buildings and the role that buildings can play in smart sector integration.

What would you consider to be the best ways in which the Smart Readiness Indicator could support the role of buildings in smart sector integration?

- Continue with the current framework and focus on its implementation on a voluntary basis
- Introduce SRI as mandatory requirement for non-residential buildings
- Introduce SRI as mandatory requirement for all new buildings
- Introduce SRI as mandatory requirement for all buildings
- Support the development of links between the SRI and other schemes (e.g. EPCs, building renovation passports, building logbooks, etc.)
- Other - please specify in comment box
- I don't know / No opinion

\* Please specify:

*500 character(s) maximum*

Introducing SRIs is key to support smart building development and raise awareness of building tenants. Consistent implementation of the approved SRI scheme across the EU is needed also linked with other schemes (EPCs, BRPs, Building Logbook) to avoid confusion. SRI is the best tool available until now to at least provide qualitative information on the building's demand-side flexibility potential. SRIs should become mandatory part of the EPC at least for large non-residential buildings.

**Question 26.** Do you think that the EPBD can contribute in making a wider range of building-related data on the energy performance of a building and its related construction and renovation works, across its life cycle, available and accessible? (note: building related data can come from a variety of sources: SRI, logbook and EPCs, Level(s), grant schemes, building permits, digital models)

- Yes
- No
- No opinion

Please explain your answer:

*1000 character(s) maximum*

Building-related data can come directly from buildings, also real-time. Smart meters, sub-meters, sensors, interoperable Building Energy Management Systems communicating with all energy assets in a building, when creating economic value in providing demand-side flexibility are a source of data that should be valorised. However, user behaviour data from appliances shall not be used without consent of the user. EPC, SRI and other tools provide theoretical information which does not fully grasp the potential of digitalization.

The EPBD revision should be aligned with efforts carried out by DG CNECT to develop common energy data spaces and data exchange platforms to enable end-users and third parties (on the basis of an explicit consent by end-users) to know their actual energy performance and carbon footprint.

### Part 3. Enabling more accessible and affordable financing for building renovation

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**Question 27.** The Renovation Wave Communication identify the need of sensible additional investments in building renovation in order to double the yearly renovation rate across Europe, decarbonise the building stock and achieve 2030 energy efficiency targets. Public financing alone will not be enough to achieve these objectives; it will be seminal to enable more accessible and affordable private financing options for building renovation. How would you rate the following possible forms of support to renovations?

- 0 – No opinion
- 1 – Not important
- 2 – Of little importance
- 3 – Moderately important
- 4 – Important
- 5 – Very important

	0	1	2	3	4	5
Public guarantee for commercial banks to offer low-interest loans for renovation of worst performing buildings				X		

Direct grants support to low-income citizens living on worst performing buildings				X		
ESCOs financing of low-interest loans payback through on-bill recovery				X		
Tax incentives during a period of time to provide additional economic support						X
One stop shops for all types of renovation advice						X
Support the development of energy efficiency mortgages and other innovative financing options that will enable private financing institutions to offer low-interest loans based on the improvements of energy performance of buildings or on building renovation passports						X
Technical assistance facilities supporting the development of building renovation project for the building stock of local and regional authorities				X		

Other kind of support? Please specify:

*500 character(s) maximum*

Another type of support that should be considered is the extension of district heating principles to cover district electricity, i.e. community energy social enterprises that own and maintain energy assets would be able to lease these assets to occupiers and compete their operation out to utilities.

**Question 28.** Deep renovations do not always result in a rapid return on investment. In your opinion, how public financial incentives can be used to stimulate deeper renovations across the EU?

*1000 character(s) maximum*

To accelerate return on investment, deep renovation should not only focus on efficiency improvements, but integrate also investments to unleash the distributed flexibility potential, improving the overall energy system efficiency and reducing GHG emissions.

Public financial incentives for renovation should support the deployment of decentralised energy resources and the activation of demand-side flexibility accelerating the shift to active and flexible buildings. The

benefits of active buildings are manifold: affordability of such homes both by reducing energy costs and reducing rent/mortgage costs through reduced construction costs, increase of the payback by reducing energy and infrastructure costs, and revenues streams from the participation to different electricity markets and capacity mechanisms.

**Question 29.** Do you think that funding support to renovations should be linked to the depth of renovation?

- Yes
- No, it is not necessary
- I don't know / No opinion

If yes,

- The intensity of funding should depend on the depth of renovations based on the Energy Performance Certificates ('EPC') class achieved
- All public funding scheme for private building renovation should consider a mandatory minimum requirement of at least 60% energy savings
- All public funding scheme for private building renovation should consider a mandatory minimum requirement of at least 30% energy savings
- Other - please specify in the comment box

If no,

- It is not necessary, deeper renovation will result in greater savings on the energy bills, the market will regulate itself and adjust in the most cost-efficient way
- Other - please spell out in the comment box

\* Please specify:

*500 character(s) maximum*

Funding support should look beyond the depth of renovation and energy savings and support the integration of buildings in the energy system, its interaction with the grid and other end-use sectors such as transport (e.g. EVs). Therefore, funding schemes should support the production, storage and consumption of renewables as well as the installation of smart energy devices, such as Building Energy Management Systems, smart charging and/or smart meters, enabling the flexibility of buildings.

**Question 30.** In your view, which of the following measures would help to further support the renovation of public buildings?

- Technical assistance for public authorities (national, regional, local) to

design and implement comprehensive renovation programmes (ELENA model), including linkages other related climate-resilience policies in urban and rural areas

- Enhanced deployment and capacity building for energy performance contracting in the public sector (including accounting rules)
- Financial incentives to support companies providing energy performance contracting
- Public-private partnerships to inform and assist efforts of public authorities for building renovation and ease access to financing
- Framework contracts at national, regional or local level with the specific objective of renovating public buildings
- Other measures - please specify in comment box
- I don't know/ No opinion

\* Please specify:

1500 character(s) maximum

Regulations surrounding private/public partnerships for sustainable funding regimes should be reviewed and simplified. In particular, procurement competitions should be examined with a view to encouraging innovation and transferring specification risk to contractors.

Different smart financing schemes already exist and should be supported through an enabling framework. New business models, as Distributed Energy Service Company schemes (DESCo), should be promoted; this type of company could be set up as part of a new development or renovation scheme. They could also provide the opportunity to implement new sustainable circular investment schemes whereby companies lease assets to consumers and have the responsibility for refurbishing them at the end of life.

**Question 31.** As part of their Long-Term Renovation Strategies (LTRS), Member States must outline relevant national measures to reduce energy poverty. The Renovation Wave Communication indicates a number of measures to tackle energy poverty and renovate worst-performing buildings, including social housing. It also states that vulnerable households must be shielded from rent increases that may follow renovations. What do you think are the most important policy areas addressing energy poverty to be further reinforced?

at most 3 choice(s)

- Targeted financial support for lower and middle income households
- Minimum energy performance standards coupled with financing that limits

the monthly net expenditure of the inhabitants

Other additional legislative measures (please specify in the comment box)

- The Affordable Housing Initiative
- The Energy Poverty Observatory
- Other measures (please specify in the comment box)
- I don't know / No opinion

Other legislative measures? Please specify:

*500 character(s) maximum*

Other measures? Please specify:

*500 character(s) maximum*

Flexible buildings can contribute to addressing energy poverty by reducing electricity bills and rewarding participating consumers. Worst performing buildings have a significant demand-side flexibility potential that can be untapped through building renovation. Targeted measures to activate demand-side flexibility in worst-performing buildings will also ensure that there is no 'prosumer divide' and that vulnerable consumers are not left behind but empowered to participate in the energy system.

Further comments

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**Question 32.** Do you have any further comments on policy aspects relevant for the decarbonisation of building which are not covered above?

*1000 character(s) maximum*

Climate neutrality requires decarbonising the energy system from energy supply down to demand. Buildings represent 40% of the EU energy demand and better management of their electricity demand will support decarbonisation by optimising the use of clean electricity. Demand-side flexibility holds the key to this and must be at the core of the revision. Buildings must become flexible assets capable of interacting with the grid, its occupants, other buildings and assets as well as other sectors (e.g. transport with EVs). They must be automated and digitalised while producing/storing/consuming RES and clean energy. The EPBD revision is a unique opportunity to decarbonize energy demand by improving the energy performance of buildings not in an isolated way looking at the individual building level, but in a collective way where buildings are integral part of the energy system contributing to system efficiency.